III. INTERNATIONAL CANCER DAYS

CONGRESS BOOK

Sivas-TÜRKİYE

III. INTERNATIONAL CANCER DAYS

CONGRESS BOOK
OF

"III. INTERNATIONAL CANCER DAYS"

SİVAS CUMHURİYET UNIVERSITY
4 EYLÜL CULTURE CENTER

SİVAS-TÜRKİYE

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PANEL PROGRAM

Time	15.09.2022 Thursday
9.00-9.30 am	Opening

9.00-9.30 am	Panel 1: Opening panel
	    1. Epidemiology of lung cancer: Gül Ergör
	    2. The historical adventure at surgery of lung cancer and actual situation: Erdal Yekeler
	    3. From the bench to clinic at lung cancer: Saadettin Kılıçkap

	Lunch break

14.00-15.30 pm	Panel 2: Diagnosis
	    1. The moleculer variation of lung cancer's today and tomorrow: Büge Öz
	    2. Target spesific nuclear medicine imaging at lung cancer: Umut Elboğa
	    3. Radiologic imaging at lung cancer: Cesur Gümüş (Online)
	Link: https://zoom.us/j/95377856898?pwd=eVFIRTNPQ29qa0lhVmNqTUJLcmZPQT09
	Meeting ID: 953 7785 6898

15.30-15.45 pm	Break

15.45-17.15 pm	Panel 3: Lung surgery/Lung disases
	    1. Approach to lung nodules: Nuri Tutar
	    2. Covid 19 pandemic and lung cancer: Talat Kılıç (Online)
	    3. Approachs at early stage lung cancer: robotic and VATS thoracotomy:
	    Lung surgery: Kuthan Kavaklı
	Link: https://zoom.us/j/92396058194?pwd=YVBHa0NOZE9OY2hYb1NqWStFcUZRQT09
	Meeting ID: 923 9605 8194

	Oral presentations
16.09.2022 Friday	

9.00-10.30 am	Panel 4: Treatment at local disease
	    1. Role of radiotherapy at local and local-advance lung cancer: Deniz Yalman (Online)
	    2. Neoadjuvant treatments at lung cancer: Ayşe Ocak Duran (Online)
	    3. Difficulty of surgery at lung cancer after the neoadjuvant treatments: Erdal Yekeler
	Link: https://zoom.us/j/94903099748?pwd=eUpWNU5IUzZSSnFlbExrTk5WcnVFQT09
	Meeting ID: 949 0309 9748

10.30-10.45 am	Break

10.45am-12.45 pm	Panel 5: Treatment at metastatic disease
	    1. Achievments with target spesific treatments at metastatic lung cancer: Oktay Bozkurt (Online)
	    2. Immunotherapies and them's scheduling at metastatic lung cancer: Nalan Akgün Babacan (Online)
	    3. Cranial radioterapy at metastatic lung cancer: Mete Gündoğ
	    4. Oncological treatment related cardiotoxcicity: İdris Buğra Çerik
	Link: https://zoom.us/j/94102711235?pwd=K0FGR1BFeEQyREVBYkx4QzkvLzB4UT09
	Meeting ID: 941 0271 1235

	Lunch break

14.00-15.30 pm	Panel 6: Pharmacy and engineering
	    1. Application of targeted drug carrier systems at lung cancer: Suna Erdoğan
	    2. Epoxyeicosatetraenoic asit metabolism and it's importance at lung cancer: İsmail Sarı
	    3. Cancer's early diagnosis by using bioanalytic approachs: Biomarkers: Halil İbrahim Ulusoy

15.30-15.40 pm	Coffee break

15.40-16.40 pm	Panel 7:
	    1. Utilization of artificial intelligence at health: Ahmet Gürkan Yüksek
	    2. The effects of minerals/clay at cancer occurance, diagnosis and treatment: Salih Yüksek

	Oral presentations
17.09.2022 Saturday	

9.00-10.30 am	Panel 8: Philosophy of cancer and sociology
	    1. The value of holistic approach to human in terms of antropological: Ali Taşkın
	    2. Smoke and lung cancer as a social problem: Vehbi Ünal
	    3. Psychosocial oncology at lung cancer: İshak Aydemir (Online)
	    4. A cancer case as a social phenomenon in complexity perspective: Talip Yiğit (Online)
	Link: https://zoom.us/j/95235240992?pwd=NExnVjM0elMzTWlTMFN3MStXK3g4UT09
	Meeting ID: 952 3524 0992

III. INTERNATIONAL CANCER DAYS

10.30-10.45 am	Break

10.45am-12.15 pm	Panel 9: Nursing
	    1. Cancer and spirit: Öznur Özdoğan (Online)
	    2. Sprituality in care of cancer patient: Özlem Uğur (Online)
	Link: https://zoom.us/j/98195912236?pwd=QlViYk5JUTQ3c2FZSVE4Wlh2em5iZz09
	Meeting ID: 981 9591 2236

ORAL PRESENTATION

ID	NAME SURNAME	PAPER NAME
1.	FATMANUR DALKILIÇ	INVESTIGATION OF CYTOTOXIC EFFECT OF HSP70 INHIBITOR JG-98 ON K562 CHRONIC MYELOID LEUKEMIA CELLS
2.	İLKAY YURTSEVER	NURSING CARE IN ADULT PATIENTS DIAGNOSED WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): A MODEL-BASED SYSTEMATIC APPROACH
3.	EDA ERDİŞ	DOES THE AGE OF THE PATIENT HAVE AN EFFECT ON CURATIVE RADIOTHERAPY TOXICITY?
4.	HANİFİ KEBİROĞLU	INVESTIGATION OF CINNAMATE MOLECULE AND ITS DERIVATIVES BY QUANTUM CHEMICAL METHODS
5.	SERKAN ÇELİKGÜN	INVESTIGATION OF CANCERS OCCURRED IN EMPLOYEE AT A UNIVERSITY HOSPITAL BETWEEN 2006-2022
6.	GÖRKEM B. KOYUN	PRIMARY LYMPHOMA OF LUNG WITH ATYPICAL PLACEMENT
7.	AYŞE SARI	THE RELATIONSHIP OF BREAST CANCER AND CONSUMPTION OF MILK AND DAIRY PRODUCTS
8.	OKTAY BULUR	THE RELATIONSHIP BETWEEN SEVERITY OF GASTRIC INFLAMMATION DUE TO HELICOBACTER PYLORI AND COLORECTAL MALIGNANCIES
9.	FATMA ÇOKTAŞ	SYNTHESIS, DFT CALCULATIONS, AND INVESTIGATIONS OF ANTICANCER PROPERTIES OF DIARYLUREA DERIVATIVE AGAINST GASTRIC CARCINOMA
10.	BİRSEN YÜCEL	FACTORS AFFECTING PERMANENT SENSORINEURAL HEARING LOSS IN PATIENTS RECEIVING RADIOTHERAPY TO THE HEAD AND NECK REGION
11.	EBRAR ILIMAN YALTAGIL	HOME EDUCATION SERVICES AND HOSPITAL SCHOOLS FOR CHILDREN WITH CANCER IN TURKEY
12.	AYSEL ARSLAN	SPIRITUAL COUNSELING FOR CANCER PATIENTS
13.	DİLAN ÇAKMAZ	SYNTHESIS, OF NEW DIARYL UREA-IMINE DERIVED COMPOUNDS, INVESTIGATION OF EFFICACY AGAINST BREAST CANCER BY IN SILICO AND IN VITRO METHODS
14.	MAHMUT UÇAR	PROGNOSTIC FACTORS IN PATIENTS WITH METASTATIC BREAST CANCER
15.	MUKADDES YILMAZ	ACUTE TOXICITY OF CURATIVE CHEMORADIOTHERAPY IN PATIENTS WITH COMORBID DISEASE
16.	MUKADDES YILMAZ	SURVIVAL RESULTS IN ELDERLY PATIENTS WITH HIGH-GRADE GLIAL TUMOR; SINGLE CENTER RESULTS
17.	HASAN BASRİ ŞAHİN	THERAPEUTIC EFFECT OF CRISPR/CAS9 SYSTEM IN CANCER TREATMENT
18.	FATİH ÇUBUK	MICROORGANISMS ISOLATED FROM BLOODSTREAM INFECTIONS IN CANCER PATIENTS AND THEIR RESISTANCE TO ANTIBIOTICS: TWO AND A HALF YEARS RETROSPECTIVE EVALUATION
19.	BUĞRA OKŞAŞOĞLU	CURRENT STATUS OF HPV VACCINES
20.	MAHMUT UÇAR	PARAMETERS ASSOCIATED WITH LOCAL RECURRENCE IN BREAST CANCER
22.	CANER ÖKSÜZ	PATIENTS WITH MALIGNITIS FOLLOW-UP WITH CANDIDEMIA IN A TURKISH TERTIARY HOSPITAL: TYPE AND RESISTANCE ANALYSIS
23.	MERYEM YAPRAK	INVESTIGATION OF THE ANTIPROLIFERATIVE EFFECT OF URIDINE ON SNU-1 CELL LINE
24.	ÇAĞLAR YILDIZ	ASSESSMENT OF GYNECOLOGICAL MALIGNITIES: A UNIVERSITY HOSPITAL EXPERIENCE
25.	ELANUR KARAMAN	EFFECT OF COVID-19 PANDEMIC ON PATIENTS UNDERGOING DEFINITIVE CHEMORADIOTHERAPY
26.	ŞÜKRÜ ATEŞ	EVALUATION OF THE ANTICARCINOGENIC EFFECT OF MELATONIN IN AN IN VITRO EHRLICH ASCITES TUMOR MODEL
27.	TUĞBA DEMİR	EXPOSURE ASSESSMENT AND CANCER RISK CHARACTERIZATION OF AFLATOXIN M1 THROUGH INGESTION OF INFANT FORMULA IN TÜRKIYE
28.	ELİF GÜNEY	STRUCTURAL, SPECTRAL, ANTIBACTERIAL AND ANTICANCER INVESTIGATIONS OF SYNTHESIZED ISOXAZOLE DERIVATIVES
29.	ŞEYMA NUR KARATAŞ	COMPARISON OF THE ACTIVITIES OF DIARYL UREA DERIVATIVES BY IN SILICO AND IN VITRO METHODS

30.	VESİM NASİF	COMPUTATIONAL CALCULATIONS AND MOLECULAR DOCKING ANALYSES OF IMIDAZOLE DERIVATIVES AGAINST MAPK1 IN LUNG CANCER
31.	MEHMET KARABUĞA	NANOTECHNOLOGY BASED RADIOSENSITIZERS FOR CANCER THERAPY
32.	HANDE HAYKIR	EVALUATION OF THE QUALITY OF LIFE OF CANCER PATIENTS IN TURKEY BY ARTIFICIAL INTELLIGENCE
33.	GONCA ŞİMŞEK	INVESTIGATION OF THE AFLATOXIN M1 PRESENCE IN RAW MILK CONSUMED IN SIVAS PROVINCE-TURKEY
34.	NEJMİYE AKKUŞ	BRCA1 AND BRCA2 GENE ANALYSIS RESULTS IN PATIENTS WITH BREAST/OVER CA DIAGNOSIS AND HEREDITARY RISK IN TOKAT REGION
35.	MUSTAFA GENÇ	IS BONE SCINTIGRAPHY NECESSARY FOR EACH PROSTATE CANCER PATIENT?
36.	NURDAN KOÇAK	DESIGN, SYNTHESIS, IN VITRO AND IN SILICO ANALYSES OF NICOTINAMIDE DERIVATIVES AGAINST GASTRIC CANCER
37.	SEVDA KOÇ	SPIRITUALITY IN CANCER PATIENTS
38.	ANIL ŞAHİN	CAN SYSTEMIC INFLAMMATORY INDEX PREDICT THE PRESENCE OF CANCER IN PATIENTS WITH PERICARDIAL EFFUSION?
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44.	HANDE Y. ÇETİNKAYA	ABDOMINAL TUBERCULOSIS MIMICKING MALIGNANCY: CASE REPORTS AND REVIEW OF THE LITERATURE
45.	SEYDAA AKIN	IN SILICO-BASED VACCINE DESIGN TARGETING EBV-ENCODED NUCLEAR ANTIGEN 1 (EBNA1)
46.	HAYRANİ E. BOSTANCI	INVESTIGATION OF ANTIPROLIFERATIVE EFFECT OF MALVA SYLVESTRIS EXTRACT ON BREAST CANCER AND ANTIOXIDANT PROPERTIES
47.	EZGİ AĞADAYI	EVALUATION OF THE ATTITUDES OF WOMEN LIVING IN SIVAS REGARDING CANCER SCREENING
48.	MUSTAFA S. KARATEPE	HISTOPATHOLOGIC AND DEMOGRAPHIC FEATURES OF EYELID TUMORS
49.	KÜBRA E. TÜRK	THE RELATIONSHIP BETWEEN SPOUSE SUPPORT AND BODY CATHEXİS SCALE IN MASTECTOMY PATIENTS
50.	KÜBRA E. TÜRK	DETERMINATION OF THE ANXIETY OF SURVIVORS WHO UNDERWENT BREAST SURGERY: A RETROSPECTIVE STUDY
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53.	VESİM NASIF	SYNTHESIS OF NOVEL CHROMENE DERIVATIVES AND DFT CALCULATIONS
54.	BİRSEN YÜCEL	THE EFFECT OF TUMOR MASS BONE METASTASIS ON SURVIVAL IN LUNG CANCER PATIENTS
55.	ALPASLAN ÖZTÜRK	DETERMINATION OF CYTOTOXIC EFFECT OF AMYGDALIN IN DLD-1 CELL LINE AND ANTICYTOTOXIC EFFECT IN CCD-18CO CELL LINE
56.	İHSAN OBALI	INVESTIGATION OF PARACETAMOL, PARABEN AMOUNTS IN SEPAL AND SEPAL STEMS OF *Diospyros kaki* FRUIT
57.	AHMET ALTUN	FORSKOLIN ENHANCES THE PACLITAXEL SENSITIVITY OF BREAST CANCER CELLS
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64.	ÖZHAN PAZARCI	A FOREQUARTER AMPUTATION AND NEGLECTED BONE METASTASIS

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87.	CEMİLE ZONTUL	EFFECTS OF SCHFF BASE CONTAINING MOLECULE ON *FOX* GENES FAMILY
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90.	ZUHAL TUNÇBİLEK	EFFECT OF CARBONITRILE-BASED COMPOUND ON OXIDATIVE STRESS RELATED GENES IN LUNG CANCER CELLS
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92.	SANEM NEMMEZI KARACA	COMPARISON OF HIGH-RISK HISTOLOGICAL FEATURES WITH TUMOR-RELATED VARIABLES IN CUTANEOUS MALIGNANT MELANOMA
93.	GÜLGÜN SEVİMLİGÜL	INVESTIGATION OF ONCOLOGY PATIENTS' ATTITUDES AND PRACTICES REGARDING COMPLEMENTARY AND ALTERNATIVE TREATMENT PRACTICES
94.	NİSA BEGÜM ÖZTÜRK	THE ROLE AND IMPORTANCE OF PERICARDIAL EFFUSIONS IN THE DIAGNOSIS OF MALIGNANCY
95.	MEHMET HAKAN GÜZEL	IN VITRO ANTIPROLIFERATIVE ACTIVITIES OF ROYAL JELLY COLLECTED FROM SIVAS IN HUMAN OVARIAN CANCER (SK-OV-3) CELL LINE
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115.	ZELİHA YELDA ÖZER	CROSS-SECTIONAL ANALYSIS OF PATIENTS UNDERGOING ONCOLOGICAL (18)F-FDG PET/CT SCAN
116.	DİLEK ANUK	THE IMPORTANCE OF PSYCHOTHERAPY IN ONCOLOGY PATIENTS: A CASE OF TRYPANOPHOBIA (FEAR OF NEEDLES)
117.	ZOBIDAH Y. E. YOUSIF	THE EXPRESSION OF KI67, COX2 AND INOS BIOMARKERS AMONG TRANSITIONAL CELL CARCINOMA SUDANESE PATIENTS AND ITS ASSOCIATION WITH SMOKING (2022)
118.	FIRDEVS KUZU	BREAST CANCER, HOME CARE AND TELE HEALTH
119.	SERDAR SAVAŞ GÜL	NEGATIVE EFFECT OF ORAL ANTIDIABETIC DRUG USE ON ONCOLOGICAL (18)F-FDG PET/CT SCAN

POSTER PRESENTATION

120.	İLKAY YURTSEVER	NURSING CARE IN ALL DIAGNOSIS ADULT PATIENTS ACCORDING TO GORDON'S MODEL OF FUNCTIONAL HEALTH PATTERNS: A CASE REPORT
121.	EDA SÖNMEZ GÜRER	HERBAL TREATMENT ALTERNATIVES IN BREAST CANCER
122.	MEHMET AKİF DOĞAN	THE EFFECTS OF AGENTS USED IN CHEMOTHERAPY AFTER TRANSURETHRAL RESECTION ON RECURRENCE AND PROGRESSION IN BLADDER TUMORS
123.	İHSAN OBALI	DETERMINATION OF PHENOLIC COMPOUNDS THAT MAY BE FOUND IN SEPAL AND SEPAL STEM OF *Diospyros kaki* TREE FRUITS BY HPLC ANALYSIS
124.	MEHMET ŞİMŞİR	SEM EVALUATION OF HYDROGEN PEROXIDE, AMMONIA AND HERBAL NATURAL PRODUCT USED FOR HAIR DYES IN COSMETIC *IN VITRO* ON HAIR MATERIALS
125.	ELİF GÜNEY	COMPUTATIONAL ANALYSIS OF SYNTHESIZED IMIDAZOLE DERIVATIVES AND ANTICANCER STUDIES

126.	ZEKİYE HASBEK	MOBILE PHONE USE AND THYROID CANCER
127.	GONCA KABAK	INVESTIGATION OF THE PROTECTIVE EFFECT OF VITAMIN D IN HYDROGEN PEROXIDE INDUCED BREAST CANCER CELL LINE
128.	ZEKİYE HASBEK	PROSTAT CANCER AND OBESITY
129.	Neşe KEKLİKCİOĞLU ÇAKMAK	TARGETED THERAPY FOR LUNG CANCER
130.	VESİM NASIF	INVESTIGATIONS OF ANTICANCER PROPERTIES OF TOW BF2 WITH INDOLE DERIVATIVES

ORAL PRESENTATION PROGRAM

15.09.2022 13:30 – 14:30 Hall 1 Session Chair PROF. DR. ZEYNEP SÜMER	**ID: 18** MICROORGANISMS ISOLATED FROM BLOODSTREAM INFECTIONS IN CANCER PATIENTS AND THEIR RESISTANCE TO ANTIBIOTICS: TWO AND A HALF YEARS RETROSPECTIVE EVALUATION **Author(s):** Ayşe Hümeyra TAŞKIN KAFA, <u>Fatih ÇUBUK</u>, Mürşit HASBEK, Rukiye ASLAN, Zeynep ÇUBUK
	ID: 19 CURRENT STATUS OF HPV VACCINES **Author(s):** <u>Buğra OKSASOĞLU</u>
	ID: 22 PATIENTS WITH MALIGNITIS FOLLOW-UP WITH CANDIDEMIA IN A TURKISH TERTIARY HOSPITAL: TYPE AND RESISTANCE ANALYSIS **Author(s):** <u>Caner Öksüz</u>, Fatih Çubuk, Mürşit Hasbek, Seyit Ali Büyüktuna
	ID: 44 ABDOMINAL TUBERCULOSIS MIMICKING MALIGNANCY: CASE REPORTS AND REVIEW OF THE LITERATURE **Author(s):** <u>Hande Yeşil Çetinkaya</u>, Begüm Kurt, Çağlar Yıldız, Sümeyra Alcalı, Vildan Kılıç
	ID: 45 IN SILICO-BASED VACCINE DESIGN TARGETING EBV-ENCODED NUCLEAR ANTIGEN 1 (EBNA1) **Author(s):** Bydaa Atron, <u>Seydaa Akın</u>

15.09.2022 13:30 – 14:30 Hall 2 Session Chair DOÇ. DR. ZEYNEP DENİZ ŞAHİN İNAN	**ID: 1** INVESTIGATION of CYTOTOXIC EFFECT of HSP70 INHIBITOR JG-98 on K562 CHRONIC MYELOID LEUKEMIA CELLS **Author(s):** <u>Fatmanur DALKILIÇ</u>, Nazan YURTCU, Mustafa ERGÜL
	ID: 4 INVESTIGATION OF CINNAMATE MOLECULE AND ITS DERIVATIVES BY QUANTUM CHEMICAL METHODS **Author(s):** <u>Hanifi Kebiroglu,</u> Ceylan Alkaya, Sultan Erkan, Niyazi Bulut
	ID: 23 INVESTIGATION OF THE ANTIPROLIFERATIVE EFFECT OF URIDINE ON SNU-1 CELL LINE **Author(s):** <u>Meryem Yaprak</u>, Ayşegül Öztürk, Bilal Şahin
	ID: 26 EVALUATION OF THE ANTICARCINOGENIC EFFECT OF MELATONIN IN AN IN VITRO EHRLICH ASCITES TUMOR MODEL **Author(s):** Seher Yılmaz, <u>Şükrü Ateş,</u> Züleyha Doğanyiğit
	ID: 42 APPROACHES TO CYTOTOXIC ACTIVITY STUDIES ON PLANT-BASED PRODUCTS AGAINST CANCER **Author(s):** <u>Kevser Taban Akça</u>, Esra Emerce, İpek Süntar
	ID: 43 INVESTIGATION OF THE ANTIPROLIFERATIVE EFFECT OF URIDINE ON MCF-7 CELL LINE **Author(s):** <u>Onur DURNA,</u> Feyza AKGÜL

15.09.2022 13:30 – 14:30 Hall 3 Session Chair DOÇ. DR. MUSTAFA ÖZKARACA	**ID: 68** THE CYTOTOXIC EFFECTIVENESS OF PROPOLIS SAMPLES FROM SIVAS PROVINCE ON SK-OV-3 CELL LINE **Author(s):** <u>Sena Nur IRKIN</u>, Nazan YURTCU, Adalet NAS, Sevgi DURNA DASTAN, Mehmet Hakan GUZEL
	ID: 71 DETERMINATION OF THE CYTOTOXIC EFFECT OF BEE BREAD (PERGA) IN HT-29 AND DLD-1 CELL LINES, AND ANTICYTOTOXIC EFFECT IN CCD-18Co CELL LINE **Author(s):** <u>Ece Avuloglu-Yilmaz</u>, Aybuke Afra Keskiner, Berna Kocaman, Alpaslan Oztürk, Ekrem Bolukbasi
	ID: 72 DETERMINATION OF THE CYTOTOXIC EFFECT OF ROYAL JELLY IN HT-29 AND DLD-1 CELL LINES, AND ANTICYTOTOXIC EFFECT IN CCD-18Co CELL LINE **Author(s):** <u>Aybuke Afra Keskiner,</u> Ece Avuloglu Yılmaz, Berna Kocaman, Alpaslan Oztürk, Ekrem Bolukbasi

15.09.2022 14:45 – 15:45 Hall 1 Session Chair PROF. DR. MEHTAP ERŞAN	**ID: 80** EVALUATION OF APOPTOTIC EFFECT OF PLK1 INHIBITOR RO3280 ON COLON CANCER CELLS **Author(s):** Mustafa Ergül, <u>Zıad Joha</u>
	ID: 84 IN VITRO ANTIOXIDANT AND ANTICANCER ACTIVITY OF GREEN AND BROWN MACROALGAE: *ULVA RIGIDA* AND *RUGULOPTERIX OKAMUREA* **Author(s):** <u>Khaoula Ben Galib,</u> Sevgi Durna Daştan, Noureddine El Mtili
	ID: 98 DETERMINATION OF IN VITRO CYTOTOXIC ACTIVITY OF PROPOLIS SAMPLES FROM SİVAS PROVINCE ON HUMAN BREAST CANCER CELL LINE **Author(s):** <u>Sümeyra BÜYÜKÇAMSARI,</u> Sevgi DURNA DAŞTAN
	ID: 31 NANOTECHNOLOGY BASED RADIOSENSITIZERS FOR CANCER THERAPY **Author(s):** <u>MEHMET KARABUĞA</u>
15.09.2022 14:45 – 15:45 Hall 2	**ID: 82** ANTICANCER ACTIVITY OF LAPATINIB IN GASTRIC CANCER IS INCREASED IN COMBINATION WITH NNC 55-0396 DIHYDROCHLORIDE **Author(s):** <u>Muhammed GÖMEÇ</u>
	ID: 89 USE OF BORON COMPOUNDS IN CANCER TREATMENT **Author(s):** <u>Sümeyye ÇINAR,</u> Neşe KEKLİKCİOĞLU ÇAKMAK

Session Chair DOÇ. DR. ESRA SÖZMEN	**ID: 96** IN VITRO ANTIPROLIFERATIVE ACTIVITIES OF ROYAL JELLY COLLECTED FROM SIVAS IN HUMAN OVARIAN CANCER (SK-OV-3) CELL LINE **Author(s):** <u>Mehmet Hakan GÜZEL</u>, Taner DAŞTAN, Sevgi DURNA DAŞTAN, Nazan YURTCU
	ID:91 EFFECT OF CARBONITRILE-BASED COMPOUND ON OXIDATIVE STRESS RELATED GENES IN LUNG CANCER CELLS **Author(s):** <u>Zuhal TUNÇBILEK,</u> Tuğba AĞBEKTAŞ, Ayça TAŞ, Burak TÜZÜN, Yavuz SİLİĞ

15.09.2022 14:45 – 15:45 Hall 3 Session Chair PROF. DR. MEHMET ŞENCAN	**ID: 5** INVESTIGATION OF CANCERS OCCURRED IN EMPLOYEE AT A UNIVERSITY HOSPITAL BETWEEN 2006-2022 **Author(s):** <u>Serkan Çelikgün,</u> Tülay Koç, Ş. Reyhan Uçku
	ID: 6 PRIMARY LYMPHOMA OF LUNG WITH ATYPICAL PLACEMENT **Author(s):** <u>Görkem Berna KOYUN</u>, Ömer Tamer DOĞAN
	ID: 15 ACUTE TOXICITY OF CURATIVE CHEMORADIOTHERAPY IN PATIENTS WITH COMORBID DISEASE **Author(s):** <u>Mukaddes Yılmaz</u>, Eda Erdiş, Mahmut Uçar, Birsen Yücel
	ID: 38 CAN SYSTEMIC INFLAMMATORY INDEX PREDICT THE PRESENCE OF CANCER IN PATIENTS WITH PERICARDIAL EFFUSION? **Author(s):** <u>Anil Sahin</u>, Emin Koyun, Ferhat Dindas, Idris Bugra Cerik
	ID: 41 QUANTITATIVE DIFFUSION-WEIGHTED MAGNETIC RESONANCE IMAGING OF BREAST CANCERS: THE RELATIONSHIP BETWEEN HISTOLOGICAL GRADE, RECEPTOR AND KI-67 PROLIFRATION **Author(s):** <u>Nisa BAŞPINAR</u>
	ID: 99 PAZOPANIB MONOTHERAPY IN HIGH GRADE ENDOMETRIAL STROMAL SARCOMA, A CASE REPORT AND LITERATURE REVIEW **Author(s):** <u>CELAL ALANDAĞ</u>
	ID: 35 IS BONE SCINTIGRAPHY NECESSARY FOR EACH PROSTATE CANCER PATIENT? **Author(s):** <u>Mustafa GENÇ</u>

16.09.2022 10:00 – 11:00 Hall 1 Session Chair DOÇ. DR. AHMET ALTUN	**ID: 3** DOES THE AGE OF THE PATIENT HAVE AN EFFECT ON CURATIVE RADIOTHERAPY TOXICITY? **Author(s):** <u>EDA ERDİŞ</u>, Mahmut UÇAR, Mukaddes YILMAZ, Birsen YUCEL
	ID: 11 HOME EDUCATION SERVICES AND HOSPITAL SCHOOLS FOR CHILDREN WITH CANCER IN TURKEY **Author(s):** Rukiye ASLAN, <u>Ebrar ILIMAN YALTAGIL</u>, Aysel ARSLAN
	ID: 14 PROGNOSTIC FACTORS IN PATIENTS WITH METASTATIC BREAST CANCER **Author(s):** <u>Mahmut Uçar,</u> Mukaddes Yılmaz, Eda Erdiş, Necla Demir, Celal Alandağ, Birsen Yücel
	ID: 47 EVALUATION OF THE ATTITUDES OF WOMEN LIVING IN SIVAS REGARDING CANCER SCREENING **Author(s):** <u>Ezgi Ağadayı,</u> Seher Karahan
	ID: 53 SYNTHESIS OF NOVEL CHROMENE DERIVATIVES AND DFT CALCULATIONS **Author(s):** <u>Vesim NASIF,</u> Hayreddin GEZEGEN

16.09.2022 10:00 – 11:00 Hall 2 Session Chair PROF. DR. ESAT KORGALI	**ID: 24** ASSESSMENT OF GYNECOLOGICAL MALIGNITIES: A UNIVERSITY HOSPITAL EXPERIENCE **Author(s):** <u>Cağlar YILDIZ</u>
	ID: 40 PATHOLOGICAL PROGNOSTIC FEATURES AND ANALYSIS OF RENAL CELL CARCINOMA **Author(s):** <u>Sena Öztürk</u>, Serkan Çelikgün, Neşe Yeldir
	ID: 54 THE EFFECT OF TUMOR MASS BONE METASTASIS ON SURVIVAL IN LUNG CANCER PATIENTS **Author(s):** <u>Birsen Yücel,</u> Zekiye Hasbek, Eda Erdiş, Bilge Öztoprak
	ID: 75 VASCULAR ACCESS IN CANCER PATIENTS FOR CHEMOTHERAPY **Author(s):** Vural <u>POLAT</u>
	ID: 81 RARE TYPE OF OVARIAN MALIGNANCIES: ADULT TYPE GRANULOSA CELL TUMOR **Author(s):** <u>Muazzez Isık Sönmez</u>, Vildan Kılıç, İrem Küçükyıldız

16.09.2022 10:00 – 11:00 Hall 3 Session Chair PROF. DR. HAVVA TEL	**ID: 7** THE RELATIONSHIP OF BREAST CANCER AND CONSUMPTION OF MILK AND DAIRY PRODUCTS **Author(s):** Eylül ÇİÇEKLİYURT, <u>Ayşe SARI</u>, Bahar TÜRKMENOĞLU
	ID: 37 Spirituality in Cancer Patients **Author(s):** <u>Sevda KOÇ</u>
	ID: 49 THE RELATIONSHIP BETWEEN SPOUSE SUPPORT AND BODY CATHEXİS SCALE IN MASTECTOMY PATIENTS **Author(s):** Ayşe Topal Hançer, <u>Kübra Erturhan Türk</u>
	ID: 50 DETERMINATION OF THE ANXIETY OF SURVIVORS WHO UNDERWENT BREAST SURGERY: A RETROSPECTİVE STUDY **Author(s):** Kübra <u>Erturhan Türk</u>, Pınar Yılmaz Eker
	ID: 58 DETERMINING THE NEEDS OF LUNG CANCER PATIENTS RECEIVING OUTPATIENT CHEMOTHERAPY TREATMENT

	Author(s): <u>Gülgün SEVİMLİGÜL,</u> Ayşe SARI, Sevcan ÖZKAN, Mahmut UÇAR

16.09.2022 11:15 – 12:15 Hall 1 Session Chair PROF. DR. HALİL İBRAHİM ULUSOY	**ID: 12** SPIRITUAL COUNSELING FOR CANCER PATIENTS **Author(s):** Rukiye ASLAN, Ebrar ILIMAN-YALTAGIL, <u>Aysel ARSLAN</u>
	ID: 27 EXPOSURE ASSESSMENT AND CANCER RISK CHARACTERIZATION OF AFLATOXIN M1 THROUGH INGESTION OF INFANT FORMULA IN TÜRKIYE **Author(s):** <u>Tuğba Demir,</u> Sema Ağaoğlu
	ID: 32 EVALUATION OF THE QUALITY OF LIFE OF CANCER PATIENTS IN TURKEY BY ARTIFICIAL INTELLIGENCE **Author(s):** Hande <u>Haykır,</u> Hanifi Kebiroglu
	ID: 33 INVESTIGATION OF THE AFLATOXIN M_1 PRESENCE IN RAW MILK CONSUMED IN SİVAS PROVINCE-TURKEY **Author(s):** Gonca <u>ŞİMŞEK,</u> Sema AĞAOĞLU
	ID: 34 BRCA1 AND BRCA2 GENE ANALYSIS RESULTS IN PATIENTS WITH BREAST/OVER CA DIAGNOSIS AND HEREDITARY RISK IN TOKAT REGION **Author(s):** <u>Nejmiye Akkuş</u>
	ID: 61 CANCER NEUROSCIENCE: CROSSTALK BETWEEN THE NERVOUS SYSTEM AND CANCER **Author(s):** <u>Sebahattin Karabulut</u>

16.09.2022 11:15 – 12:15 Hall 2 Session Chair PROF. DR. HATİCE ÖZER	**ID: 8** THE RELATIONSHIP BETWEEN SEVERITY OF GASTRIC INFLAMMATION DUE TO HELICOBACTER PYLORI AND COLORECTAL MALIGNANCIES **Author(s):** Merve Yıldırım, <u>Oktay Bulur</u>
	ID: 10 FACTORS AFFECTING PERMANENT SENSORINEURAL HEARING LOSS IN PATIENTS RECEIVING RADIOTHERAPY TO THE HEAD AND NECK REGION **Author(s):** <u>Birsen Yücel,</u> Eda Erdiş, Seher Bahar, Ebru Akkaş Atasever, Mustafa Gürol Celasun, Elif Emine Altun
	ID: 16 SURVIVAL RESULTS IN ELDERLY PATIENTS WITH HIGH-GRADE GLIAL TUMOR; SINGLE CENTER RESULTS **Author(s):** <u>Mukaddes Yılmaz,</u> Eda Erdiş, Mahmut Uçar, Birsen Yücel
	ID: 17 THERAPEUTIC EFFECT OF CRISPR/CAS9 SYSTEM IN CANCER TREATMENT **Author(s):** <u>Hasan Basri Sahin,</u> Muhammed Gömeç
	ID: 20 PARAMETERS ASSOCIATED WITH LOCAL RECURRENCE IN BREAST CANCER **Author(s):** Mahmut <u>Uçar,</u> Mukaddes Yılmaz, Eda Erdiş, Birsen Yücel

16.09.2022 11:15 – 12:15 Hall 3 Session Chair PROF. DR. HATİCE TEL AYDIN	**ID: 2** NURSING CARE IN ADULT PATIENTS DIAGNOSED WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): A MODEL-BASED SYSTEMATIC APPROACH **Author(s):** İlkay <u>Yurtsever</u>, Şerife Karagözoğlu
	ID: 60 EVALUATION OF EMOTIONAL LABOR AND COMPASSION FATIQUE IN HEALTH PROFESSIONALS WORKİNG WİTH ONCOLOGY PATIENS **Author(s):** <u>Gülgün SEVİMLİGÜL</u>, Zekiye Hasbek, Hatice TERZİ, Mukaddes YILMAZ, Eda ERDİŞ, Kürşat KARADAYI
	ID:74 INVESTIGATE OF ATTIDUES TOWARDS BIOTECHNOGLY OF SPORTS TRAINERS: SİVAS PROVINCE EXAMPLE **Author(s):** Sedat <u>KAHYA,</u> Yeliz AY YILDIZ, Sabahat KAHYA
	ID: 94 INVESTIGATION OF ONCOLOGY PATIENTS' ATTITUDES AND PRACTICES REGARDING COMPLEMENTARY AND ALTERNATIVE TREATMENT PRACTICES **Author(s):** Serap YILDIZ, <u>Gülgün SEVİMLİGÜL</u>, Tuğba SEZER, Ayşe SARI, Sema KILIÇ, Birsen YÜCEL

16.09.2022 13:30 – 14:30 Hall 1 Session Chair PROF. DR. BİRSEN YÜCEL	**ID: 48** HISTOPATHOLOGIC AND DEMOGRAPHIC FEATURES OF EYELID TUMORS **Author(s):** <u>Mustafa Salih KARATEPE</u>, Erman BOZALİ
	ID: 62 THE EFFECTS OF HEMOGLOBIN-ALBUMIN-LYMPHOCYTE-PLATELET (HALP) SCORE ON OVERALL SURVIVAL AND DISEASE-FREE SURVIVAL IN STAGE 1-3 PANCREATIC CANCER **Author(s):** <u>Elif YÜCE</u>, Serdar KARAKULLUKÇU, Evren FİDAN
	ID:64 A FOREQUARTER AMPUTATION AND NEGLECTED BONE METASTASIS **Author(s):** <u>Özhan Pazarcı,</u> Nazım Aytekin, Mehmet Vakıf Keskinbıçkı
	ID: 67 A RARE TYPE OF GYNECOLOGICAL CYST: PARATUBAL SEROUS CYST ADENOFIBROMA **Author(s):** <u>Vildan Kılıç,</u> Çağlar Yıldız, Songül Varış Tuncay, Hande Yeşil Çetinkaya
	ID:69 A BENIGN TUMOR THAT CAN BE CONFUSED WITH MALIGNANCY: LEIOMYOMA **Author(s):** <u>Selin MUTLU,</u> Begüm KURT, Çağlar YILDIZ

	ID:70 FIVE-YEAR ANALYSIS OF GYNECOLOGICAL ONCOLOGY CASES IN A UNIVERSITY HOSPITAL **Author(s):** Sümeyra Alcalı, Begüm Kurt

16.09.2022 **13:30 – 14:30** **Hall 2** **Session Chair** **DOÇ. DR. EDA ERDİŞ**	**ID: 57** FORSKOLIN ENHANCES THE PACLITAXEL SENSITIVITY OF BREAST CANCER CELLS **Author(s):** Ahmet ALTUN
	ID: 66 SKIN TUMORS IN SIVAS CUMHURIYET UNIVERSITY, FACULTY OF MEDICINE, DEPARTMENT OF PATHOLOGY DURING PRE-PANDEMIC AND POST-PANDEMIC PERIODS **Author(s):** Kübra YILMAZ, Ioan CAZAMIR, Doina DANU, Hale Betül Onur BALCI, H. Reyhan EĞİLMEZ
	ID:76 AUTONOMOUS DYSFUNCTION IN PATIENTS DIAGNOSED WITH CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY **Author(s):** Murat ÇİBİK, Pınar OBA, Musa POLAT
	ID: 78 METASTATIC BRAIN TUMORS **Author(s):** Porcaru Elena-Alina, Muşat Bogdan-Adrian, Sena Oztürk, H. Reyhan Egilmez
	ID: 93 COMPARISON OF HIGH-RISK HISTOLOGICAL FEATURES WITH TUMOR-RELATED VARIABLES IN CUTANEOUS MALIGNANT MELANOMA **Author(s):** Handan DEREBEŞİNLIOĞLU, Sanem NEMMEZI KARACA
	ID: 95 THE ROLE AND IMPORTANCE OF PERICARDIAL EFFUSIONS IN THE DIAGNOSIS OF MALIGNANCY **Author(s):** Tülay Koç, Nisa Begüm Öztürk, Ersin Tuncer, Anıl Şahin

16.09.2022 **13:30 – 14:30** **Hall 3** **Session Chair** **DOÇ. DR. HÜSEYİN ÖZDEN**	**ID: 39** GIANT RETROPERITONEAL LIPOSARCOMA: CASE REPORT **Author(s):** Aydemir ASDEMİR, Hüseyin SAYGIN, Abuzer ÖZTÜRK, İsmail Emre ERGİN, Emre KIRAÇ, Arslan Fatih VELİBEYOĞLU, Mehmet Akif DOĞAN, Nisa Begüm ÖZTÜRK, Esat KORGALI
	ID: 52 CASE OF LOW DIFFERENTIAL THYROID PACLINOMA RESULTING IN PLEURAL METASTASIS **Author(s):** Barış SARIAKCALI
	ID: 55 DETERMINATION OF CYTOTOXIC EFFECT OF AMYGDALIN IN DLD-1 CELL LINE AND ANTICYTOTOXIC EFFECT IN CCD-18CO CELL LINE **Author(s):** Alpaslan Öztürk, Aybüke Afra Keskiner, Berna Kocaman, Ece Avuloglu Yilmaz
	ID: 63 EVALUATION OF PATIENTS WITH THE INITIAL DIAGNOSIS OF BONE METASTASES **Author(s):** Özhan Pazarcı, Hasan Ulaş Oğur, Hasan Orkun Varmış, Mesut Uluöz, Osman Çiloğlu
	ID: 73 INCIDENTAL DIAGNOSIS OF RARE MUCINOUS CYSTADENOFIBROMA AND GASTROINTESTINAL SYSTEM METASTASIS IN A POSTMENOPAUSAL PATIENT WHO OPERATED DUE TO GIANT MASS **Author(s):** Songül Varış Tuncay, Dilay Karademir, Savaş Karakuş
	ID: 92 RARE BENING TUMOR OF THE LUNG: PERIVASCULAR EPITHELIOID TUMOR (PECOMA) **Author(s):** MAHMUT ÖZBEY

16.09.2022 **14:45 – 15:45** **Hall 1** **Session Chair** **DOÇ. DR. HALEF OKAN DOĞAN**	**ID: 9** SYNTHESIS, DFT CALCULATIONS, AND INVESTIGATIONS OF ANTICANCER PROPERTIES OF DIARYLUREA DERIVATIVE AGAINST GASTRIC CARCINOMA **Author(s):** Fatma COKTAŞ, Hayreddin GEZEGEN
	ID: 13 SYNTHESIS, OF NEW DIARYL UREA-IMINE DERIVED COMPOUNDS, INVESTIGATION OF EFFICACY AGANIST BREAST CANCER BY IN SILICO AND IN VITRO METHODS **Author(s):** Dilan ÇAKMAZ, Koray SAYIN
	ID: 28 STRUCTURAL, SPECTRAL, ANTIBACTERIAL AND ANTICANCER INVESTIGATIONS OF SYNTHESIZED ISOXAZOLE DERIVATIVES **Author(s):** Elif GÜNEY, Koray SAYIN, Hilmi ATASEVEN
	ID: 29 COMPARISON OF THE ACTIVITIES OF DIARYL UREA DERIVATIVES BY IN SILICO AND IN VITRO METHODS **Author(s):** Seyma Nur KARATAŞ, Burak TÜZÜN
	ID: 30 COMPUTATIONAL CALCULATIONS AND MOLECULAR DOCKING ANALYSES OF IMIDAZOLE DERIVATIVES AGAINST MAPK1 IN LUNG CANCER **Author(s):** Vesim NASİF, Koray SAYIN, Hüseyin ÖZDEN
	ID: 36 DESIGN, SYNTHESIS, IN VITRO AND IN SILICO ANALYSES OF NICOTINAMIDE DERIVATIVES AGAINST GASTRIC CANCER **Author(s):** Nurdan KOÇAK, Hilmi ATASEVEN
16.09.2022 **14:45 – 15:45** **Hall 2**	**ID:79** INVESTIGATION OF THE EFFECT OF THE NEW SYNTHESIS MOLECULE CONTAINING THE AZOMETHINE GROUP ON SOME LIPID GENES **Author(s):** Gulcihan CINAR, Cemile ZONTUL, Rana GANBAROVA[3], Alakbar HUSEYNZADA[3], Ulviyya HASANOVA[3] Ayca TAS, Yavuz SILIĞ
	ID: 56 INVESTIGATION OF PARACETAMOL, PARABEN AMOUNTS IN SEPAL AND SEPAL STEMS OF *Diospyros kaki* FRUIT **Author(s):** İhsan OBALI

Session Chair **DOÇ. DR.** **MUSTAFA ERGÜL**	**ID: 83** COMPARISON OF THE ACTIVITIES OF BROMINE-CONTAINING DIPHENYL METHANE DERIVATIVE COMPOUNDS AGAINST BREAST CANCER **Author(s):** Gamze TÜZÜN, Elif GÜNEY
	ID: 90 EVALUATION OF THE EFFECT OF COMPOUND B-108 CONTAINING AZOMETHINE GROUP ON DNA REPAIR GENE **Author(s):** Elif EĞİLMEZ, Cemile ZONTUL, Alakbar HUSEYNZADA, Gunel ALİYEVA, Mirjavid AGAYEV, Ulviyya HASANOVA, Ayça TAŞ, Yavuz SİLİĞ
	ID: 97 INVESTIGATION OF THE CYTOTOXIC ACTIVITIES OF ROYAL JELLY ISOLATES FROM SIVAS PROVINCE IN MCF-7 CELL LINE **Author(s):** Safa Uğur KOCKÖPRÜ, Gamze ATEŞ, Sevgi DURNA DAŞTAN

16.09.2022 **14:45 – 15:45** **Hall 3** **Session Chair** **DR. ÖĞR. ÜYESİ** **TÜLAY KOÇ**	**ID: 86** INVESTIGATION OF APOPTOSIS, CELL CYCLE GENES AND EXPRESSION PROFILES ON THE *PD-L1* GENE OF HETEROCYCIC COMPOUND IN STOMACH CANCER **Author(s):** Tugba AGBEKTAS, Gulcihan CINAR, Rana GANBAROVA, Alakbar HUSEYNZADA, Ulviyya HASANOVA, Ayca TAS, Yavuz SİLİĞ
	ID: 87 THE EFFECT OF COMPOUND B-106 CONTAINING AZOMETHINE GROUP ON *MDM2* GENE **Author(s):** Elif Cemre GURLEYUK, Tugba AGBEKTAS, Alakbar HUSEYNZADA, Gunel ALİYEVA, Mirjavid AGAYEV, Ulviyya HASANOVA, Ayca TAS, Yavuz SILIG
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	ID: 46 INVESTIGATION OF ANTIPROLIFERATIVE EFFECT OF MALVA SYLVESTRIS EXTRACT ON BREAST CANCER AND ANTIOXIDANT PROPERTIES **Author(s):** Hayrani Eren Bostancı, Münir Furkan Gören
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ONLINE
ORAL PRESENTATION PROGRAM

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DOÇ. DR. AHMET ALTUN		
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2.	MUSTAFA KORKMAZ	COMPARISON OF THE EFFICACY OF FIRST-LINE TREATMENTS IN CASTRATION-RESISTANT PROSTATE CANCER PATIENTS WITH VISCERAL METASTASIS
3.	ABDULHAMİT ÇALI	FDA-APPROVED MOLECULAR TESTS USED TO DEFINE HUMAN PAPILLOMAVIRUS (HPV) INFECTIONS WHICH CAUSES CERVIX CANCER
4.	MURAT ESER	CLINICAL FEATURES AND SURVIVAL OF PATIENTS WITH SOLID ORGAN TUMORS ACCOMPANIED BY SYNCHRONOUS OR METACHRONOUS HEMATOLOGICAL MALIGNANCES
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6.	MUSTAFA BÜYÜKKÖR	GASTRIC CANCERS IN A CITY IN CENTRAL ANATOLIAN TURKEY: A SINGLE-CENER DESCRIPTIVE STUDY
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10.	AYÇA ARÇAY	PHYSIOLOGICAL BIODISTRIBUTION OF GA68-PSMA PET/CT AND THE FACTORS EFFECTING BIODISTRIBUTION
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15.	ARİF HAKAN ÖNDER	CONCERNS AND EXPECTATIONS OF PATIENTS WITH CANCER IN THE COVID-19 PANDEMİC: A PROSPECTIVE COHORT STUDY
16.	ŞEYMA OSMANLIOĞLU	MRI OF VAGINAL MYOMA
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18.	DİLEK ANUK	THE IMPORTANCE OF PSYCHOTHERAPY IN ONCOLOGY PATIENTS: A CASE OF TRYPANOPHOBIA (FEAR OF NEEDLES)
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20.	FIRDEVS KUZU	BREAST CANCER, HOME CARE AND TELE HEALTH
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PANEL PRESENTATIONS

MOLECULAR IMAGING IN LUNG CANCER

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Abstract

Positron emission tomography (PET) / computed tomography (CT), as well as conventional chest radiography and CT, plays an important role in staging, restaging, evaluation of treatment response and prognosis assessment in lung cancer (LC). ^{18}F-flourodeoxyglucose (^{18}FDG) is the most used radiotracer for pulmonary malignancies evaluation. ^{18}FDG is internalized in the cell by glucose transporters (GLUT-1 and GLUT-3) and phosphorylated by a hexokinase but does not undergo further metabolism in the glucose pathway. FDG is therefore trapped within cells. ^{18}FDG uptake is nonspecific for malignancies, which is indeed observed in various conditions, such as infective/inflammatory processes (e.g., pneumonias, abscesses and aspergillosis or granulomatous conditions like sarcoidosis or tuberculosis). Therefore, ^{18}FDG PET/CT has a high false-positive rate in the staging of pulmonary nodules, especially in those geographic areas with a high prevalence of infectious lung diseases. Furthermore, ^{18}FDG uptake is variable among different LC types: adenocarcinomas are generally less FDG-avid than squamosa cell carcinoma, while pulmonary neuroendocrine neoplasms, mucinous neoplasms and lepidic predominant adenocarcinomas show low ^{18}FDG uptake. To investigate other aspects of the pathological lung cancer biology (Cellular proliferation, hypoxia, angiogenesis, and neuroendocrine differentiation), in addition to glucose metabolism, could be useful in characterizing different tumor types and predicting the response to new targeted therapies against cancer. Additionally, immunoPET and fibroblast activation protein inhibitor (FAPI) PET could contribute to evaluate lung cancer, as main subjects of focus of tumor microenvironment imaging. In conclusion, here we aimed to review the literature regarding current molecular imaging approaches in lung cancer other than ^{18}FDG PET/CT.

Keywords: *Lung Cancer, Molecular Imaging, PET, PET/CT*

COVID-19 PANDEMIC AND LUNG CANCER

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Abstract

SARS-CoV-2 is internalized through binding to ACE2 and cleavage by TMPRSS2. ACE2 gene expression in the lungs correlates with smoking, which is frequent in patients with cancer. Another reason why the SARS-CoV-2 virus affects the lungs more is the presence of dense ACE-2 receptors in the lung tissue. Lung cancer (LC) and COVID-19 patients may show similar symptoms and signs. In addition, both diseases have increased arterial and venous thromboembolic events. Lung cancer is an important risk factor and poor prognostic factor for COVID-19.Thirteen studies from different countries, involving 1,229 patients with both COVID-19 and cancer, were selected for the pooled analysis. A total of 343 deaths were recorded in this population: 86 for lung cancers and 257 for other tumors. The mortality rate varies from 18 % to 60 % for patients with lung cancer and COVID-19 and 10%–41% for other tumor patients with COVID-19. In another study, mortality in COVID-19 patients with thoracic malignancy was found to be 32%. In the same study, hospitalization rate was 72%, intensive care hospitalization was 12%, and the need for mechanical ventilation (invasive and non-invasive) was 25%. During the pandemic period, an increase in cancer-related deaths has been detected. In the United States, age-standardized cancer-related mortality (100,000 person-years) declined steadily from 2015 to 2019 but increased again in 2020 [173.5/100,000 person-years (2015), 162.1/100,000 person-years (2019) 164.1/100,000 person-year (2020)].In this period, while there was a decrease in the number of patients newly diagnosed with LC, there was an increase in the diagnosis of advanced stage LC. In a study, two cohorts of patients who were admitted to the hospital in the pre-COVID (September 8, 2016-March 10, 2020) and post-COVID (March 11, 2020-October 29, 2021) period and diagnosed with LC in the first 28 days were compared. In the post-COVID period, fewer patients were diagnosed with LC within 28 days. Whether the observed variations are due to changes in routine healthcare delivery or to changes in patient healthcare-seeking behavior requires further investigation.

The recommendations of international society about the diagnosis and follow-up of patients with LC during the pandemic period are summarized below.

- During the COVID-19 pandemic, consistent with CDC guidance to defer nonurgent care, it is suggested that the initiation of screening be delayed
- During the COVID-19 pandemic, it is suggested that the annual screening examination be delayed.
- Incidental or scan-detected solid nodules with an average diameter of less than 8 mm, pure ground glass opacities of any size, and semi-solid nodules with a solid component 6-8 mm in diameter, with nodules that are unlikely to be cancer, with

nodules greater than 8 mm in average diameter and cancer Nodules with a probability of less than 25%, evaluation can be delayed for 3-6 months.

- Evaluation with PET or non-surgical biopsies is recommended when the probability of cancer is high (25-85%)

- With a similar reasoning, it was agreed that patients with a very high probability (>85%) do not require additional diagnostic testing, and that the patient can proceed directly to a treatment decision by appropriate staging and pre-treatment physiological evaluation.

- Treatment of clinical stage I non-small cell LC may be delayed, consistent with CDC guidance to defer surgery when reasonable, after taking into consideration an assessment of the size of the cancer, growth rate of the cancer (if serial imaging is available), fluorodeoxyglucose/PET avidity of the primary tumor, patient values, and the general health and fitness of the patient.

While there are studies showing that receiving chemotherapy within 4 weeks of a positive COVID19 test during the pandemic period does not cause a more serious illness or an increase in virus-related deaths, there are also studies suggesting that giving systemic chemotherapy during this period increases adverse events. Similar results have been observed for targeted therapies, radiation therapies, and immunotherapy in similar studies. During this period, targeted therapies seem to be the most appropriate treatments.

In summary; both diseases create a similar clinical picture. It is clear that LC (especially advanced and active) is a poor prognostic factor for COVID-19. The prognosis is worse in the presence of male gender, advanced age, poor performance, smoking and other additional diseases. There are conflicting data that systemic anticancer treatments increase susceptibility to COVID-19. Considering the profit and loss situation, the diagnosis and treatment of LC should not be delayed too long. Whether post-COVID pulmonary fibrosis will pose a risk for LC is a very important issue that should be investigated in the future.

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NEOADJUVANT TREATMENTS IN LUNG CANCER

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Abstract

Lung cancer is the most common solid organ malignancy that causes the most deaths in the world and in our country. 5-year survivals are related to the stage of diagnosis in the disease, as the stage increases the expected survival time decreases. Stage 3 disease, which is accepted as locally advanced disease in which neoadjuvant treatments are applied, is a very heterogeneous tumor with both tumor size and lymph node involvement according to the tumor node metastasis 8 (TNM 8) staging system. In the European Medical Oncology Group (ESMO) guideline, adjuvant chemotherapy is recommended primarily after surgery in stage 1 and 2 diseases. In stage 3 disease, according to the condition of the disease, chemotherapy after surgery, surgery after neoadjuvant chemotherapy or surgery after chemoradiotherapy can be options in single station n2. According to the national comprehensive cancer network (NCCN) guideline, durvalumumab treatment is recommended after chemoradiotherapy in multiple n2 diseases, but it is said that surgery or radiotherapy can be applied according to the response after neoadjuvant in patients with lower nodal load who are suitable for surgery.

There are options such as neoadjuvant chemotherapy, adjuvant chemotherapy and definitive chemoradiotherapy in locally advanced disease. Neoadjuvant therapy has difficulties such as requiring a multidisciplinary approach in stage 3 disease, being a heterogeneous disease and being difficult to standardize. Similar to the adjuvant chemotherapy meta-analysis results, 10% reduction in mortality risk was observed in 5-year survival in neoadjuvant chemotherapy results. (hr: 0,87 (0,78-0,96) p:0,007).

Neoadjuvant therapy also has benefits such as providing an early approach in micrometastatic disease, early initiation of treatment, compliance with treatment, obtaining pathological response and monitoring early treatment response. The standard in neoodjuvant therapy is the use of cytotoxic platinum-based combination therapy. Cisplatin-docetaxel, cisplatin-paclitaxel, cispatin-gemciatabine and carboplatin-paclitkasel treatment can also be applied in neoadjuvant treatment. Since response rates are better with cisplatin combination therapy, carboplatin can only be considered in patients who are not suitable for cisplatin.

After the successes achieved with targeted therapy and immunotherapy in metastatic lung carcinoma, studies have started for the use of these therapies in the disease in the earlier stages. With the ADAURA and IMpower010 studies, Osimertinib and atezolizumab have been included in the guidelines by showing their contribution to disease-free survival in adjuvant therapy. Despite studies in Egfr mutant patients in neoadjuvant therapy, there is no agent that has entered the guidelines yet. Although there are many phase studies in monotherapy and in combination with chemotherapy for neoadjuvant immunotherapy, the Check mate 816 study,

the combination of nivolumab – cytotoxic chemotherapy showed statistically significant responses to chemotherapy in terms of major pathology response (<10% viable tumor cell) and pathological complete response. It has become recommended in guidelines for neoadjuvant therapy by providing. Although the currently recommended treatment in neoadjuvant therapy is platinum-based chemotherapy, studies are being conducted on molecular targeted therapies and immunotherapy. It is recommended that the treatment decision be made by patient-based and multidisciplinary councils.

ONCOLOGICAL TREATMENT-RELATED CARDIOTOXICITY

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Abstract

Introduction: With advances in treatment, the survival of cancer patients is increasing. However, there is also an increase in morbidity and mortality due to treatment side effects. Cardiovascular diseases (CVD) are the most common of these side effects. It may occur as a result of the direct cardiotoxic effect of cancer treatment or may occur due to accelerated cardiovascular disease development (especially in the presence of traditional cardiovascular risk factors). The unpredictability of the long-term consequences of cardiovascular side effects associated with cancer treatment results in an inadequate or misdiagnosis of CVD (cardiovascular disease), resulting either in failure to prevent poor cardiovascular outcomes or unnecessary interruption of life-saving cancer treatment.

Toxicity due to oncological treatment can be evaluated under various sub-headings
- Myocardial dysfunction and heart failure
- Coronary artery disease (CAD)
- Valve diseases
- Arrhythmias
- Arterial hypertension
- Thromboembolic disease
- Peripheral vascular disease and stroke
- Pulmonary hypertension
- Pericardial complications.

Myocardial dysfunction and heart failure

It is considered the most worrisome cardiovascular complication of cancer treatments. It causes an increase in morbidity and mortality. The point at which cardiotoxicity manifests clinically varies widely. It may be so rapid that treatment should be interrupted, or it may present as a symptomatic cardiac damage years later. It can cause temporary dysfunction as well as permanent and progressive cardiac remodeling and cardiomyopathy.

The long-term cardiovascular prognosis is often difficult to predict. That's because patients with cancer typically receive combined cancer drugs and radiotherapy. This has the potential for further increased cardiotoxicity due to the interaction between different treatment modalities.

Anthracyclines used in cancer chemotherapy are associated with cardiotoxicity up to 50%, alkylating agents up to 28%, antimetabolites up to 27%, and tyrosine kinase inhibitors up to 19% with myocardial dysfunction.

Anthracyclines: It is frequently used in the treatment of solid tumors and hematological malignancies. Anthracycline-induced cardiotoxicity is explained by the oxidative stress hypothesis. Anthracycline toxicity is cumulative dose dependent and may cause irreversible toxicity. However, sensitivity to anthracycline varies between patients. While most patients tolerate standard doses of anthracyclines without long-term complications, some patients may experience treatment-related cardiotoxicity even after the first dose. However, it should not be forgotten that avoiding the use of these drugs due to concerns about cardiac side effects may adversely affect the prognosis. Unfortunately, there is no proven strategy to distinguish whether cardiac dysfunction is reversible or progressive. If anthracycline-related cardiac dysfunction is detected early and HF (heart failure) is treated with drugs, patients often exhibit good functional recovery, but if detected late, heart failure is more difficult to treat.

HER2 targeted therapies: Compared to anthracyclines, anti-HER2 toxicity usually occurs during treatment. Anti-HER2 (transtuzumab, lapatinib, pertuzumab, T-DM1)-induced cardiotoxicity is not dependent on the cumulative dose administered. Cardiotoxicity develops due to structural and functional changes in contractile proteins and mitochondria. Therefore, left ventricular dysfunction and HF induced by anti-HER2 can usually improve with anti-HER2 discontinuation and HF treatments.

VEGF (vascular endothelial growth factor) inhibitors: Some VEGF inhibitors can cause reversible or irreversible cardiac side effects, especially when used in combination with or following conventional chemotherapies. VEGF inhibitors can cause arterial hypertension to the extent that it can affect cardiac function. Similarly, TKIs (tyrosine kinase inhibitors) such as sunitinib, pazopanib and axitinib are also causes of cardiotoxicity.

Diagnosis and treatment approach in myocardial dysfunction: Risk stratification, early diagnosis, specific follow-up to the agent used, and appropriate treatment are essential in patients receiving cancer chemotherapy. The risk of cardiotoxicity due to cancer treatment may be related to advanced age, previous CVD, previous cardiotoxic treatments, medical CV risk factors and lifestyle. However, this risk should be standardized in all patients and CV prevention measures should be applied in high-risk populations.

In the evaluation of cardiovascular risk, CV risk is determined primarily by using the SCORE2/SCORE2 OP risk assessment form. In this evaluation, the individual's age, gender, smoking status, systolic blood pressure and non-HDL cholesterol are taken into account. Individuals with defined cardiovascular disease, chronic renal failure, familial dyslipidemia, or complicated diabetes are also at high cardiac risk in this risk assessment. When this risk assessment is made, primary and secondary prevention measures should be taken before cancer chemotherapy is started for individuals with high CV risk.

After the assessment of CV risk with SCORE2/SCORE 2-OP, the evaluation of patients according to the newly defined HFA-ICOS risk classification is recommended by international societies. HFA-ICOS risk assessment includes risk tables specific to each cancer chemotherapy group (anthracycline, anti-HER2, VEGF inhibitors, etc.). These risk tables include a number of parameters related to previous cardiovascular diseases, demographic characteristics, and lifestyle characteristics of patients and categorize patients as "low-moderate-high-very high" cardiac risk. As a result of this risk assessment, it is recommended that individuals with low

and moderate CV risk continue their routine oncology follow-up and refer to cardiology if new symptoms develop. In individuals with high or very high-risk assessment results, cardiology assessment and possible benefits and risks of treatment should be discussed before the treatment is started.

Imaging and biomarkers are used in the diagnostic approach. It is recommended to perform imaging, especially echocardiography, which does not contain radiation, is reproducible and inexpensive, and should be evaluated with GLS (global longitudinal strain) only if possible.

In patients for whom echocardiography is not appropriate, evaluation can be made using nuclear imaging (MUGA) and cardiac magnetic resonance (MR). As biomarkers, the use of BNP, NT-proBNP and high-sensitivity Troponins is recommended.

Possible myocardial dysfunction can be categorized as in the table below,

Symptomatic	Very severe	Patients in need of inotropic, mechanical, and circulatory support
	Severe	Hospitalization due to HF
	Moderate	Need for diuretics in outpatient follow-up
	Mild	Symptoms mild no need for additional treatment
Asymptomatic	Severe	EF decrease to <40%
	Moderate	Decrease in EF between 40-49% (with >10% decrease or 15% decrease in GLS or increase in cardiac marker)
	Mild	EF >50% but 15% decrease in GLS, or increase in cardiac markers

After categorizing the myocardial dysfunction developing in the patients, the follow-up strategy is determined according to the agent administered.

- In advanced toxicity with anthracyclines, only HF treatment is started, and cancer chemotherapy is continued in asymptomatic mild toxicity, it is recommended to interrupt cancer treatment in more severe toxicities, and a multidisciplinary approach should be taken at the point of re-starting the drug. Anthracyclines are not reused after severe symptomatic toxicity with anthracyclines. In order to reduce anthracycline toxicity, it is recommended to keep the cumulative dose <400mg/m2, to prefer liposomal anthracyclines and to use dexrazoxane.
- In patients receiving anti-HER2 therapy, cancer chemotherapy is continued in asymptomatic mild and moderate myocardial dysfunction, but patients are also treated with HF. In cases with symptomatic mild HF, the continuation of treatment is decided by a multidisciplinary approach. However, in more severe cases, treatment should be interrupted.
- In the cardiovascular management of patients treated with VEGF inhibitors, blood pressure monitoring at each clinical visit, monthly and 3-month follow-ups in terms of QTc prolongation, echocardiography follow-up at baseline and every 3-6 months, and baseline, monthly and 3-month biomarker follow-up are recommended.

Patients who develop heart failure or asymptomatic left ventricular dysfunction during cancer treatment benefit from ACE inhibitors or ARBs and beta-blocker therapy, similar to the

general heart failure population. Patients receiving early combination therapy with ACE inhibitors and beta-blockers have a better cardiac outcome.

Cancer treatment and coronary artery disease

Myocardial ischemia occurs by various mechanisms during cancer chemotherapy.

a. Endothelial damage (fluoropyrimidines and radiotherapy)

b. Procoagulant state (platinum compounds and VEGF inhibitors)

c. Acute arterial thrombosis (radiotherapy, platinum compounds and VEGF inhibitors)

d. Premature atherosclerosis (tyrosine kinase inhibitors)

e. Vasospasm (fluoropyrimidines)

Before starting cancer treatment, patients with pre-existing coronary artery disease (CAD) and other CVD should be identified, the risk of bleeding and the appropriate duration of antiplatelet therapy should be determined. Since the use of chemotherapy drugs is also a risk factor for CAD, cardiovascular risk should be monitored periodically during treatment. Clinical evaluation and, if necessary, testing is recommended to detect myocardial ischemia, and the outcome of this evaluation may change the choice of cancer therapy. Patients treated with pyrimidine analogs should be closely monitored for myocardial ischemia using regular ECGs.

In cases where the drug needs to be repeated after coronary vasospasm, premedication treatment with nitrates and/or calcium channel blockers should be considered if there are no other alternatives.

A standard approach should be applied to acute coronary syndromes in cancer patients if the mean life expectancy is >6 months. However, a conservative approach can be applied to individuals with a life expectancy of less than 6 months. If the current acute coronary syndrome is thought to be caused by cancer treatment, treatment should be interrupted for a while. Patients should be treated with dual antiaggregant therapy for the shortest possible time. Antiaggregant therapy is not recommended in patients with low platelet values (<10,000/mL for acetylsalicylates, <30,000/mL for clopidogrel, <50,000/mL for ticagrelor and prasugrel).

Heart valve disease and cancer treatment

Chemotherapeutic agents do not directly affect the heart valves, but pre-existing valve lesions, radiotherapy, infective endocarditis, and valve lesions secondary to left ventricular dysfunction are important on the morbidity and mortality of cancer patients. Radiation-induced HVD may affect ~10% of treated patients overall. This is particularly evident in patients who received radiation >30 Gy. It can cause degeneration by causing fibrosis and calcification on the valves. Echocardiographic follow-up should be applied in these patients, and treatment recommendation should be individualized with disease prognosis and patient preferences. If interventional treatments for the valves are required, the use of percutaneous routes and the TAVI (transcatheter aortic valve implantation) procedure should be applied, especially in the aortic position.

Arrhythmias and cancer treatment

Cancer chemotherapy can cause bradycardia, sinus tachycardia, atrioventricular block, conduction blocks, atrial fibrillation, supraventricular tachycardias, ventricular tachycardias, and sudden death in patients. There are long lists of drugs that can cause these side effects.

The origin of ventricular arrhythmias is associated with cancer chemotherapy induced QTc prolongation. Antibiotics, antidepressants, antiemetic drugs used together in these patients, as well as electrolyte disturbances caused by nausea and vomiting, diarrhea contribute to QTc prolongation. If QTc is <500msec after treatment, it is recommended to interrupt the treatment and correct the correctable factors. If the QTc interval is <480ms, treatment can be restarted, in other cases alternative treatment methods should be considered.

Atrial fibrillation is another important cause of morbidity in cancer patients. It is recommended that these patients be anticoagulated according to the CHADS2VASC score like other individuals. However, the risk of bleeding should be well weighed, and the strategies not to apply anticoagulation and to close the left atrial appendage should be considered in patients who are predicted to have a very high bleeding risk.

Another problem associated with arrhythmia in cancer patients is the administration of radiotherapy in patients with implanted pacemakers. The risk in patients is the proximity of the area to be radiotherapy to the pacemaker, the average heart dose to be applied, and whether the patient is pacemaker dependent or not. Close monitoring and administration of the lowest possible dose are recommended in high-risk patients.

Arterial hypertension

Hypertension is a common morbidity in cancer patients. Arterial hypertension in cancer patients.

a. Cancer treatments (e.g., VEGFi, second and third generation BCR-ABL TKI, brigatinib, ibrutinib, fluoropyrimidines, cisplatin, abiraterone, bicalutamide, enzalutamide)

b. From non-cancer drugs (e.g., corticosteroids, nonsteroidal anti-inflammatory drugs)

c. Stress, pain

d. Kidney failure

e. Untreated sleep apnea

f. Obesity

g. Reduced exercise

may occur with the contribution of cancer-related conditions.

The intensity of arterial hypertension treatment is related to the life expectancy of cancer patients. While it is recommended to treat individuals with systolic blood pressure >160mmHg in metastatic cancer patients with a life expectancy of less than one year, blood pressure treatment goals in cancer survivors are the same as in the normal population.

Venous thromboembolism (VTE)

Coagulopathy, which is caused by the procoagulant, antifibrinolytic and proaggregant state formed by tumor cells, the release of pro-inflammatory and pro-angiogenic cytokines, and the interaction of vessels and blood cells with adhesion molecules, causes increased venous thromboembolism in cancer patients.

VTE risk increases with; cancer-related factors such as the location and type of primary cancer, histology, and spread; Patient-related factors such as age, comorbidities, thrombophilia, poor physical performance and chemotherapy (carboplatin, cyclophosphamide, anthracyclines, antimetabolites, irinotecan, taxanes, tasonermin), anti-angiogenic agents (bevacizumab, axitinib, lenvatinib, pazopanib, sorafenib, sunitinib), immunomodulatory Treatment-related

factors such as drugs (thalidomide, lenalidomide), proteasome inhibitors (carfilzomib), hormonal therapy and erythropoiesis-stimulating agents.

In these patients, treatment with low molecular weight heparin and direct-acting oral anticoagulants can be applied. Evaluation of thromboembolic risk and bleeding risk in all patients and anticoagulation should be planned except in patients with very high bleeding risk.

Pulmonary hypertension

Pulmonary hypertension may be encountered as a rare but serious complication of some cancer agents and bone marrow stem cell transplantation. Cancer chemotherapies are associated with all 5 groups of pulmonary hypertension.

Many cancer drugs can cause group 1 PH (pulmonary arterial hypertension [PAH]), including carfilzomib, bosutinib, dasatinib, ponatinib, interferon alfa, and alkylating agents (for example, mitomycin C and cyclophosphamide, which often cause pulmonary veno-occlusive disease).

PH associated with left heart disease (group 2) is associated with drugs that cause HF (e.g., anthracyclines).

PH associated with lung disease (group 3) is associated with drugs and treatments (eg, bleomycin, thoracic radiation) that cause pulmonary fibrosis.

The most common pulmonary vascular disease complicating cancer is VTE (group 4), which can cause chronic thromboembolic PH.

PH with unclear and/or multifactorial mechanisms (group 5) includes a variety of conditions that can be complicated by complex and sometimes overlapping pulmonary vascular involvement (e.g., microangiopathies).

Especially close follow-up of tyrosine kinase inhibitors associated with group 1 pulmonary hypertension is required. It is recommended to follow-up these patients with echocardiograms performed every 3 months. It is recommended to discontinue treatment and evaluate alternative treatments in patients with elevated pulmonary artery pressure during follow-up.

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III. INTERNATIONAL CANCER DAYS

TARGETED NANOCARRIERS USED IN LUNG CANCER

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Abstract

Cancer is a one of the biggest health issue all around the world. In particular, lung cancer is the type that has the highest incidence and mortality rate. Surgery, radiotherapy, chemotherapy, targeted therapy, and immunotherapy are the most frequently used treatment methods for lung cancer. Among these, chemotherapy is utilized in the treatment of advanced stage patients. One of the biggest problems in the chemotherapy is the drugs used in this therapy are not tumor-specific and cause serious, systemic, toxic effects (1).

The development of nanoparticles chemotherapy drug delivery systems based on nanotechnology can improve the bioavailability of drugs, improve the solubility of drugs, change the biodistribution of chemotherapy drugs, eliminate drug resistance caused by treatment, and reduce nonspecific toxicity. There are currently several nanocarrier formulations on the market, and others are at different stages of development. Nanoparticles used in the treatment of lung cancer can be divided into two categories: organic such as liposomes, solid lipid nanoparticles, polymeric nanoparticles, micelles, dendrimers, and inorganic nanoparticles such as carbon nanotubes, quantum dots, gold nanoparticles (2).

These nanocarriers carry the drug to the target area while at the same time protecting it from metabolism, preventing its rapid excretion from the body, preventing its accumulation in healthy tissues, and reducing the risk of toxicity. This approach is called drug targeting. Tendency to spontaneously localize in the pathological region is called as passive targeting, modification of the surface of the liposomes with target specific ligands to ensure direct binding to the target cell or absorption into the cell is called as active targeting (3). In lung cancer, different receptors including integrin, epidermal growth factor receptor (EGFR), vascular endothelial growth factor receptor (VEGFR), folate receptor (FR), transferrin receptor (TFR), CD44, and σ receptor are used as target for active targeting (2).

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EPOXYEICOATRIENOIC ACID METABOLISM AND ITS IMPORTANCE IN LUNG CANCER

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Abstract

Epoxyeicosatrienoic acids (EETs) are synthesized from arachidonic acid by the catalysis of members of the CYP2C and CYP2J cytochrome P450 (CYPs) enzymes. The effects of EETs on renal, cardiovascular, and metabolic diseases have been widely investigated. EETs found also in the lungs, generally play a beneficial role. The most critical effects of EETs in this tissue are the induction of Ca^{2+}-activated K^+ channels, stimulation of vasoconstriction of pulmonary arteries, induction of vasorelaxation in the bronchi, and the anti-inflammatory effects against asthma-induced inflammation and protective effect against toxic damage caused by cigarette smoke. Apart from all this, EETs play an important role in proliferation, apoptosis, and tissue regeneration, and these molecules may be involved in the progression of lung cancer. Additional studies are needed to the evaluation of underlying mechanisms of EETs in lung cancer and their importance in the diagnosis, treatment, and prognosis of lung cancer.

Keywords: *Epoxyeicosatrienoic Acids, Lung Cancer, Cytochrome P450*

III. INTERNATIONAL CANCER DAYS

EARLY DETECTION OF CANCER BY USING BIOANALYTICAL APPROACHES: BIOMARKERS

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Abstract

Cancers are common all over the world. Millions of deaths occur every year due to various types of cancer. Unfortunately, the death toll is predicted to rise even in developed countries. Therefore, it is very important to address these cancers in a timely manner [1].

With the transfer of technological developments and discoveries in basic sciences to clinical applications, health sciences are moved to a more advanced level. Thanks to today's innovative technologies, complex analyses such as genome, transcriptome, proteome, metabolome and fluxome can be performed step by step. Detailed information obtained from omics (genomic, transcriptomic, proteomic, metabolomic and fluxomic) analyses. It has great potential for understanding the mechanism of diseases, facilitating their early diagnosis, selecting individual treatment, strategies and evaluating their effectiveness [2].

Genomics and proteomics give information about "what might happen", and metabolomics "what actually happens". Therefore, detailed, and quantitative measurement of all metabolites (metabolomics) is the ideal method for disease diagnosis or for investigating the effects of toxic agents on the phenotype.

Keywords: *Cancer, Early Diagnosis, Metabolomics, Biomarkers*

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USE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

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Abstract

Industry 4.0, which is one of the most popular concepts, has caused significant differences and innovation needs in the life of society and the concepts it covers. In the field of health, "Health 4.0" and the accompanying "Digital Health" aim to increase the service quality of health applications; As a result of making, it more up-to-date and effective, it has ensured that it is presented more efficiently for the benefit of the society. The use of artificial intelligence theories in the field of health, which is based on the approaches to the intelligentization of Information Systems, has also been undeniable in these processes. How should artificial intelligence be used and used in health fields? What is the role of artificial intelligence and the need for artificial intelligence in mobile health applications that people frequently use in daily life? The answers to the questions such as the contribution of the results of the successful use of artificial intelligence in health to human life are important.

The developments on smart systems in information technologies and the corresponding digital transformations in the field of health have also created the need for intensive use in a short time. Digital transformation has started to be used actively in health areas, especially in administrative and clinical stages. In terms of automation in health, new applications and ideas are put forward every day. Artificial intelligence applications that came with digital transformation have found a wide place in the field of health and have adapted very quickly. In its context, many different applications have been developed both in health management and clinical stages. By restructuring service processes in healthcare, artificial intelligence significantly reduces both administrative and clinical costs and increases service quality. Especially in clinical processes, it accelerates processes such as pre-diagnosis, diagnosis, treatment, and decision-making, reduces human errors that may occur, and therefore aims to increase the quality of the total service quality. The importance given to artificial intelligence is increasing as the innovations and approaches offered by technological developments under the concepts of Industry 4.0 and Internet of Things are constantly being more intensely involved in the field of medicine. Health management and services appeal to large audiences with the cooperation of the health sector and other sectors. The existence of artificial intelligence applications in these areas is inevitable due to the increasing workload in the diagnosis, treatment, rehabilitation of diseases and the improvement of public health, as well as the insufficient number of health manpower.

EFFECT OF MINERALS AND CLAYS IN CAUSE, DIAGNOSIS AND TREATMENT OF CANCER

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Abstract

Although the use of minerals and clays for medicinal purposes is quite old, studies on the cause of cancer, prevention and treatment of cancer can be considered up-to-date. In this paper, first of all, the importance of minerals and clays in human and living life, general information about beneficial minerals and harmful minerals are given. Then, studies on the potential of boron and kaolin minerals in cancer prevention and treatment are mentioned. It focuses on the potential applications of kaolinite group minerals (kaolinite, dickite, nacrite, and halloysite) in cancer diagnosis and follow-up, cancer treatment, prevention of metastasis and relief of cancer pain. Montmorillonite is a useful clay mineral in a variety of pharmaceutical applications. It has been determined in research that this clay contributes to the improvement and/or modification of drug delivery systems due to its properties such as swelling and adsorption. It is stated that it forms composites with various polymers such as montmorillonite, chitosan, alginate and polyacrylic acid, thus changing the properties, release patterns and mechanical properties of polymers. Research and development studies should be conducted on the effect of montmorillonite clay mineral, which has a very high cation exchange capacity and swelling capacity, in preventing the spread of cancer cells.

Keywords: *Mineral, Boron, Kaolin, Montmorillonite*

III. INTERNATIONAL CANCER DAYS

THE IMPORTANCE OF A HOLISTIC APPROACH TO HUMAN IN PHILOSOPHICAL ANTHROPOLOGY

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Abstract

In this academic paper the place and importance of man in the universe, the issue of dealing with biophysical, biochemical, and psychological aspects separately or as a whole over the ages will be discussed in terms of its consequences. The subject will proceed with a philosophical approach, mostly on the axis of the spirit-matter relationship, within the framework of the views of idealist philosophers such as Plato, Descartes, and materialist philosophers such as Gassendi, Le Mettrie and Büchner, with the unilateral views of thinkers representing both views and Max Scheler's holistic approach to human An evaluation will be made by comparing the teaching based on the principle of As a result, it will be discussed whether the interaction of the body and the soul, the inevitability of considering the two together, together with the criticisms on body-spirit dualism, will constitute a basis for psychosomatic diseases.

Keywords: *Human, Animal, Spirit, Body, Psychosomatic Diseases*

CIGARETTE/TOBACCO USE AND LUNG CANCER AS A SOCIAL PROBLEM

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Abstract

The widespread habit of smoking and its damages which are more prominent nowadays appear to be an important and preventable public health issue. Along with rapid population growth, urbanization, and social problems, the habit of smoking has turned out to be a social problem, rather than an individual problem. The negativities experienced as a result of rapid social change (divorce, violence, moving, loneliness, anxiety, etc.) force individuals to seek distinctive asylum. In this respect, smoking is regarded as an asylum mechanism.

The extensive use of cigarettes, the increase in smokers through interaction, the effect not only on smokers but also on non-smokers (passive smokers) demonstrate that smoking is not only an individual problem, but it is also a social problem.

Tobacco is a substance that can cause especially mouth cancer, laryngeal cancer and lung cancer. It is also known that individuals who consume tobacco have a shorter life expectancy than those who do not. Apart from these diseases, it also poses serious risks for heart diseases and pregnant women.

An all-out struggle and awareness from education to health are required for this problem to be regarded as a social problem. Although there is consensus on the harm caused by smoking in our society, only the state is considered as responsible for the actions against smoking. In this sense, all segments of society have a role to play. It is clear that the punishment method alone is not sufficient in terms of fighting against smoking. Besides, those who quit smoking should be rewarded.

Keywords: *Cigarettes, Social Problem, Lung Cancer.*

PSYCHOSOCIAL ONCOLOGY IN LUNG CANCER

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Abstract

Both in our country and worldwide, the increase in cancer cases continues. One out of every 5 people in the world suffers from cancer during their lifetime. 1 out of every 8 men and 1 out of every 11 women lose their lives due to cancer. In men, the most commonly diagnosed cancer is lung cancer, which is the leading cause of cancer-related deaths. Lung cancer ranks first in terms of the number of new cancer cases that occur in every 100 thousand men and in terms of mortality rates. In women, breast cancer is the most commonly diagnosed cancer and the main cause of cancer-related deaths. Breast cancer ranks first in the incidence ranking and it is followed by lung cancer and colorectal cancer in mortality rates [1].

A diagnosis of cancer disease means an acute crisis for many people [2]. Being diagnosed with cancer creates catastrophic feelings from a mental point of view. Since the name of the disease directly evokes death, patients are faced with the realities that they have forgotten in daily life which are death, disappearance, and having no future. Complete confusion and disbelief are the leading symptoms [3-4]. Cancer is a disease in which physical and mental diseases are seen together simultaneously and this synchronicity imposes material and moral burdens on patients, their relatives, and physicians [3]. The most common mental disorders in the cancer process are adjustment disorders, depression, mixed anxiety-depression, anxiety disorders (especially post-traumatic stress disorder) and delirium [4-7]. It is stated that the most common symptoms during diagnosis in lung cancers are insomnia, loss of interest and desire and difficulty concentrating. The most important risk factor for psychological symptoms is functional loss [5]. Lung cancers are distinguished from other cancer types by being more deadly than others, being mostly at an advanced stage during diagnosis and rapidly disrupting the mental and physical integrity of the individual [5]. Therefore, cancer treatment requires a multidisciplinary approach that includes an oncologist, psychiatrist, psychologist, social worker, nurse, and dietitian [8].

The World Health Organization, in its published report, reported that the psychosocial components of oncological care should be part of every national cancer care plan and that psycho-oncology services should be provided in every cancer treatment service [9]. Psychosocial oncology is a specialty related to the understanding and treatment of social, psychological, emotional, mental, and functional aspects of cancer at all stages. Psychosocial oncology includes a holistic approach to cancer treatment that can best improve or optimize the quality of life for individuals affected by cancer and their relatives and that can satisfy needs [10].

In psychosocial oncology, support services such as investigating the psychosocial needs and social support resources of patients and their relatives; providing psychosocial and

emotional support to the patient and their family; meeting the need for information; carrying out individual and group work; directing those in need of psychiatric treatment (Psychopathology); providing economic support; regulating their relationships and communications with the treatment team; conducting interviews with institutions and workplaces; informing about the disability report and their rights; informing about patient rights are provided by relevant professionals.

Keywords: *Psychosocial Needs, Lung Cancer, Psychosocial Oncology*

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THE CASE OF CANCER IN TERMS OF COMPLEXITY PERSPECTIVE

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Abstract

Aim: This study, which focuses on understanding the complexity of cancer, reveals the necessity of reconsidering the lethal and shape-shifting aspect of cancer from the perspective of complexity for today and for the future, benefiting from its deep history of approximately 4000 years. Naturally, to explain the current phenomenology of cancer for this purpose, an approach based on the basic assumption of benefiting from the past has been utilized. On the other hand, the impact of cancer on societies is so great that it is often referred to as the 'plague of the age'. Therefore, cancer has been the subject of not only science and medicine, but also culture, history, literature, and politics in history. The higher the level of complexity of its impact on societies, the more complex the behavior patterns of cancer cells in real terms. In this sense, cancer does not refer to a single disease, but to many diseases. The reason why all of these diseases are called cancer is because they share a common feature, the abnormal and uncontrolled proliferation of cells.

Methods: Using the meta-analysis method, the results of related academic studies were evaluated from the perspective of complexity, and a model framework was designed to show in which life pattern of human cancer frequencies, which is a biological information form of cancer cells, can arise.

Conclusion: As it is known, the aim of modern medicine; It is to prevent cancer before it occurs, rather than to treat it after it occurs. However, in order to achieve this aim; approaches, methods and techniques with high explanation and intervention power are needed. However, cancer diagnosis methods and techniques, which are frequently used today, and treatment methods such as radiotherapy, chemotherapy, immune and hormone therapy, and new generation gene therapy are not sophisticated enough to understand, explain and treat the complexity of cancer. For this reason, 3/1 of cancer cases are still lost today, as in the past. Because there is a significant difference between the level of complexity of cancer and the diagnosis and treatment methods used for it. This difference seems to be the main reason for the loss of cancer cases. Therefore, complex phenomena such as cancer pass through certain stages in the form of dynamic systems, and after very small deviations from the usual, they refer to process-dependent developmental states over time. However, the effect of small deviations at the beginning becomes complex over time and reaches a noticeable level on a cell-based (pathological level) by deviating from the usual. It is naturally the most recent evolution of the pathological level process. Although this level is a measurable and intervening level, it is not sufficient to explain the reasons for the process in terms of its results. In this respect, it is

inevitable to understand in which life patterns of the cancer phenomenon at micro and macro level disease frequencies develop.

Keywords: *Cancer, Complexity, Epigenetics*

CANCER AND SPIRITUALITY

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Abstract

Ambition and competition are being silently accepted as a lifestyle in our daily lives. However, healing comes along harmoniously with the life-supporting powers like compassion and cooperation. Healing exists in pure spiritual energy. Human consciousness is one of the powerful determining factors in both health and illness. Being aware of finding meaning in our lives and experiences promote and strengthen the effectiveness of medical intervention. Along with physical or organic needs, human has spiritual inclinations and thus spiritual needs. These spiritual tendencies lead the individuals to knowledge, love, meaning, hope, transcendence, commitment, and compassion. We have conducted a series of interviews with cancer patients since 2000. In our meetings, we shared the perspectives of holy books and various examples taken from prophets' lives and scholars of Anatolia. For instance, we made discussions on:

1. The Quran statements like "Allah does not burden someone with any responsibility that he/she can't bear" and "we have the power and capacity to cope with all what we live".

2. The prophetic statements from prophetic medicine culture like "Allah does not create an illness without its treatment" and "There is a cure for every illness".

3. The statements of great personalities from Anatolian culture like

"Allah transforms evil into goodness
Do not assume He does the opposite
Wise contemplates what He does
Let's watch what He does
He does well whatever He does"

At the end of our interventions, we observed visible improvements in the health conditions of patients with psychological and physical disorders. We observed increased capacity and power of acceptance, displaying positive attitude, coping with pain, forgiving, and loving at the patient and all these eventually contributed to the process of healing.

Today, holistic approaches have gained more importance in health issues. Integration of body, mind and spirit have become a primary concern of health systems.

Keywords: *Spiritual Care, Holistic Medicine, Coping, Spiritual Coping*

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SPIRITUALITY IN CARE OF THE CANCER PATIENTS

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Abstract

Cancer is one of the leading causes of death in our country and worldwide. According to GLOBOCAN data, there were approximately 19.3 million new cancer cases worldwide in 2020, causing 10 million deaths. The number of cases diagnosed with new cancer in 2020 is 233,834 people in Turkey. Spiritual care is one of the most important parts of holistic care. Spirituality is a multidimensional construct associated with religion, existentialism, and humanism. Existential challenges (Identity, meaning, pain and death, guilt and shame, reconciliation and forgiveness, freedom, and responsibility, hope and despair, love and joy), Value-based thoughts and attitudes (What is the most important thing for each individual? relationships with oneself, family, friends, work, nature, art and culture, ethics and morals, life itself) and Religious ideas and institutions (faith, beliefs and practices, relationships with God and the infinite). Spirituality and religion are different but related concepts. Religious care is a section under the spiritual care umbrella. Its purpose is to meet the spiritual need. *What then is Spirituality?* It is people themselves, others important to them, their devotion to the creator, the meaning of life, the experience of finding their own purpose. For example, what is the patient's approach to pain? Cancer patient's approach to pain is affected by social, cultural, and spiritual factors. According to some cultures, pain «While it is seen as God's plan for her own life and as part of progress on the path to recovery», «As a result of imbalance between Yin-Yang». Patients experience many experiences including the physical, social, emotional, and spiritual aspects of their lives since diagnosis. Diagnosis brings with it many questions about living well with the disease. Care in cancer patients includes physical and psychosocial areas as well as mental, and mental well-being has been found to be as important as physical well-being. After diagnosis, 58% of them have deepened spirituality. Spiritual practices, rituals…help people cope with the pain and suffering associated with cancer, including physical, psychosocial, and spiritual pain, adjust to illness and treatment, face death, and grieve anticipated. Often the person conflicts with the spiritual and experiences conflicts within (Doubts, feelings of guilt, resistance….). 50% of cancer patients are in a spiritual struggle with the disease.

Spiritual distress: it is a mental crisis situation that can occur in the person such as vulnerability to problems, sadness, fear, depression, anxiety, hopelessness. It has been determined that 30% of the patients have spiritual distress, especially after the diagnosis of cancer. It is stated that doctors and nurses are primarily responsible for diagnosis.

Why Spiritual Care is Necessary? Provides spiritual care increases patient compliance with treatment plan, ensures treatment plans are aligned with patients' beliefs and values, helps the patient find effective coping mechanisms, improves patients' quality of life, reducing end-of-life aggressive care, making sense of the cancer experience, adapting to a disease, including

cancer, helping to build spiritual well-being, to find a sense of health even in the midst of illness and strengthening the relationship of trust with healthcare personnel.

Spiritual Requirements: In a study of patients with advanced cancer with a life expectancy of less than one year, 88% of patients stated that spirituality was important to them. 72% said that spiritual needs are little supported by the medical system. Spiritual care needs are variable and health care should be understood by professionals, must be followed and spiritual well-being assessment is required. Two strategies are suggested for achieving spiritual well-being in patients. *I. Strategy*; respecting the patient's subjectivity and promoting self-esteem. The new social role of the patient should be supported. *II. Strategy*; the patient's thoughts about his current condition. The era in which the meaning of life and death was questioned. There are shifting priorities, there is a need to deepen ties and share experiences with family and others. Helping to structure the relationship with the real world.

How Do We Build Spiritual Well-Being? Assess the patient's spiritual distress. Establish a deeper communication/connection with the patient. The spiritual needs of the patients should be defined, especially early identification is important. Identify and inform staff who will help meet patients' needs. Take care of the family. Empower the individual to find the inner source of healing and acceptance. Identify their spiritual and religious beliefs that will determine their health-related decisions (The themes that help hope find meaning are variable. Ex: Reading religious books, meditating, listening to music, poems, praying, praying...). Ask the patient open and closed questions about the topic. Identify patients you can interview in-depth.

There is a crisis situation in purposeful evaluation. The individual's adaptation to this situation is evaluated. As a result of the interviews, the patients are guided to remember the old coping methods in order to develop their coping strategies. It is recommended to use mind-body-based approaches (relaxation techniques….). Motivate the patient to use these themes. Referral to a spiritual care professional or religious official. A situational assessment of the patient is made. These are the interviews conducted to determine the needs of the patient and the family according to the current situation. In this process, patients and their families may not be aware of their needs. The patient's verbal or nonverbal expressions are important. Strategic and open-ended questions should be asked to the patient to help structure the necessary interventions. These are the interviews conducted to determine the needs of the patient and the family according to the current situation. In this process, patients and their families may not be aware of their needs. The patient's verbal or nonverbal expressions are important. Strategic and open-ended questions should be asked to the patient to help structure the necessary interventions. Anamnesis should be taken as a part of individuals' social lives. Routine diagnostics should be done in. Spiritual distress should be followed up during visits. Spiritual history should be taken including the physical, emotional, social and spiritual interpretation of the patient. As a result of the spiritual evaluation, the nurse should plan the interventions suitable for the diagnosis together with the patient. Decisions and actions should be taken in accordance with the needs and wishes of the person and should be regularly reviewed and revised. As a result of the spiritual evaluation, the nurse should plan the interventions suitable for the diagnosis together with the patient. Decisions and actions should be taken in accordance with the needs and wishes of the person and should be regularly reviewed and revised.

Therapeutic communication techniques, treatment and interventions for the patient's individual care should be planned in the integration of spiritual care into basic care. Therapeutic communication techniques should include the following approaches: Compassionate approach, reflective listening, giving information about important life events, supporting the patient's spiritual powers, getting information about their spiritual beliefs. The treatment dimension should include progressive relaxation and imaginative breathing exercises, applying to a spiritual care specialist, performing rituals in accordance with his beliefs, meaning-focused therapies, using storytelling, and structuring treatment that protects his dignity. The self-care dimension should include massage, meditation, spiritual support groups, sacred spiritual readings or rituals, exercise (yoga, tai chi…). Individuals should be directed to be at peace with themselves or others, and to art therapies (music, painting, dance…, journaling attempts). The effect of the interventions made at the end of the interventions on the patient should be evaluated.

What Are the Barriers to Spiritual Care? There are some barriers to the realization of spiritual care. Barriers to the fulfillment of spiritual care: Lack of time, lack of private space for discussion, feeling inadequate about the subject, believing that it will be done better by other staff, not believing that they have a role, not finding the subject important, not believing that cancer patients seek spiritual care, not believing that patients will feel comfortable It has been found that factors such as.

Suggestions for preventing barriers could be: Suggestions for the prevention of barriers may be: Raising the awareness of the staff, taking care to support hope, Including spiritual care in the undergraduate programs of nurses and doctors and ensuring integration with other subjects (e.g. In the care of cancer patients...), the spiritual dimension of health professionals' routine history and should be identified as part of their assessment. The patient's changing states and differences in spiritual needs should be observed (Mental problems, depression, anxiety, acute or chronic pain.). Trainings for the competence of health personnel should be planned (in-service trainings, meetings…). The spiritual care of the cancer patient should be defined with culturally valid and reliable scales. There are gaps between policies and practices. In order to prevent this, national guidelines should be prepared and integrated into the treatment plan. Specialists and religious officials who can receive spiritual counseling, when necessary, should be integrated into the care plan (In-depth interviews, referrals to spiritual care professionals should be made. They are trained and expert in their field).

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ORAL PRESENTATIONS

INVESTIGATION of CYTOTOXIC EFFECT of HSP70 INHIBITOR JG-98 on K562 CHRONIC MYELOID LEUKEMIA CELLS

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Abstract

Hsp70 weighs approximately 70 kDa (66-78 kDa) and is the best-preserved and best-characterized Hsp family among living organisms [1]. Hsp70 is a molecular chaperone with physiological roles such as folding of newly synthesized proteins, refolding of misfolded proteins, and inhibition of protein aggregation [2]. Although it is expressed at low levels in healthy cells, Hsp70 is overexpressed in tumor cells and helps tumor cells survive in hard conditions. High levels of Hsp70 play a role in many processes related to poor prognosis, such as inhibition of apoptosis in tumor cells, resistance to chemotherapy, metastasis, and invasion. Therefore, specific inhibition of Hsp70 in tumor cells is an important strategy in cancer therapy. In addition, while inhibition of Hsp70 has toxic effects on the tumor, its absence of toxic effects on normal cells is very important in preventing systemic toxicity in cancer therapy [3]. This study, it was aimed to investigate the cytotoxic effect of Hsp70 inhibitor JG-98 on K562 chronic myeloid leukemia cells. For this purpose, human chronic myeloid leukemia K562 cells were cultured and treated with different concentrations (100-0.1 µM) of JG-98 inhibitor. Cell viability was evaluated by XTT method after 24 and 48 hours of incubation. Cell viability concentration was found by accepting the cell viability of the control group as 100%, and accordingly, JG-98 was found to be effective even at low doses. The findings showed that the Hsp70 inhibitor JG-98 significantly inhibited K562 cell proliferation ($p<0.05$). The IC_{50} values were calculated as 6.37 µM and 2.39 µM, respectively, after 24 and 48 hours of the incubation period. The study shows that JG-98 promises in the treatment of chronic myeloid leukemia.

Keywords: *Chronic Myeloid Leukemia, Cytotoxicity, Hsp70, JG-98*

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III. INTERNATIONAL CANCER DAYS

NURSING CARE IN ADULT PATIENTS DIAGNOSED WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): A MODEL-BASED SYSTEMATIC APPROACH

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Abstract

Leukemia is a common malignancy seen in children and adults that cause uncontrolled proliferation of hematopoietic stem cells in the bone marrow due to changes in normal cell regulatory processes. Acute lymphoblastic leukemia (ALL) accounts for 5 % of all adult lymphoid malignancies. The diagnosis of ALL is verified by the occurrence of lymphoblasts in the peripheral blood and bone marrow after detailed anamnesis and physical examination are performed. In addition to being a medical-physical disease, cancer is a complex disease that brings along many mental and psychosocial problems. The diagnosis of cancer is a traumatic experience for the individuals and their family. The cancer categorized as a chronic disease adversely affects the lifestyle and life quality of both the diagnosed individuals and their family due to its severe prognosis and treatment modality. Providing nursing care in a scientific and systematic structure is of great importance for the individuals and families to cope with this multi-faceted influence. The aim of this review is to address nursing care in a model and evidence-based current approaches in all adult patients diagnosed with ALL.

Keywords: *Acute Lymphoblastic Leukemia, Nursing Care, Gordon's Functional Health Patterns Model, Cancer*

1. Introduction

Leukemia is a common malignancy seen in children and adults that cause uncontrolled proliferation of hematopoietic stem cells in the bone marrow due to changes in normal cell regulatory processes. The prevalence of leukemia is usually higher in whites and men and increases with aging. Acute lymphoblastic leukemia is one of the most common leukemia subtypes [1]. Acute lymphoblastic leukemia (ALL) accounts for 5 % of all adult lymphoid malignancies. The diagnosis of ALL is verified by the occurrence of lymphoblasts in the peripheral blood and bone marrow after detailed anamnesis and physical examination are performed. [2].

ALL symptoms and findings may appear only days or weeks before the diagnosis. The most common symptoms are caused by impaired hematopoiesis, and the patient may develop

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anemia, thrombostopenia and granulostopenia [1]. In this context, fever, weakness, and weight loss are the most common symptoms in adults [2].

Anemia causes fatigue, weakness, paleness, shortness of breath, tachycardia, or chest pain symptoms while thrombocytopenia leads to easy bruising, bleeding in the mucosa, petechia /purpura, nose bleeding or severe menstrual periods in women. Granulocytopenia or neutropenia cause fever and severe and /or recurrent infections [1, 2]. As a result of infiltrations that may occur in bone marrow and periost, bone and joint pain may develop in the patient [2].

In addition to blood, bone marrow and lymphoid tissue in ALL, the involvement can be observed in liver, testicles, and central nervous system (CNS). The patients may be admitted to hospital for spontaneous bleeding, including intracranial or intraabdominal hematomas. Penetration into central nervous system and meningeal infiltration are common in ALL, which may result in cranial nerve paralysis, changing mental condition, headache, visual or auditory symptoms and temporary ischemic attack/stroke. Moreover, as a result of organ infiltration of leukemic cells, growth in the liver, spleen and lymph nodes can be seen [3].

The treatment of leukemia is planned according to the subtype of leukemia, cytogenetic and molecular findings, the patient's age, and comorbidity conditions. Chemotherapy, radiation, monoclonal antibodies, or hematopoietic stem cell transplantation are used in the treatment of acute leukemia [3]. All these treatments can result in many complications such as tumor lysis syndrome. As a result of widespread cellular destruction, intracellular content is released. High levels of potassium, phosphore, uric acid and blood urea nitrogen may occur in blood tests. In addition, serious infections may develop in the patient due to immunosuppression [1]. It is known that the recognition of side effects that may develop as a result of therapeutic applications and providing appropriate care can improve the participation of the patients in their daily life activities and enhance ttheir quality of life [4].

Cancer, categorized as a chronic disease, affects the lifestyle and quality of life of the individuals and their family during the entire treatment process starting from the diagnosis. It creates serious stress for patients and treatment team as well as patients, making compliance to treatment difficult. Cancer symbolizes an unknown danger, anguish, and pain, feeling of guilt and shame, isolation, chaos and anxiety. Therefore, although cancer is a medical and physiological disease, it is a phenomenon that involves many mental and psychosocial problems. The diagnosis of cancer is a traumatic experience for the individuals and their family [5]. It is also vital that the nursing care to be offered to the patients and their family trying to cope with such a complex disease must be based on a scientific framework and implemented systematically.

In this context, nursing theories and models form a scientific basis for nursing practices, making nursing care systematic, providing standardization in nursing care and contributing to the increase in the professional autonomy of nurses [6]. In 1987, Gordon suggested a systematic guideline in his studies on nursing diagnoses, which he called 'Functional Health Patterns (FHP) to gather and organize information with a firm stance on nursing. FHP is classified under 11 categories associated with human health and life processes [7,8,9].

The North American Nursing Diagnosis Association (NANDA) is the most widely used nursing diagnostic terminology on international platform. The classification of the fields,

classes and nursing diagnoses in NANDA Taxonomy II are made according to Gordon's FHP.NANDA updates the nursing diagnoses in the meetings held every two years. Today, the NANDA classification contains 13 fields, 47 classes and 245 diagnoses [10,11]. In Gordon's model, functional health patterns are classified under 13 categories associated with human health and life processes: (1) Promotion of health, (2) Nutrition, (3) Excretion and gas exchange (elimination), (4) Activity-Rest, (5) Perception/Grasping (Cognitive-Perceptual), (6) Self-Perception, (7) Role Relations, (8) Sexuality/Reproduction, (9) Coping/Stress Tolerance, (10) Life Principles (Values/Faith), (11) Security/Protection, (12) Comfort (13) Growth / Development [10,12,13].

In this direction, adult nursing care for the patients diagnosed with ALL will be based on Gordon's FHP in this review.

1.1. Adult nursing care for the patients diagnosed with ALL based-on Gordon's FHP model

1.1.1. Perception of Health – Management of Health

This pattern defines the perception of health and wellbeing and how the patients manage their health. It includes the effect of the individual's perception of health on daily activities and future plans. It also entails the level of health care behaviors of the individual, the participation of mental and physical health promoting practices and the treatment plan and compliance with nursing advice [7,8,9].

The interventions to be made in order to promote the health conditions of the individuals in the nursing care of the adult patient diagnosed with ALL are beneficial to mental relaxation, and compliance to the treatment process. The nursing care to be done for this includes the following practices [14, 15]. The relevant nursing care plan is explained below:

• In order to ensure the patient's compliance to the treatment process and to eliminate the anxiety, the patient should be informed about the effects and side effects of the drugs and applications to be performed on him/ her during the treatment process.

• It is ensured that the patient can express his/ her feelings and thoughts about his / her illness.

• The patient is encouraged to seek support from family members if necessary.

• Individual and environmental support sources of the patient are put into action (It is emphasized that the support of family members is crucially important in this period).

• Patients and their relatives are allowed to ask about the issues they are curious about. The training sessions are planned in view of the individuals' learning models.

• Attitudes and behaviors that will cut off the joy of life and hopefulness of the patient are particularly avoided.

1.1.2. Nutrition

This pattern includes the patient's food and fluid consumption, the number of daily meals, the type and quality of the food and fluids consumed, and the condition of supplementary food and vitamin intake [8,9].

Diet is the most important element in treatment of cancer. Due to the side effects of the treatments (chemotherapy, radiotherapy, etc.) applied in ALL, it is very difficult for the patient to feed well., Some symptoms such as feeling pain while swallowing, oral wounds, constipation, diarrhea, nausea, and vomiting prevent food intake. A diet devoid of protein and

calorie nutrition is a common nutritional problem encountered by many patients with cancer. Sufficient and balanced protein and calorie intake is very important in terms of healing, combating with infections and supplying energy [16].

The main aim of nursing care for nutritional pattern is to ensure that the patient maintains an adequate and balanced nutrition to meet daily metabolic needs and activity levels while no decrease in appetite and no weight loss is observed. The relevant nursing care plan is explained below:

• Daily nutritional status of the patient is evaluated.

• Nutritional disorder symptoms and findings (i.e., weakness, anorexia) are evaluated.

• Training sessions on nutrition based on the literature are offered.

• Laboratory findings (i.e., albumin, total protein) are monitored on a daily basis to identify nutrition adequacy.

• Painful procedures (i.e., intratecal treatment, injection) are not performed before meals.

• Oral hygiene (i.e., mouth rinsing, using the mouthwash) is ensured before and after eating.

• The patient is ensured to eat little and frequently.

• The patient is ensured to consume high-calorie foods instead of low-calorie foods.

• If the patient is diagnosed with mucositis, nursing interventions are made.

• The patient's weight is monitored.

• Nutrition support is provided if necessary.

One of the most common symptoms seen in patients as a result of the side effects of the treatments in ALL are nausea and vomiting. If the patient suffers from nutritional problems due to nausea and vomiting, the following steps are applied [17]:

• The formation of nausea and vomiting and its severity are identified.

• Non-treatment factors causing nausea and vomiting are evaluated and solutions are found.

• The patient is evaluated in view of food and fluid intake at meals, content of meals, number of meals, frequency, and other aspects.

• Required oral hygiene is procured.

• According to the therapeutic regime, the appropriate anti-emetic medications are given to the patient on time.

Due to nutritional failure carbohydrate, lipid and protein metabolisms and fluid and electrolyte balances are impaired in patients with cancer. Tumor lysis syndrome, one of the treatment complications, is another condition that causes liquid and electrolyte imbalance [1,16]. To eliminate the risk of liquid and electrolyte imbalance, the following steps are applied [14,15]:

• The patient's vital signs are checked.

• The amount of liquid intake and urination is monitored daily.

• Electrolyte values are monitored daily and if necessary.

• The patient is monitored in terms of symptoms and findings that indicate liquid and electrolyte imbalances (i.e., hyperthermia, drowsiness, weakness, disruption of skin turgor, pulse and blood pressure irregularities). Increased fluid volume findings such as bulging in the patient's neck veins, prominent edema, abnormalities in cardiac sounds and respiratory difficulties are regularly monitored.

In adult patients diagnosed with ALL, imbalance may develop at blood glucose levels due to nutritional disorder and steroid treatments. In order to eliminate this imbalance, the following steps are applied [14,15]:

• The symptoms and findings of hypoglycemia in the patient (i.e., restlessness, hunger, palpitations, perspiration, tremor, tingling sensation in the lips, headache, tachycardia, impaired speech, blurred vision, irritability, convulsion, loss of consciousness) are monitored.

• The symptoms and findings of hyperglycemia in the patient (i.e., burning sensation in the feet, polyuria, polyphagia, polydipsia, blurred vision) are monitored.

• Blood glucose levels are monitored at regular intervals and medical treatment is applied according to the orders of the physician if necessary.

• It is ensured that the patient has breakfast, lunch, and dinner along with refreshments, and it is checked whether the patient has eaten the meals.

1.1.2. Excretion and Gas Exchange

This pattern defines excretory functions including intestines, bladder, and skin. The perceptions of individuals regarding the order of their excretory function, use of laxatives for intestinal discharge, whether there are any changes or disruptions in the time patterns, the amount, frequency, and characteristics of the feces are evaluated [8,9].

Diarrhea and constipation due to chemotherapy in the patients with ALL are two important side effects that adversely affect the quality of life. In nursing care for diagnosis of diarrhea, the following steps are applied [18]:

• The patient's intestinal pattern is evaluated.

• The situation (treatment, infection, etc.) that causes diarrhea should be identified well.

• The colour, number, content of the gaita is monitored and recorded.

• Non -treatment risk factors are evaluated and controlled in terms of diarrhea.

• Consuming caffeine, alcohol, dairy products, as well as oily, pulpy, and spicy foods are forbidden to eat.

• The patient is encouraged to consume pulpless foods such as yogurt, rice, pasta, grape juice, bananas, white cheese, white bread, boiled potatoes, boiled rice).

• Consuming too hot and too cold foods are forbidden.

• Fluid and electrolyte balance should be monitored.

• Dehydration findings are evaluated.

• Fever, abdominal pain, and weakness are evaluated.

• The patient is ensured to drink plenty of fluids (in 8-10 large glasses per day).

• The treatment is continued as ordered by the physician.

In nursing care for diagnosis of constipation, the following steps are applied [18]:

• The intestinal sounds of the patient are listened to every day and the intestinal discharge is evaluated.

• The consistency, form and amount of the daily gaits are evaluated.

• Nutritional habits are evaluated, and adequate fiber and fluid intake is provided in the diet.

• The appropriate time is determined for defecation with the patient and the patient is guided to discharge the intestines at the same time every day.

• Consumption of beverages that stimulate the defecation such as drinking apricot juice and warm water in the morning when hungry.

• It is recommended to defecate one hour after the meal, and it is ensured that there is sufficient time to eliminate in the restroom.

• Sufficient fluid intake is provided.

• Exercise habits are evaluated, and the patient is kept as moving as he/she can tolerate, and ROM (Range of Motion) exercises are performed for bedridden patients.

• If there are treatments ordered by the physician, the procedure is maintained.

1.1.4. Activity-Resting

This pattern encompasses the patient's daily life activities that require spending energy such as exercise and physical activity, leisure time, hygiene, cooking, shopping, eating, working as well as the duration of sleep, relaxation and resting in 24 hours, energy perception and quality of these patterns [8,9].

Another most common symptom in diagnosed with ALL patients is fatigue. The patient and his/ her family should be informed about signs of fatigue before it appears. The symptom emerging during treatment may emphasize the idea in patients and their families that the treatment does not work or the disease progresses, increasing the stress of patients and the family, and sometimes even causing them to leave the treatment halfway. In order for the patient to cope with fatigue, the following steps are applied [17]:

• Priorities in daily activities are determined. Appropriate arrangements and plans are made in order to carry out daily activities during periods of high energy and in order of importance.

• The patient and his / her family are informed about energy-protective techniques, food and beverages that will prevent sleep and so on.

• The activities that can be performed alone and require assistance are determined. While supporting the activities that the patient can perform individually, it is useful to make the patient recognize his/ her strengths, abilities and interests.

• The patient is encouraged to express opinions on his/ her lifestyle, roles, social relationships affected by fatigue. Moreover, the causes of the fatigue experienced are discussed and the patient is tried to be comforted.

• By determining the actual sleep time, it is ensured that the patient goes to bed when the sleep time strikes, to sleep and wake up at the same time every day and to avoid long-term sleep hours during the day.

• Pharmacological approaches should be ultimately used in the treatment of cancer -related fatigue. Anemia is the most expressed and most emphasized cause of the fatigue associated with cancer. It is reported that fatigue and quality of life are better in the patients with the target hemoglobin value of 11–12 g/dL. In this regard, erythropoetin treatment is used. Antidepressants are used in the treatment of fatigue due to depression and hypnotic treatments are used in sleep disorders. It is ensured that the blood and blood products and other treatments that are required to be performed as ordered by the doctor.

In adult patients with ALL, insomnia may develop due to several reasons such as stress, side effects of the treatments applied, hospitalization, and pain. In oder to overcome this problem, the following steps are applied [14,15]:

• The normal sleep patterns and habits of the individual are evaluated.

• The factors that cause sleep problems are evaluated.

• It is ensured that the patient expresses the conditions that create anxiety and cause insomnia.

• Planning for the sleep patterns is supported by taking follow-up, treatment, and caring hours into account.

• Information is given about the activities that will help the patient sleep well such as reading books, listening to music, and drinking warm milk.

• A relaxing and quiet sleeping environment is created.

• The intake of fluid is restricted when the sleep time is near, and the daily fluid intake is completed during daytime.

• The patient is recommended to limit drinks such as tea and coffee during the day.

• Training on sleep hygiene and positive dream techniques is given.

1.1.5. Perception / Cognition

This pattern identifies sensory-perceptual and cognitive functions. It includes sensorial competence such as sight, hearing, taste, touch, smelling, and the use of descriptive tools or prosthesis to cope with problems. In addition, cognitive functional competences of the individual such as language, memory, making judgments and decisions are evaluated in this pattern [8,9].

In line with this, the following steps are applied [18]:

• The patient's sensorial competence such as sight, hearing, taste, touch, and smell is evaluated, and nursing care is applied for the identified problematic area.

• Safety measures are taken against risk of falling or burning and helping devices are used.

• Peripheral neuropathy history and risk factors such as senility, diabetes, and HIV must be evaluated in the patients treated with neurotoxic chemotherapy. Peripheral neuropathy symptoms and the functional status of the patient are evaluated at regular intervals.

• Daily life activities are supported.

1.1.6 Self-perception

This pattern defines the patient's self-perception and his/ her own perceptions such as self -perception, body image, and feeling of a situation). It includes the attitudes of the individuals about themselves and their perception of image, identity, feeling worth and skills such as cognitive, affective, or physical. Body posture and movement, eye contact, sound and speech functions are discussed in this context [8,9].

In an adult patient diagnosed with ALL, the changes induced by cancer treatment methods in the body such as hair loss and sexual problems may adversely affect the patient's body image. The patients may feel incomplete and may not perceive themselves as a whole and think that they have lost their attractiveness. In order to eliminate this, the following steps are appplied [14,15]:

• The patient must be allowed to express his / her own feelings, thoughts, and self -perception.

• In order to develop a positive body image, possible coping methods such as wearing wigs and pleasant fragrances must be discussed.

• Nurses must observe the patients in terms of depression, anxiety, delirium, and investigate the suicidal thoughts [19].

• Necessary information is given about the situations that the patient lacks information, feels discomfort and wants to be explained.

• Information about the physical and emotional change to be experienced during the treatment process is given in family sessions and the famil members are encouraged to support this process.

• Meetings and interviews are organized for the patients with similar problems in an appropriate environment.

Cancer, associated with the concept of death in the patients diagnosed with ALL, is perceived as a serious illness creating despair. Hope plays a major role in strengthening the cope of cancer patients [19]. Therefore, it is important to give nursing care to strengthen hope.

In order to accomplish this, the following steps are applied [19]:

• The individual is allowed to express his/ her feelings and thoughts.

• The patient is encouraged to develop of positive thoughts for the future and dream.

• The patient is supported to feel that he/ she is important [14,15].

• The nurse should strengthen the patient's hope for realistic purposes.

• A peaceful and safe environment must be created where the patients can share their concerns with people with positive experiences. This may positively affect and change the perception of hope among the patients.

• Nurses can provide the patients with training and information to cope with the side effects. Providing education increases emotional support and promotes the development of a trust-based relationship with the patients. In addition, it can allow the patient to combat against the disease and continue his/ her life better.

1.1.7. Role Relationships

This pattern includes the patient's role responsibilities and relationships. Along with the perception of the major roles and responsibilities of the individual, his/her satisfaction or dissatisfaction with family, work and social relations is evaluated in this pattern [8,9].

Regardless of the type of cancer, the patient diagnosed with cancer may encounter with many questions of uncertainties about the future such as "What will happen to my family?", "How will my life continue?", "What will I encounter?" [19]. There is a risk of disruption in role performance and interruption of the family process in the adult patients diagnosed with ALL.

In order to overcome this, the following steps are applied [14,15]:

• The nurse must first obtain information about the patient's family structure, sociocultural background, and religious beliefs [19].

• It is ensured that the individual expresses his / her feelings and thoughts freely.

• Past coping methods are evaluated, and the patient is encouraged to use the most suitable method.

• The patient is encouraged to recognize support sources and his/ her own strengths.

• Relaxing activities for the patient such as reading books, watching television, and contacting other patients with similar diagnosis are evaluated and the patient is encouraged to engage with them.

• A comfortable environment is arranged to meet with relatives.

1.1.8. Sexuality-Reproduction

This pattern deals with the patient's satisfaction and dissatisfaction with sexuality and reproductive function. It also includes female reproductive status, the periods of premenopose and postmenapose, and the problems perceived by the individual [8,9].

Cancer and its treatment may have various effects on sexual life. Treatment methods such as chemotherapy and radiotherapy used in ALL can cause temporary or permanent changes in the body. These changes may have a negative effect on sexual drives of the individual. In order to overcome this problem, the following steps are applied [19]:

• The nurse should encourage the patient to talk about his/ her sexual problems

• The nurse must be sensitive to the patient and assume a non-judicial, acceptant attitude.

• The nurse should contact the patient and his/ her partner to share their current concerns about sexuality.

• Each patient's beliefs, cultural values and orientations about sexuality may differ. The nurse should consider these differences and respect them.

• When talking about sexual problems, the appropriate environment should be provided by taking care of the privacy of the patient.

1.1.9. Coping- Stress Tolerance

This pattern defines the patient's overall coping strategies and their effectiveness in terms of stress tolerance. It entails the capacity of the individual to resist changes to protect his / her self-integrity, the methods of dealing with stress, family, and other support systems [8,9]. Cancer is a great source of psychosocial stress that poses a perceived threat for every aspect of life. ALL is a disease that creates stress for both the patient and his/ her relatives, making life difficult and disrupting the balance thoroughly. This will cause stress loading in the patient [19]. In order to deal with this stress, the following steps are applied [14,15]:

• The relationship between the nurse and the patient must be based on mutual trust.

• Active Listening is an important component of the nurse -patient relationship. The nurse plays a key role to help the patients confront with their feelings and thoughts. Active listening techniques must be used in communication with the patient.

• The nurse should allow the patients to express their feelings such as anger, fury, guilt and helplessness by taking an open, honest, accepting, sensitive, insightful, and empathic approach and encourage the patients to talk about their perception of the disease and to share their concerns.

• The nurse must be aware of the verbal expressions of patients as well as non-verbal expressions such as body language and facial expression.

• The nurse must ensure that the patients be strengthened in coping with the disease and help them make sense of their lives [19].

• It is ensured that the individual clearly expresses his / her feelings and thoughts about the disease and the hospitalization.

• Information is given to the patients and their relatives about the treatment procedures and the applications to be performed. Their questions are answered.

• The patient is encouraged to share his / her feelings and thoughts about the disease and the hospitalization with his / her relatives when he / she needs and feels ready.

• The patient is supported in acute and troubled periods.

1.1.10. Life principles

This pattern addresses the values, beliefs and goals that direct the patient's choices and decisions in life. In this pattern, the things defined as important in life, healt -related values, beliefs or conflicts perceived in expectations are evaluated [8,9].

Human is a multidimensional entity with physical, social, mental, and spiritual needs. Therefore, a "holistic" approach is adopted in health care services. In order for the nurses to provide holistic care to all individuals, it is important to determine and implement the right initiatives in order to meet the spiritual needs of individuals. Spiritual care in nursing and be defined as recognizing the spiritual needs of individuals and meeting these needs by employing necessary initiatives and supporting the patients. The fact that the patients with cancer come face to face with the phenomenon of "death more than ever leads to an effort on part of the individuals to question the meaning of death and life, return to their inner world, eventually increasing the needs of spirituality and spiritual care as they are more interested in spiritual issues. The characteristics of cancer, intensive treatments with high side effects in the process, increasing symptom load, terminal and moral care needs necessitate the development of sensitivity to such issue in nurses [20]. In order to eliminate this, the following steps are applied [14,15,21]:

• A comfortable and safe environment is prepared for the patient.

• The patient is allowed to set realistic short- and long-term goals.

• The patient's perception of the disease process is evaluated.

• The patient's spiritual and cultural history is described and accepted.

• Previous methods of coping with problems are evaluated with the patient. The patient is supported to define his / her usual coping reactions and use their strategies that prove successful in the past.

• The patient is accompanied during anxiety periods. The patient's safety and security are ensured.

• The patient's questions about his/ her health condition are answered honestly.

• A calm and planned approach is maintained.

• Eye contact is maintained with the patient.

• Emotional /sensorial experiences are discussed with the patient.

• The situations that trigger emotions are investigated with the patient.

• The patient is encouraged to express his / her feelings and beliefs.

• The patient is actively listened.

• The patient is supported in the decision-making process.

1.1.11. Security / Protection

This pattern includes the patient's health-related processes such as infection, physical injury, violence, environmental hazards, defense, and thermoregulation [13].

Neutropenia, one of the most significant symptoms seen in ALL, is defined as absolute number of neutrophiles below 2,000/mm3 according to WHO. Febrile neutropenia is accompanied by fever. It is an important symptom caused by the suppression of bone marrow due to chemotherapy and/or radiotherapy and leading to the risk of infection [4].

In order to minimize the risk of infection that may develop in the patient, the following steps are applied [22]:

• Clinical symptoms of the infection such as fever, turbidity in urine, purulent drainage are observed (etc.)
• Asepsis and antisepsis are considered in the procedures to be applied on the patient.
• Hands are washed before and after contact with the patient.
• Measures are taken for protection aginst the infection.
• Skin integrity is maintained.
• Mouth hygiene is taken care of.
• The patient and his / her family are informed about infection-protective methods.
• Vital signs are closely monitored (especially fever).
• The patient's rest and diet is paid attention to.
• Culture samples are taken as odered by the doctor if necessary.
• The patient's laboratory findings for infection are monitored daily.
• Visitors are limited.

Mucositis is one of the most common side effects encountered among the patient's receiving chemotherapy and radiotherapy. In particular, it is seen as a result of the drugs that affect DNA synthesis (i.e., Metotrexate) and intracranial radiotherapy. In order to eliminate the risk of the mucositis, the following steps are applied [14,15,17]:

• Oral mucous membrane lesions are evaluated daily in terms of pain or bleeding.
• Changes in taste, swallowing, voice quality or comfort are observed.
• The need for oral care frequency and oral care techniques are determined.
• The patient is informed about oral hygiene after meals and as necessary.
• It is ensured that acidic foods are not consumed.
• The patient is advised to consume soft and liquid foods.
• Oily creams are applied to moisturize the lips and oral mucosa when necessary.
• Medical treatment is applied as ordered by the doctor if necessary.

Bleeding occurring as a result of the complex interaction of various factors associated with disease and treatment of patients diagnosed with ALL may develop due to a decrease in the number of platelets or dysfunction of the platelets, changes in clotting factors, or all combination of these factors. Thrombocytopenia, the primary cause of bleeding in these patients, usually occurs due to myelosuppressive chemotherapy, radiotherapy, or malignant bone marrow infiltration. In the nursing care for bleeding, the following steps are applied [14,15,23]:

• The patient is monitored in view of local bleedings such as gingival bleeding, hematuria, epistaxis, melena, hematemesis, and systemic bleedings such as severe headache, dizziness, weakness, difficulty in waking up, pain in muscles and joints.
• The patient's hemogram test results are monitored daily and as necessary.

• The patient's vital findings are frequently monitored.

• Vascular Access is paid attention to.

• The patient is informed about giving importance to oral care and being careful when brushing his/her teeth and using a soft toothbrush.

• The patient is informed about the symptomatic findings of bleeding and if these symptoms develop, he/ she is asked to communicate to health workers immediately.

• The patient's consciousness is evaluated daily.

• Transfusion of blood and blood components as ordered by the doctor are applied safely.

• The patient is not allowed to consume hard food.

• The patient is protected from traumas that may cause bleeding.

• Environmental security measures are taken to protect the patient from traumas.

• The use of sharp tools is avoided.

• Wearing tight clothes should be prevented.

• Initiatives should be planned to prevent constipation.

• Invasive initiatives should be avoided unless necessary.

1.1.12. Comfort

This pattern defines the patient's conditions that affect the patient's physical, environmental, and social comfort [13].

Pain is one of the most fearful symptoms that affect the comfort of the patients with cancer. Most of the patients with cancer experience pain due to the tumor compressing bones, nerves or other organs, cancer treatment or diagnostic procedures. In pain-oriented nursing interventions, the following steps are applied [14,15,24]:

• The intensity and quality of pain are evaluated.

• Factors that reduce / increase pain are assessed.

• Non-pharmacological methods are applied for pain control. The patient should be explained that he / she can use progressive relaxation and imagination. If there is no risky situation for the patient, the patient may be advised to have a 30-minute massage/aromatherapy massage or reflexology session. It can be recommended to listen to the favourite music with headphones.

• Medical treatment is applied as ordered by the doctor if necessary.

1.1.13. Growth / Development

This pattern defines the patient's risk of disproportionate growth and delaying development [13].

Unlike ALL seen in adults, the course of ALL during the childhood and the treatment protocols of brings about serious side effects in early and late periods. Retardation in growth and development is also one of the endochrinal side effects seen in the late period [25].

2. Conclusion and Implications

ALL negatively affects both the diagnosed individuals' and their families' quality of life due to its prognosis and treatment. The adult patients diagnosed with ALL face many physical, mental, and psychosocial problems. It is vital that the nursing care to be applied in a scientific and systematic structure helps the patients and their families to cope with these problems. Consequently, it is recommended that the nurses who provide care to the patients with ALL

apply their care through evidence-based initiatives in the light of a nursing model and nursing care plans that form a scientific and systematic structure.

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III. INTERNATIONAL CANCER DAYS

DOES THE AGE OF THE PATIENT HAVE AN EFFECT ON CURATIVE RADIOTHERAPY TOXICITY?

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Abstract

Objective: Early side effects due to radiotherapy (RT) appear within 90 days of the onset of RT. The aim of this study is to determine the effect of age on the occurrence, severity, and timing of age.

Methods: The data of 1423 patients who applied to Cumhuriyet University Faculty of Medicine, Department of Radiation Oncology between 2011-2015 and were treated curatively were evaluated retrospectively. Routine weekly evaluations of patients according to RTOG (Radiation Therapy Oncology Group) radiotherapy toxicity criteria were obtained by examining patient files.

Results: Data of 1423 patients were analyzed. Data of 681 (48%) female and 742 (52%) male patients were evaluated in the study. While the median age of the patients was 59 (min-max: 7-88), 956 (67%) of these patients were <65 years (group1) and 467 (33%) were ≥65 years (group2). 96% of all patients completed treatment. Interruption of treatment was observed more frequently in elderly patients ($p < 0.001$). The frequency of radiotherapy-induced side effects was 87% in group 1 and 89% in group 2 ($p = 0.251$). On average, the time to occurrence of side effects was 2.4 ± 0.04 weeks in group 1 and 2.1 ± 0.05 weeks in group 2 ($p < 0.001$). Lower gastrointestinal and genitourinary system toxicity due to radiotherapy was observed more in elderly patients ($p < 0.001$). No difference was observed in the incidence and timing of other non-hematological side effects ($p > 0.050$). The incidence and time of acute non-hematological side effects are shown in Table 1. There was no difference between the groups in terms of the incidence of radiotherapy-induced hematological toxicity and the time of occurrence. The incidence and time of acute hematological side effects of the patients are shown in Table 2.

Conclusion: Although acute toxicity due to radiotherapy tends to occur early in elderly patients, skin, lower gastrointestinal and genitourinary system toxicity was found to be statistically significant. There was no statistical difference between the two groups in terms of hematological toxicity.

Keywords: *Radiotherapy, Curative, Early Adverse Effects, Age, RTOG*

Table 1. Early non-hematological side effects and mean time of occurrence by age (<65 years and ≥65 years)

Non-hematological side effects	Early side effects			Time to be seen (average/week)		
	<65 AGE N: 956 (67)	≥65 AGE N: 467 (33)	*P value*	<65 age	≥65 age	*P value*
SKIN						
none	526 (55)	331 (71)				
Grade 1-2	411 (43)	134 (29)	**<0.001**	3,6±0.06	3.6±0.12	0,77
Grade 3-4	19 (2)	2 (0,4)				
MUCOSE						
none	870 (91)	417 (89)				
Grade 1-2	80 (8)	46 (10)	0,573	3,2±0.16	2.8±0.19	0,228
Grade 3-4	6 (1)	4 (1)				
EYES						
none	949 (99)	461 (99)	0,584	3.8±0,7	3±0.7	0,418
Grade 1-2	7(1)	6 (1)				
EARS						
none	948 (99)	461 (99)	0,295	3.5±0.5	3.6±0,9	0,867
Grade 1-2	8 (1)	6 (1)				
SALIVARY GLAND						
none	904 (95)	437 (94)	0,406	2.7±0.18	2.6±0.25	0,68
Grade 1-2	50 (5)	30 (6)				
PHARINX/EUSOPAHEAL						
none	648 (68)	349 (75)	0,003	2.9±0.07	2.7±0.1	0,114
Grade 1-2	307 (32)	118 (25)				
LARENKS						
none	914 (96)	441 (95)	0,269	3.5±0.2	3.1±0.3	0,455
Grade 1-2	39 (4)	23 (5)				
LUNG						
none	883 (92)	423 (90)				
Grade 1-2	71 (8)	41 (9)	0,285	2,8±0.13	2,6±0.22	0,260
Grade 3-4	2 (0,2)	3 (1)				
UPPER GIS						
none	689 (72)	348 (75)	0,526	2.5±0.08	2,4±0.12	0,667
Grade 1-2	267 (28)	119 (25)				
LOWER GIS						
none	827 (87)	355 (76)				
Grade 1-2	126(13)	110 (24)	**<0.001**	2.9±0.1	2.9±0.15	0,659
Grade 3-4	3 (0,3)	2(0,4)				
GUS						
none	882 (92)	365 (78)				
Grade 1-2	72 (8)	99 (21)	**<0.001**	2.9±0.15	2.4±0.13	**0,007**
Grade 3-4	2 (0,2)	3 (1)				
CNS						
none	926 (97)	459 (98)	0,237	3,1±0.3	2.1±0.5	0,089
Grade 1-2	28 (3)	8 (2)				

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Table 2. Early haematological adverse events and mean time of occurrence by age and other adverse events observed during treatment (<65 years and ≥65 years)

	Early side effects			Time to be seen		
	<65 N: 956 (67)	**≥65 yaş** N: 467 (33)	*P değeri*	**<65 yaş**	**≥65 yaş**	*P değeri*
WBC						
none	650 (68)	317 (68)				
Grade 1-2	262 (27)	119 (25)	0,234	3,1±0.08	2.9±0.11	0,131
Grade 3-4	44 (5)	31 (7)				
Neutrophil						
none	822 (86)	389 (83)				
Grade 1-2	95 (10)	53 (11)	0,368	3.4±0.14	3.1±0.18	0,281
Grade 3-4	39 (4)	25 (6)				
Platelet						
none	884 (92)	424 (91)				
Grade 1-2	63 (7)	31 (6)	0,057	3.7±0.18	3.4±0.24	0,375
Grade 3-4	9 (1)	12 (3)				
Hemoglobin						
none	835(87)	384 (82)				
Grade 1-2	119 (13)	82 (18)	0,500	2.9±0.15	2.7±0.19	0,345
Grade 3-4	2 (0,2)	1 (0,2)				
Hemotocrit						
none	915 (96)	432 (92)				
Grade 1-2	39 (4)	35 (8)	0,515	3,4±0.26	2.3±0.31	0,406
Grade 3-4	2 (0,2)	-				
Weight Loss						
no	866 (90)	425 (91)	0,300			
yes	96 (10)	42 (9)				
ECOG PS worsening						
no	816 (85)	386 (83)	0,108			
yes	140 (15)	81 (17)				
Discontinuation of treatment						
no	937 (98)	435 (93)	**<0.001**			
yes	19 (2)	32 (7)				
Exitus of treatment						
no	946 (99)	455 (97)	**0,028**			
yes	10 (1)	12 (3)				
Interruption of treatment						
no	794 (83)	392 (84)	0,367	8,3±0.39 day	7,7±0.6 day	0,239
yes	162 (17)	75 (16)				
Reason for interruption						
non-hematological	37(39)	22(48)	0,206			
hematological	58(61)	24(52)				

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INVESTIGATION OF CINNAMATE MOLECULE AND ITS DERIVATIVES BY QUANTUM CHEMICAL METHODS

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Abstract

Melanoma is one of the most common types of skin cancer. The cinnamate molecule was investigated by computational chemistry method. The structural, spectroscopic properties and biological applicability of the Cinnamate molecule and its hypothetical derivatives (Br, Cl, and F) were investigated. The full quantum chemical computations were performed using DFT (B3LYP) techniques with 6-311G basis sets using the Gaussian 05 software. Active sites of the molecule, FTIR, NMR UV-VIS spectroscopy, MEP and Fukui functions were calculated. The effects of cancer on the skin were theoretically investigated with the molecular docking method.

Keywords: *FTIR, NMR, UV-VIS spectroscopy, MEP, Fukui functions, and Molecular Docking*

1. Introduction

The deadliest kind of skin cancer, Cinnamate, has a high fatality rate [1–3]. If this malignancy is diagnosed early and treated with surgical excision with good safety margins, the prognosis may be excellent [4]. In advanced stages, however, when the Cinnamate has a strong spreading capacity and is resistant to conventional medicines, the prognosis is poor [1,5]. Classic chemotherapy, immunotherapy, and targeted molecular treatments may be used at this time. Even though these therapies have improved the clinical results of a considerable number of patients, there are still cases that are resistant or have negative effects [6–8].

As a result, advancement in the investigation of novel chemical structures that might serve as leads for the development of new Cinnamate treatments is critical. Compounds having biologically relevant activity can be found in nature [9–12]. Cinnamic acid, also known as 3-phenyl-2-propenoic acid, is a naturally occurring aromatic carboxylic acid that may be found in plant tissues such as cinnamon oils and coca leaves. This acid has a scaffolded structure in both cis and transforms, with the trans configuration being the most common [13–15]. Cinnamic acid and its derivatives exhibit a variety of pharmacological actions with minimal toxicity to live organisms, including antibacterial, antifungal, antioxidant, anti-inflammatory, and antitumoral properties [13,16–21].

Despite this, structural modifications in the cinnamic acid molecule can result in derivatives that are more powerful than the parent compound [21, 24, 25]. Cinnamic acid derivatives have been shown to be antitumor in Cinnamate [25,26], hepatocellular carcinoma [27,28], colon cancer [27,29,30], breast cancer [27,29–31], nasopharyngeal carcinoma [32], and

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lung cancer [30,33,34]. Cinnamic acid derivatives have been linked to several modes of action, including inhibition of histone deacetylases and metalloproteinase activity, which have been linked to cancer cell death and reduced tumors invasion [33,35]. Furthermore, these compounds can have several anticancer effects, including cell growth inhibition, apoptosis induction, and disruption of the phases of metastasis [25–27,30–32]. As a result, the goal of this work was to synthesize cinnamic acid-derived compounds and conduct a pharmacological screening to find the most active derivative chemical against Cinnamate cells.

2. Quantum Chemical Calculations

The Gaussian 05 program was used to do the entire quantum chemical calculations utilizing DFT (B3LYP) methods using 6-311G basis sets. Using Gauge-Independent Atomic Orbital Calculation, the 1H and 13C chemical shifts of the Cinnamate molecule into other compounds (Br, Cl, and F) were calculated using the same method (GIAO). Geometrical features were tuned while basic vibrational frequencies were found. The Cinnamate molecules' IR spectra were replicated in a variety of compounds (Br, Cl, and F). Electronic transitions in the UV-Vis spectral region were determined using a time-dependent (TD) DFT technique with a B3LYP level and a 6-311G basis set. The HOMO and LUMO energies have been computed. The Fukui function investigation of the Cinnamate molecule was carried out using a variety of chemicals (Br, Cl, and F).

The Docking Server was used to perform molecular docking. The geometric optimization of the ligands is the first stage. The MMFF94 technique was used to re-optimize compounds in the PDB format obtained from the optimized constructions. Gasteiger's recommended technique of load calculation, pH is set at 7.0 in all calculations. The grid maps of 90 x 90 (x, y, and z) were employed in docking computations, and the Lamarckian genetic algorithm (LGA) and Solis & amp; wet local search technique were applied [36]. The population size was set at 150 Å upon docking. During the search for the right area of the target protein of the compounds investigated, a 0.2 Å translation step and 5 Å quaternion and torsion steps were used [37].

3. Results and discussion

3.1. Geometry Optimization

In its most basic form, geometry optimization is a two-step process that predicts the 3-dimensional spatial arrangement of atoms in a molecule. Using the B3LYP/6-311G level, the optimal molecular geometry of the Cinnamate molecule with several molecules (F, Cl, and Br) was determined and shown in Figure 1.
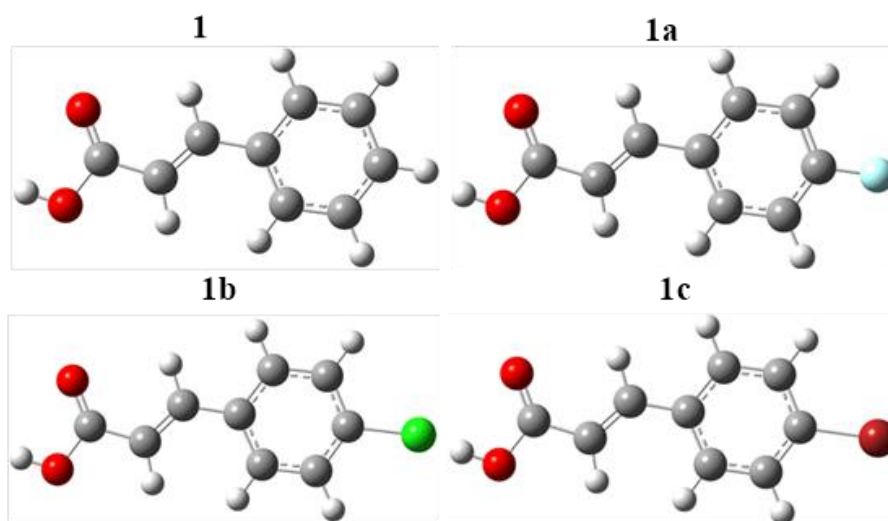
Fig. 1. The optimized structures of Cinnamate and derivatives (Br, Cl, and F) molecules using the DFT method with a 6-311G basis set. 1) Cinnamate, 12QWa) F, 1b) Cl and 1c) Br molecules.

3.2. Frontier Molecular Orbital Analysis

Chemical reactivity descriptors associated with the molecular system, as well as HOMO and LUMO energy values, are utilized to define a spectrum of reactions and forecast the most reactive site in connected systems [38]. Table 1 shows the HOMO and LUMO energies of the Cinnamate molecule in combination with several chemicals (Br, Cl, and F). The energy band gap between HOMO and LUMO reflects a molecule's chemical reactivity and conductivity [39]. The molecule's stability is indicated by the lowest energy gap, and electrons are more readily driven from the ground state to the excited state. Table 1 shows the Cinnamate molecule's HOMO and LUMO energies in the presence of several chemicals (Br, Cl, and F).

The energy band gap between HOMO and LUMO [39] reflects a molecule's chemical reactivity and conductivity. The molecule's stability is indicated by the lowest energy gap, and electrons can be pushed more quickly from the ground to the excited state.

The title compound's lowest bandgap makes the molecule more polarizable, which increases chemical reactivity. In molecular property modeling, optical activity, and biological activity, a molecule's polarizability is crucial. The equations for the parameters used in the idea are as follows:

$$I = -E_{HOMO} \tag{1}$$

$$A = -E_{LUMO} \tag{2}$$

$$\eta = \frac{1}{2}\left[\frac{\partial^2 E}{\partial^2 N} \right]_{v(r)} = \frac{I-A}{2} \tag{3}$$

$$\langle \alpha \rangle = \frac{1}{3}\left[\alpha_{xx} + \alpha_{yy} + \alpha_{zz} \right] \sigma = \frac{1}{\eta} \tag{4}$$

$$\mu = -\chi = \left[\frac{\partial E}{\partial N}\right]_{V(r)} = -\left(\frac{I+A}{2}\right)$$

(5)

$$\omega = \frac{\chi^2}{2\eta}$$

(6)

$$\varepsilon = \frac{1}{\omega}$$

(7)

$$\omega^+ = \frac{(I+3A)^2}{16(I-A)}$$

(8)

$$\omega^- = \frac{(3I+A)^2}{16(I-A)}$$

(9)

The polarizability of a molecule is critical in molecular property modeling, optical activity, and biological activity. Ionization potential, electron affinity, chemical potential (), electronegativity, global hardness, electrophilicity, and softness may all be calculated using these equations (S). The chemical reactivity parameters obtained in the gas phase at the B3LYP/6-311G level are shown in Table 1. Theoretical predictions based on quantum chemical characteristics can be used to determine a molecule's activities.

Table 1. The calculated quantum chemical descriptors for the Cinnamate molecule into various derivatives (Br, Cl, and F).

Compound	1	1a	1b	1c
E_{HOMO} (eV)	-6.800	-6.940	-6.980	-6.851
E_{LUMO} (eV)	-2.256	-2.418	-2.529	-2.484
ΔE (eV)	4.544	4.522	4.451	4.367
η (eV)	2.272	2.261	2.225	2.183
σ (eV^{-1})	0.440	0.442	0.449	0.458
χ (eV)	-4.528	-4.679	-4.754	-4.667
μ (eV^{-1})	4.528	4.679	4.754	4.667
ω	4.512	4.841	5.077	4.987
ε	0.221	0.206	0.196	0.200
ω^+	2.532	2.784	2.979	2.927
ω^-	7.060	7.463	7.734	7.595

The first and most essential property is HOMO energy. The electrons in the HOMO can move about more freely if the HOMO's energy is higher. The higher the electron mobility, the

more efficient the chemicals are as inhibitors. Electron uptake capability determines the LUMO energy levels. The higher the inhibitory efficiency, the lower the LUMO energy. In addition, a molecule's energy gap is equal to the difference between E, LUMO, and HOMO energies. This parameter is used to compute the reactivity characteristic. The better the inhibitory effectiveness, the higher the softness value and the lower the hardness value. The chemical potential and electronegativity characteristics of the inhibitor are critical in defining its properties.
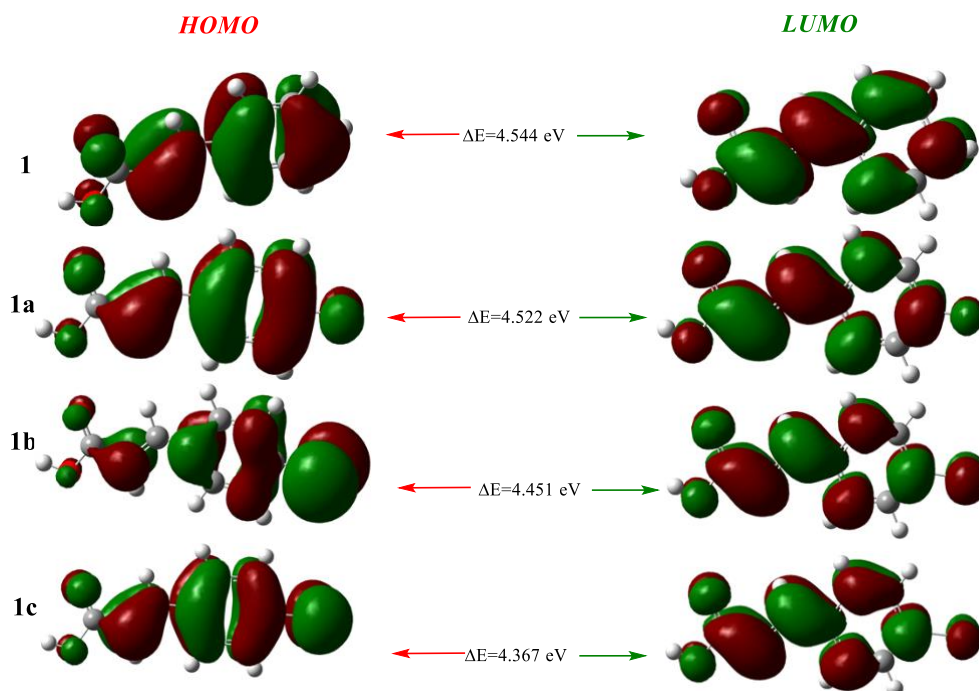
Fig. 2. HOMO, LUMO orbitals contour diagrams for 1) Cinnamate, 1a) F, 1b) Cl, and 1c) Br

3.3. Vibrational Spectroscopic Analysis

Several approaches are used to determine the IR fingerprints of each residue of interest in the reaction induced FTIR difference spectra that follow. Because of research on model compounds and the rising use of theoretical chemistry for normal mode calculations, we may interpret the IR frequencies in terms of structural features of the chemical group or molecule of interest. This paper discusses the principles of FTIR spectroscopy, as well as the structural and functional information acquired by employing this method to examine photosystem data.

Infrared spectroscopy is used to analyze molecular vibrations. Functional groups have discrete infrared absorption bands that correspond to the fundamental vibrations of the functional groups [40-41]. The typical mode of vibration becomes infrared active when the dipole moment of the molecule changes during vibration (i.e., it absorbs the incident infrared light). As a result, symmetric vibrations in the infrared spectrum are uncommon.

In the infrared spectrum, all vibrations symmetrical to the center are inactive when a molecule has a center of symmetry. The asymmetric vibrations of all molecules, on the other hand, are detected. Because of this lack of selectivity, we may explore the properties of

practically all chemical groups in a single sample, including amino acids and water molecules, which are difficult to identify using typical spectroscopic techniques.

To assess structural changes in organic materials, vibrational characteristics must be investigated. Additionally, vibrational spectra analysis aids in the monitoring of the solvation mechanism by giving information on solvent availability throughout the drying or evaporation process [42]. The B3LYP/6-311G level was used to investigate the vibration spectra of Cinnamate molecules and several Cinnamate derivatives (Br, Cl, and F) in this investigation. The structural conformation of the Cinnamate molecule was studied using infrared absorption. Figures 3 show the compound's estimated IR spectra in the 3500-0 cm^{-1} region, which reveal Cinnamate molecules, Br, Cl, and F molecules as absorption peaks [43].
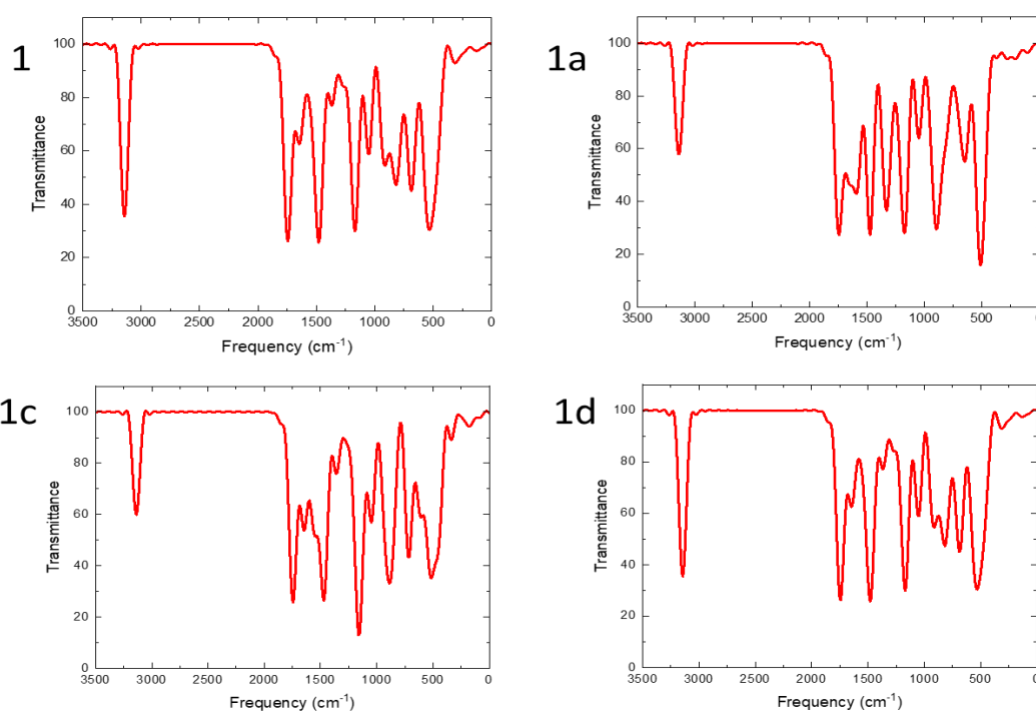
Fig. 3. FT-IR Spectrum of at the B3LYP/6-311G basis set for 1) Cinnamate, 1a) F, 1b) Cl and 1c) Br

3.4. NMR Spectroscopy

One of the most significant spectroscopic tools for analyzing the structure of Cinnamate is molecular NMR spectra. In contrast to the Cinnamate reference, the chemical shifts of the chemicals examined utilizing computational chemistry approaches were calculated at the B3LYP/6-311G level. The atomic labeling and 1H and 13C-NMR spectra of Cinnamate, Br, CI, and F compounds are shown in Figures 4.
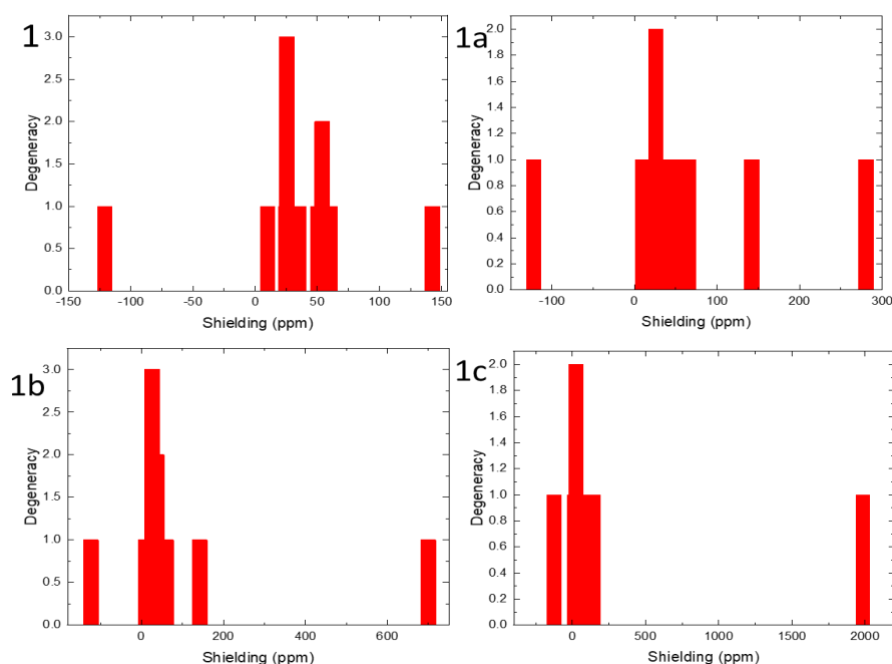
Fig. 4. NMR Spectrum of at the B3LYP/6-311G basis set for 1) Cinnamate, 1a) F, 1b) Cl, and F

As a result, carbon nuclei are less protected. Lower protected nuclei have higher chemical shift values. As a result, there are differences in the chemical shift values of carbon atoms and hydrogen atoms in molecules.

3.5. UV–Visible analysis

The UV-Vis spectral data were generated theoretically using the time-dependent (TD) DFT technique with the B3LYP level and 6-311G basis set. For the calculations, the Cinnamate molecule was split into several molecules (Br, CI, and F). The TD-DFT approach was used to compute the excited states of the Cinnamate molecule. The experimental UV-visible spectrum of the title compound is shown in Figure 5. The visual absorption maximum of the title molecule, which corresponds to the transition of electrons between border orbitals, was calculated using molecular orbital geometry calculations.
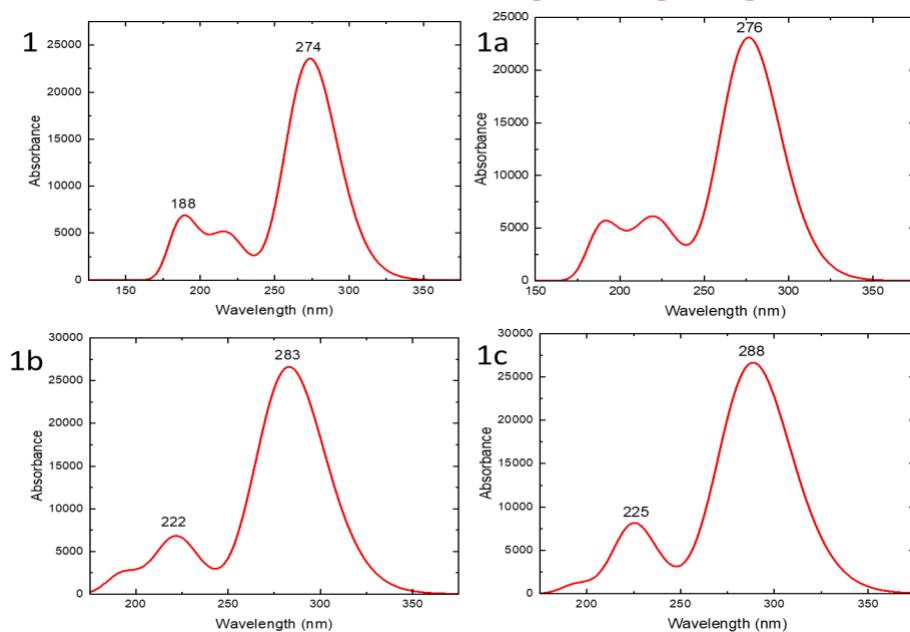
Fig. 5 UV-Vis spectra of 1) Cinnamate, 1a) F, 1b) Cl and 1c) Br

3.6. Fukui Function

Density Functional Theory (DFT) is a useful tool for determining the reactivity and selectivity of a molecule [44]. Global properties such as chemical potential, hardness, and softness describe chemical reactivity, whereas the selectivity notion defines local reactivity. The Fukui function is the most important parameter for local reactivity. The derivative of electron density for the change of a few electrons while holding nuclear positions constant is described as the Fukui function for a molecule [45,46]. Fukui indices are reactivity indices that show which atoms in a molecule have a high tendency to lose or gain an electron, making them more sensitive to nucleophilic or electrophilic assaults, respectively. The Fukui function is defined in [47–49].

$$f = \left(\frac{\delta \rho(r)}{\delta N} \right) r$$

(1)

$$f_k^+ = q_k(N+1) - q_k(N)$$

(2)

$$f_k^- = q_k(N) - q_k(N-1)$$

(3)

$$f_k^0 = \frac{1}{2}\left[q_k(N+1) - q_k(N-1) \right]$$

(4)

$$\Delta f_{(r)} = \left[f_{(r)}^{+} - f_{(r)}^{-} \right]_{(5)}$$

The above equations indicate the nucleophilic, electrophilic, and radical attack sites of a molecule's selectivity. qk looks after the atomic charges in the kth atom region of a molecule in neutral (N), anionic (N+1), and cationic (N-1) states. The nucleophilic and electrophilic populations are shown by the f+ and f-values, respectively.

The charge distributions that were calculated are shown in Figure 6. Green represents the negative charge, whereas blue represents the positive charge. From left to right, f+, and f-.
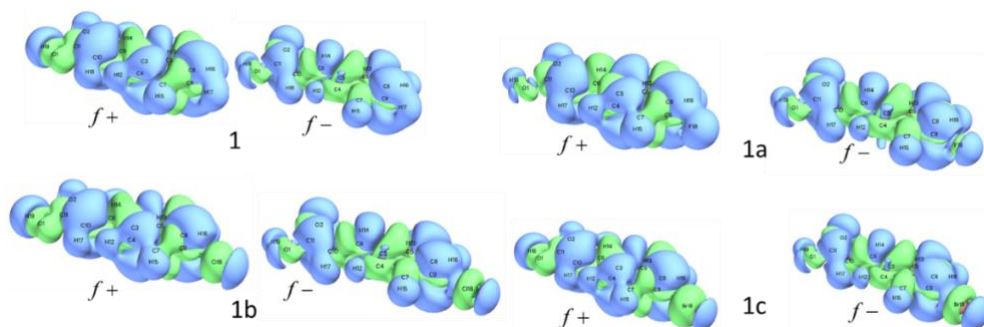
Fig. 6. Charge distributions for 1) Cinnamate, 1a) F, 1b) Cl, and 1c) Br

3.7. Molecular Electrostatic potential (MEP)

The MEP map depicts the form, size, dipole moment, and relative polarity of the molecule. The MEP map may also be used to identify the molecule's electrophilic and nucleophilic reactive areas. Colors range from red to blue on the surface map, with the electron-rich region at the top and the less-rich parts at the bottom. Electron density was found to be lower in areas around the remainder of the molecule (green color). The C-H hydrogens are in the electrophilic zone, as indicated by the green sections. The interaction of the molecule with other molecules in chemical processes is explained by its electrophilic and nucleophilic regions. The molecule is more likely to have nucleophilic than electrophilic characteristics, according to this research. Figure 7 depicts the MEP map of the Cinnamate molecule to multiple molecules (Br, CI, and F) between HOMO and LUMO.
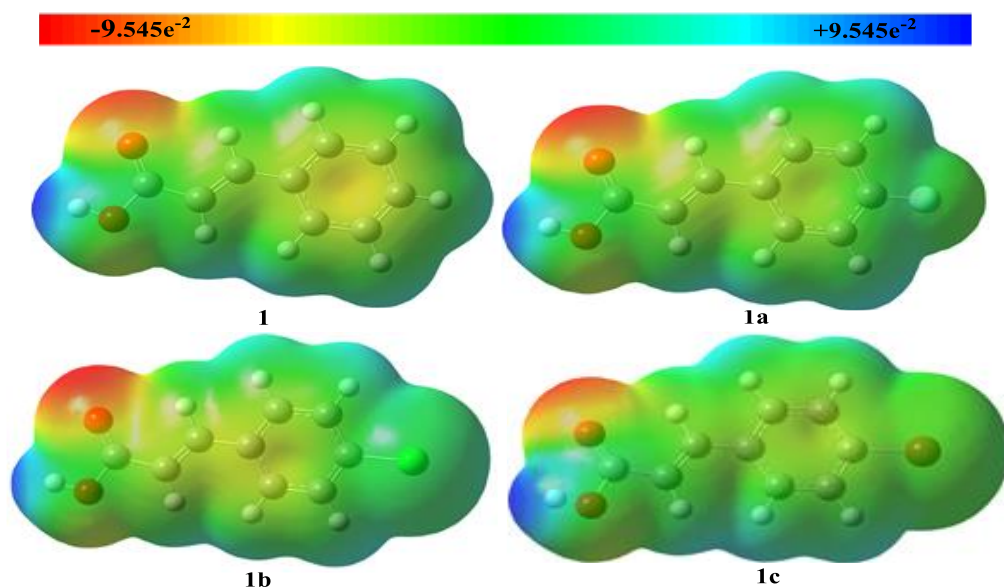
Fig. 7. MEP of 1) Cinnamate, 1a) F, 1b) CI, and 1c) Br

3.8. Molecular Docking

One of the most common strategies used in the discovery and development of therapeutic candidate molecules is molecular docking, which allows us to analyze the biological activities of molecules at the molecular level. The interactions between the minimalized protein structure of the cell lines and the drug candidate may be investigated at the molecular level using the molecular docking procedure. The binding energies, binding modes, and kinds of secondary chemical interactions between the target protein and the drug under investigation may all be identified via molecular docking [50-51]. The target protein representing the melanoma cell skin cancer line of studied cinnamate, and its derivatives has the PDB ID 1HJD. 1HJD is a protein linked to melanoma cell skin cancer. Melanoma cell cancer is the most severe kind of skin cancer and has a low incidence. Cinnamate (1) and its derivatives (1a), (1b), and (1c) were clamped to the skin cancer cell line in this investigation, and their insertion poses are shown in Figure 8 [52].

Table 2. Docking score between 1HJD target protein and 1, 1a,1b and 1c compounds.

	Est. Binding Energy	vdW + Hbond + desolv Energy	Total Intermolec. Energy
1	-4.42 kcal/mol	-4.69 kcal/mol	-5.00 kcal/mol
1a	-4.44 kcal/mol	-4.59 kcal/mol	-5.04 kcal/mol
1b	-4.65 kcal/mol	-4.37 kcal/mol	-5.24kcal/mol
1c	-4.17 kcal/mol	-4.78 kcal/mol	-4.76 kcal/mol

1-1HJD 1a-1HJD

1b-1HJD 1c-1HJD
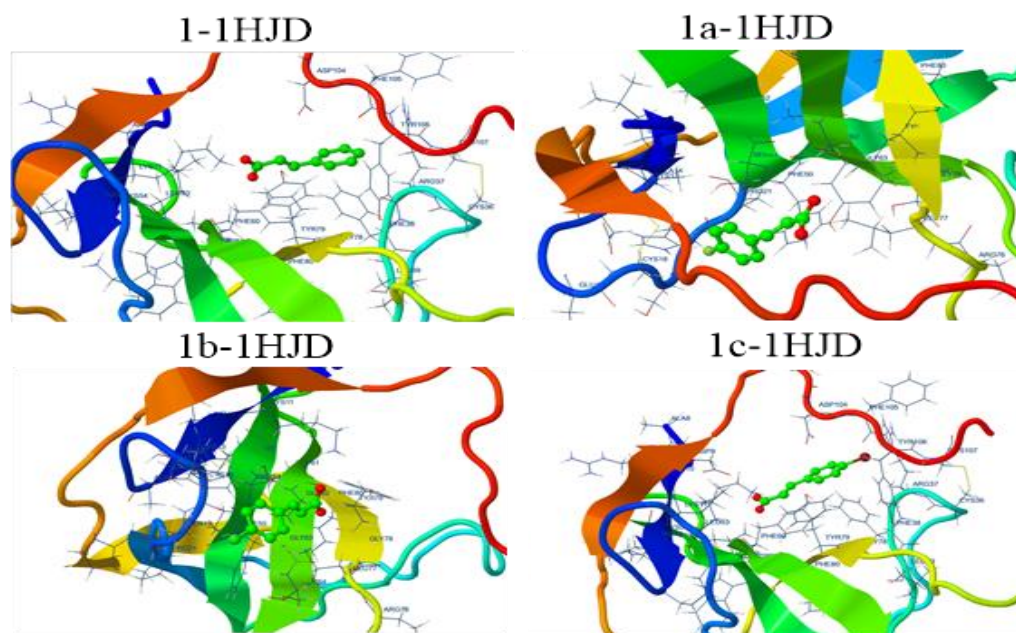
Fig. 8. Binding poses of Cinnamate and its derivatives with the 1HJD target protein.

The docking results show that the inhibition efficiency is increased when chlorine is added to compound 1b. The binding energy of 1b, 1a, 1 and 1c with the 1HJD target protein is -4.65, -4.44, -4.42 and -4.17 kcal/mol, respectively.

4. Conclusion

To analyze the chemical and physical features of the Cinnamate molecule, a quantum computational and spectroscopic vibrational study was done for the first time. FTIR and UV-Vis spectroscopy studies on the Cinnamate molecule in several compounds (Br, CI, and F) were compared to theoretical values determined using B3LYP procedures using a 6-311G basis set. The Cinnamate molecule's HOMO-LUMO energy gaps are 4.544 eV, 4.367 eV for Br, 4.451 eV for CI, and 4.522 eV for F, indicating that charge transfer happens inside the Br, CI, and F molecules. To acquire qualitative and quantitative information on the reactive region, Fukui function experiments were used. Cinnamate and its putative derivatives exhibit unique effect on ovarian and breast cancer types, according to molecular docking studies. The influence of electron-withdrawing and electron-donating groups on receptor molecules alters biological function.

Acknowledgement

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INVESTIGATION OF CANCERS OCCURRED IN EMPLOYEE AT A UNIVERSITY HOSPITAL BETWEEN 2006-2022

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Abstract

Cancer is the structures formed by the uncontrolled and irregular division and proliferation of cells in an organ or tissue. As in our country, cancer-related deaths in the world are second only to deaths caused by cardiovascular diseases. To date, studies examining the relationship between cancer and many occupational groups have been conducted. However, studies involving all cancers seen in healthcare workers are very few. The aim of this descriptive study is to evaluate the cancers seen in those working in Sivas Cumhuriyet University Practice and Research Hospital, which provides tertiary health care services in Sivas province between 01.01.2006 and 30.07.2022. Sample selection was not made in the study, and people who worked in the institution during the specified periods and who were diagnosed with cancer during their work were included in the study. Results: Between 01.01.2006 and 30.06.2022, 186 people working at Sivas Cumhuriyet University were diagnosed with cancer. 47.8% (n=89) of them are male and 52.2% (n=97) are female. The most common cancers are thyroid 21.5% (n=40), 16.7% (n=31) breast, head, and neck cancers 9.7% (n=18), hematopoietic system 9.1% (n=17) and stomach-colon 8.6% (n=16) are cancers. When evaluated according to occupational groups, it is 22.6% in the office group, 19.9% in the academicians, 15.6% in the workers, 14.0% in the nurses, 10.2% in the health technicians and 8.2% in the research assistants. When evaluated according to the units worked, it was seen that 20.4% were in office work, 7.5% were in radiology, 6.5% were in laboratories, and 5.4% were in medical school (student). The mean age of those diagnosed with cancer is 46.0 ± 8.9 (min 22, max 62). When the distribution of cancers by gender is examined; The most common cancers in men are thyroid (19.1%), head and neck (17.0%), stomach-colon (12.4%), hematopoietic system (12.4%), and lung (11.2%). in women, Breast (30.0%), thyroid (23.7%), female genital tract (12.4%), urinary system (8.2%) and skin (7.2%) are the most common cancers. When we look at the professions, breast cancers in academician women, head and neck cancers in men, thyroid cancers in research assistant women, and thyroid cancers in men. Breast cancer is the most common cancer in nurse women and thyroid cancer in men. In the bureau group, it is thyroid cancer in women and thyroid cancer in men. The most common breast cancers in security guard women and head and neck cancers in men. They are thyroid cancers in trainee women and male genital tract cancers in men.

thyroid cancers in working women and gastric-colon cancers in men. In healthcare technicians, urinary system cancers in women and thyroid cancer in men are the most common cancers.

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PRIMARY LYMPHOMA OF LUNG WITH ATYPICAL PLACEMENT

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Abstract

In this case, we are talking about primary lung lymphoma, which came to our clinic with atypical complaints. Primary lymphoma of the lung is a rare disease and is a type of cancer that is often missed in the differential diagnosis. The fact that it was located in the center brought to mind especially squamous cell lung cancer in the first place. Therefore, we should always keep primary lymphoma of the lung in mind in centrally located masses presenting with atypical complaints.

Case

A 72-year-old female patient applied to our clinic with complaints of dyspnea, cough, and sputum. The patient had a history of osteoarthritis and had no history of smoking, comorbidity, medication, asbestos exposure, allergy, previous lung disease, or previous tuberculosis. In the physical examination of the patient, there was no pathological physical examination finding except decreased breath sounds at the base of the left lung. The vital signs of the patient were heart rate 80/min, respiratory rate 25/min, oxygen saturation: 82, blood pressure: 120/80mmHg. The patient was then admitted to the chest diseases service. In the blood samples taken from the patient, no pathological condition was detected except C-reactive protein: 42 mg/L and sedimentation: 78 mm/h. The patient could not do the pulmonary function test because he could not tolerate it. There was a homogeneous increase in opacity extending to the left hilar region in the chest X-ray (Figure 1). The patient was then investigated for the etiology. Thoracic tomography was requested. In the thorax tomography, an effusion reaching a depth of 11 cm between the pleural leaves in the left hemithorax and compression atelactasia in the lung parenchyma adjacent to the effusion were observed (Figure 2). Total atelactasia in the lower lobe of the left lung was observed, and soft tissue structuring compatible with a suspicious heterogeneous tumor reaching approximately 56x53x56 mm in size is observed in this localization (Figure 2). The lower lobe of the left lung is not ventilated. No rheumatologic or cardiologic disease-causing pleural effusion was detected. After the tomography result, the patient underwent thoracentesis. Approximately 500 cc of fluid was drained by thoracentesis. Culture and biochemistry parameters were studied from the discharged fluid sample. Postprandial blood sugar:131 mg/dL, total protein:52 g/L, albumin:27 g/L, lactate dehydrogenase (LDH):454 U/L, leukocytes:270 10^9/L (90% mononuclear leukocytes), erythrocyte: 500 10^{12}/L and this liquid was evaluated as exudate according to Light criteria. Acid-resistant bacilli and no bacterial growth was observed in the pleural fluid culture studied. Tuberculosis DNA was measured negative and adenosine deaminase was evaluated as 23 IU/L. In the chest X-ray taken after thoracentesis, there is an increase in opacity in the left hemithorax

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extending to the apex, and tracheal and mediastinal shifts are present (Figure 3). The increase in the amount of pleural effusion in the patient's chest X-ray after thoracentesis and the detection of mononuclear leukocytes in the fluid sample also made us suspicious of lung cancer. Thereupon, positron emission tomography was requested. On positron emission tomography, there is a mass in the lower lobe of the left lung that obstructs the lower lobe bronchus and invades the descending aorta 180 degrees. In this mass, the size in which ametabolic areas were observed due to necrosis was measured as 65x58x90 mm in its widest part. Fluorodeoxyglucose (F^{18}-FDG) uptake, a glucose analog with fluorine-18 label, was highly increased in the mass (Figure 4). The standardized maximum uptake value (SUVmax) was evaluated as 30. Widespread pleural effusion filling almost the entire left hemithorax in the periphery of this defined mass and atelectatic areas in its neighborhood were also observed. Increased F18-FDG uptake was observed in lymph nodes, the largest of which was 15x11 mm in size, in the left hilar and subcarinal tract (SUVmax:11). According to these findings, we evaluated the mass in favor of tumor and lymph nodes in favor of metastasis. Afterwards, the patient underwent fiberoptic bronchoscopy with a preliminary diagnosis of lung cancer (Figure 5). Lavage and biopsy were taken from the patient by fiberoptic bronchoscopy. The pathology result was stated as diffuse large B-cell lymphoma. Afterwards, the patient underwent fiberoptic bronchoscopy with a preliminary diagnosis of lung cancer (Figure 5). Lavage and biopsy were taken from the patient by fiberoptic bronchoscopy. The pathology result was stated as diffuse large B-cell lymphoma. Therefore, the diagnosis of diffuse large B-cell lymphoma of a mass, which we initially thought to be squamous cell carcinoma, is a rare condition. Therefore, if we see a centrally located mass in the diagnosis of lung cancer, it should always come to our mind that it may also be primary lymphoma of the lung.

Discussion

Lymphoproliferative disease in the lungs can occur mostly with the spread of Hodgkin or non-Hodgkin lymphoma to the lung through the blood (1). Its secondary occurrence may occur as a direct invasion from the hilar or mediastinal region (1). Lung lymphoproliferative diseases can be mediastinal, parenchymal, or endobronchial (2). Primary lymphoma of the lung is a rare type of neoplasia that represents approximately 0.5% to 1% of primary pulmonary malignancies (3). Primary pulmonary lymphoma presents as a malignant clonal lymphoproliferation of one or both lungs and/or bronchi without extrapulmonary involvement at the time of diagnosis or in the first three months following diagnosis (4). The most common type is low-grade B-cell lymphoma (4). Extranodal non-Hodgkin lymphoma accounts for 24% to 50% of all non-Hodgkin lymphoma cases, while the lung accounts for 3% to 4% of all extranodal regions (3). Extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue is the most common subtype, accounting for approximately 90% of cases (3,5). Diffuse large B-cell lymphoma is less common and may occur as a de novo or high-grade transformation from a less aggressive lymphoma (3,6). Compared with low-grade B-cell lymphomas, high-grade lymphomas present with more respiratory and structural symptoms and have a worse prognosis (5,7). The true incidence of high-grade B-cell primary pulmonary lymphoma may be underestimated as this type of cancer tends to spread rapidly to the mediastinum and extrathoracic localizations (3). It may progress with asymptomatic or non-

specific respiratory symptoms. Since it progresses radiologically with masses or consolidations, it should definitely be kept in mind in the differential diagnosis. Although primary lung lymphomas are mostly asymptomatic, nonspecific symptoms such as cough, chest pain, and shortness of breath may also be seen. The complaints of our case were dyspnea, cough and sputum. In these patients, hilar involvement can be detected at the time of diagnosis and may accompany a history of smoking, immunosuppression, and autoimmune diseases (8). Our patient had no history of smoking, immunosuppression, or autoimmune disease. The primary lymphoma of our case showed central involvement. Since squamous cell lung cancer is most common centrally located, we thought of squamous cell lung cancer in the foreground. In the pathological staging of non-Hodgkin lymphoma with lung involvement, lung parenchyma, lymph nodes, adjacent chest wall, diaphragm and other organ involvements are taken into consideration (9). In our case, there was no hilar or mediastinal involvement other than parenchyma at the time of diagnosis, and it was evaluated as stage I. In the differential diagnosis of primary pulmonary lymphoma, conditions such as pneumonia, lung cancer, metastasis, atelectasis, and pulmonary sequestration should be considered. Histopathological evaluation is required for definitive diagnosis. Primary pulmonary lymphoma is a type of cancer with a good prognosis (10). In a study of seventy people with these patients, 5-year survival was 94%, and in the case of high-grade disease, the mean survival was 3 years (10). Although surgical treatment can be curative in this type of cancer, patients may need to be followed up by medical oncology because it is possible to encounter recurrence even years later (11).

Figure 1. First chest X-ray at the time of admission to the hospital

Figure 2. Mass and pleural effusion image on thorax tomography.

Figure 3. Chest X-ray after thoracentesis
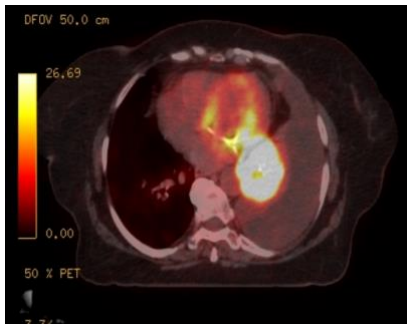
Figure 4. F^{18}-FDG uptake in lung mass in PET image.

Figure 5. Fiberoptic bronchoscopy image and report

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THE RELATIONSHIP OF BREAST CANCER AND CONSUMPTION OF MILK AND DAIRY PRODUCTS

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Abstract

Cancer is the term to describe a group of diseases characterized by the uncontrolled growth and spread of cells affecting any part of the body [1]. The World Health Organization emphasizes that most cancer deaths are due to behavioral and dietary risk factors (high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco, and alcohol consumption). Therefore, dietary changes are considered preventive strategies in cancer control plans [2].

Recently, with the recognition of diet as one of the modifiable risk factors for breast cancer; The relationship between lifestyle and nutritional factors and breast cancer risk has been extensively studied [3]. Breast cancer risk is affected by dairy products both negatively and positively through many potential mechanisms. The main hypothesis suggesting that milk consumption reduces breast cancer risk refers to the anticarcinogenic properties of calcium, vitamin D, butyrate, lactoferrin, and conjugated linoleic acid. Dairy products are the main dietary sources of these compounds, and studies have suggested that they play a role in reducing the risk of breast cancer [4]. However, it is also suggested in the literature that dairy products increase the risk of breast cancer. High dairy consumption may reflect higher dietary fat intake in general, particularly saturated fat, which has been associated with a higher incidence of breast cancer. In line with all this information, it does not seem possible to reach a definite conclusion between breast cancer and consumption of milk and dairy products. Studies show that milk and dairy products may have positive and negative effects on the formation of breast cancer.

The aim of this study; The aim of this study is to examine the studies in the literature on the relationship between milk and dairy products and breast cancer, and to reveal and evaluate the positive or negative effects of consumption of milk and dairy products on the formation of breast cancer, considering all these attitudes and studies related to nutrition in cancer.

Keywords: *Cancer, Breast Cancer, Nutrition, Milk and Dairy Products*

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THE RELATIONSHIP BETWEEN SEVERITY OF GASTRIC INFLAMMATION DUE TO HELICOBACTER PYLORI AND COLORECTAL MALIGNANCIES

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Abstract

Objective: Several factors play role in colorectal carcinogenesis. Among these factors, *Helicobacter pylori* infection is supposed to be one of the causative factors. Previous studies were focused on investigation of the relationship between helicobacter pylori existence and colon carcinomas by particular serological diagnostic tests. The aim of our study was to determine the effect of the helicobacter pylori infection and the severity of inflammation related to this infection on the colon carcinomas and non-carcinoma colon mass lesions (tubular adenoma, tubulovillous adenoma, hyperplastic polyp*)*.

Method: A retrospective study was conducted at Kecioren Teaching - Research Hospital between 2010 to 2018. The files of 657 patients who underwent colonoscopy and were diagnosed as colon benign or malign mass lesions were examined retrospectively from the hospital database. Two hundred five patients who had undergone both upper gastrointestinal endoscopy and colonoscopies were included in the study. The presence and severity of inflammation due to *Helicobacter pylori* were evaluated by histopathological examination of biopsies taken during upper gastrointestinal endoscopy. The severity of *H. pylori* inflammation was graded according to the Sydney classification.

Results: In the comparison of colon carcinoma with other colon mass lesions group, there was no statistical significance in terms of gender (P= 0.094) and *H. pylori* serology (P= 0.998). However, the degree of inflammation was significantly high in patients with colon carcinoma than other colon mass lesions (P< 0.001).

Conclusions: The fact that the severity of *Helicobacter pylori* inflammation is higher in patients with colon carcinoma than patients with non-carcinoma colonic mass lesions suggests that inflammation due to *Helicobacter pylori* may be more important than the presence of helicobacter pylori in the carcinogenesis of colon cancer.

Table 1: Characteristics of patients

		n	%
Gender	Female	261	39.70
	Male	396	60.30
Groups	Colon carcinoma	278	42.30
	Non carcinoma colon masslesions		
	I. Tubuler adenoma	136	20.70
	II. Tubulovillous adenoma	37	5.60
	III. Hyperplastic polyp	206	31.40
Endoscopy	Present	205	31.20
	Absent	452	68.80
H. pylori	Positive	104	50.70
	Negative	101	49.30

Table 2. Comparison of groups according to gender, *H pylori* presence, and inflammation grade

Variable	Colorectal cancer	Non carcinoma colon mass lesions	P
Age(mean±SD)	**67,13±14,16**	**57,82±13,57**	**0.001**
Gender Female (n) Male (n)	53 85	34 33	0,094
H pylori			
H pylori (+) (n)	70	34	
H pylori (-) (n)	68	33	0,998
***H pylori* İnflammation** Grade 1(n)	36	32	
Grade 2(n)	22	1	
Grade 3(n)	11	2	**0,001**
Smoking status			
Smoker(n)	36	23	
Non-Smoker (n)	102	44	**0.024**
BMI (mean±SD) (kg/m^2)	26,056±**2,86**	24,775±**2,86**	**0.003**
AlcoholConsumption			
Current/Ex-drinker(n)	4	7	
No(n)	134	60	**0.024**
Family History of Colorectal carcinoma			
Yes(n)	6	2	
No(n)	132	65	**0.638**

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SYNTHESIS, DFT CALCULATIONS, AND INVESTIGATIONS OF ANTICANCER PROPERTIES OF DIARYLUREA DERIVATIVE AGAINST COLON CARCINOMA

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Abstract

Cancer is a disease in which some of the body's cells grow uncontrollably and spread. Cancer can start almost anywhere in the body, which is made up of trillions of cells. There are many cancer types and colon cancer are the sixth most seen cancer type in 2020. As for mortality, colon cancer is thirth degree.

In this study, two new compounds were investigated. Firstly, they were synthesized. These compounds were characterized by ^{1}H-NMR, ^{13}C-NMR, FT-IR, and LC-QTOF-MS spectroscopy techniques. Then, cell viability analyses of them were completed using XTT test to predict anticancer properties. Finally, these compounds were optimized at B3LYP/6-31G level in water. Experimental spectral data were compared with the calculated data.
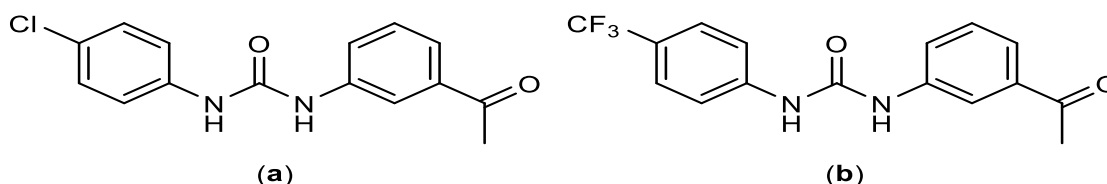
Figure 1. Compound structure of 1-(3-acetylphenyl)-3-(4-chlorophenyl) urea (a) and 1-(3-acetylphenyl)-3-(4-(trifluoromethyl)phenyl) urea (b)

As a result, newly designed compounds are synthesized and characterized. Experimental results were supported with the calculated results. According to XTT analyses, one compound has anticancer properties against the colon cancer.

III. INTERNATIONAL CANCER DAYS

FACTORS AFFECTING PERMANENT SENSORINEURAL HEARING LOSS IN PATIENTS RECEIVING RADIOTHERAPY TO THE HEAD AND NECK REGION

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Abstract

Purpose: Radiotherapy (RT) is a treatment method frequently used for head and neck cancers (HNC) and brain tumours. For patients with HNC, RT or chemoradiotherapy (CRT) can be applied definitively or adjuvant, and the radiation dose used is typically high. Many critical organs such as the medulla spinalis, cochlea, brain stem, optic nerves, and optic chiasm are located in the RT field. The RT side effects in these organs can be observed in the early and late periods of RT. RT can cause both types of hearing impairment: conductive hearing loss (CHL) and sensorineural hearing loss (SNHL). This study aimed to investigate the factors affecting permanent sensorineural hearing loss (SNHL) observed in patients who received radiotherapy in the head and neck region.

Methods: This study was conducted at the Department of Radiation Oncology at Sivas Cumhuriyet University Hospital. A total of 63 patients ($n=126$ ears) with irradiated head and neck regions admitted to the Radiation Oncology Department between 2011 and 2018 were included in the study. Each ear was evaluated independently for radiation doses and hearing status. Hearing data of all patients obtained at baseline (the start RT; T_1), completion of RT (T_2), six months after completion of RT (T_3), one year after completion of RT (T_4), two years after completion of RT (T_5), three years after completion of RT (T_6), four years after completion of RT (T_7) and five years after completion of RT (T_8) was gathered from the audiological evaluation form of each patient. Pure tone audiometer was performed to the audiological evaluation. Figure 1 shows the contouring of the cochlea on CT (on the bone window) and T2-weighted magnetic resonance imaging.

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 23.0 for Windows (SPSS, Chicago, IL, USA). Medians and frequencies were

calculated for patient demographics. In RT techniques, the Mann-Whitney U test was used to compare the median of Dmean and Dmax cochlear doses. ROC analysis was used to determine the cut-off values of the Dmean cochlear dose and the cochlear Dmax dose that affect hearing. A chi-square test and the logistic regression analysis were used to analyse variables that affect permanent SNHL occurrence. Repeated measures analysis of variance was conducted to investigate the factors affecting the change in BC threshold at the pure-tone average (0.5–2 kHz) and AC threshold at the 4 and 6 kHz frequencies over time. P values ≤0.05 were accepted as statistically significant.

Results: The patients included 51 (81%) men and 12 (19%) women. Their median age at the time of the cancer diagnosis was 52 years (range: 16–75 years). Fifteen of the patients (24%) were ≤ 40 years old, and 48 of the patients (76%) were > 40 years old. Nineteen of the patients (30%) had at least one comorbid disease.

Ranked in order of frequency, the cancer classifications were head and neck ($n = 51$, 81%) and central nervous system ($n = 12$, 19%). Regions of head and neck with tumours were as follows: nasopharynx (NPC) 26 (41%); oral cavity/oropharynx 11 (18%); larynx/hypopharyngeal 10 (16%); and salivary gland 4 (6%). The grades of the brain tumours were as follows: grade 1–2 tumour 6 (9%) and grade 3–4 tumour 6 (9%).

Staging of head and neck cancers were as follows: 2 (4%) patients in stage I; 11 (22%) patients in stage II; 23 (45%) patients in stage III; and 15 (29%) patients in stage IVA. Brain tumours were not staged.

Treatment was performed in 25 (40%) patients. A total 12 (19%) patients were treated with postoperative RT; 6 (10%) patients were treated with definitive RT; 12 (19%) patients were treated with postoperative CRT; and 33 (52%) patients were treated with definitive CRT. Induction chemotherapy was administered to 5 (8%) patients, and 19 (30%) patients received adjuvant chemotherapy.

The median follow-up was 51 months (range 12-110 months). SNHL was observed in 18 (14%) of the 126 ears. The Dmean (≤40 Gy vs >40 Gy) and Dmax (≤45 Gy vs >45 Gy) cochlear dose and age (≤40 vs >40 years) were determined as factors affecting SNHL in the chi-square test (Table 1). In the logistic regression analysis, the Dmean (≤40 Gy vs >40 Gy) and Dmax cochlear dose (≤45 Gy vs >45 Gy) were determined as risk factors for SNHL. For SNHL, the odds ratio of the Dmean and Dmax cochlear dose was determined as 4.63 (95% CI: 1.50–14.28, $p=0.008$) and 4.08 (95% CI: 1.33–12.52, $p=0.014$). In repeat measurements, it was observed that bone conduction (BC) threshold at 0.5–2 kHz and air conduction thresholds at 4 and 6 kHz increased over time (Table 2). Age (≤40 vs >40 years), treatment of head and neck cancer (RT vs. CRT), cisplatin use, and Dmean (≤37 Gy vs >37 Gy) and Dmax cochlear dose (≤46 Gy vs >46 Gy) were important factors affecting the course of BC threshold over time (Table 3).

Conclusion: In our study, SNHL occurred at lower cochlear radiation doses at low frequencies than in other studies (>40 Gy vs 45–55 Gy) [1-4]. Moreover, Dmean and Dmax cochlear dose and age were found to be associated with permanent SNHL. Regardless of SNHL, in the patients who receive RT in the head and neck region, conduction thresholds worsen over

time at all frequencies, and this poor trend is affected by cochlear doses, age, CRT, and cisplatin use.

Keywords: *Radiotherapy, The Head and Neck Region, Sensorineural. Hearing Loss, Radiation Dose*
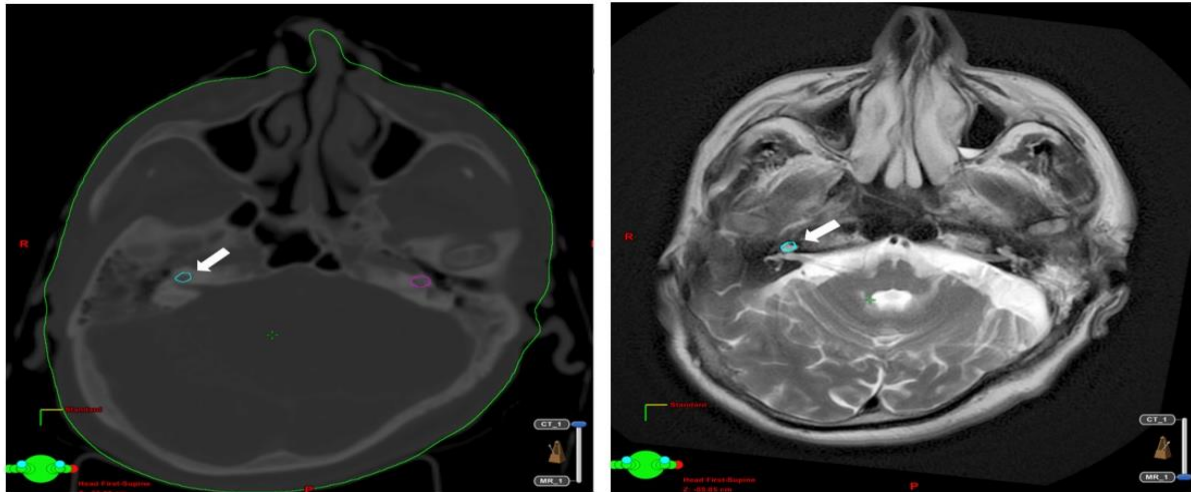
a. The contour of the cochlea on computed tomography (white arrow)

b. The contour of the cochlea on T2-weighted magnetic resonance imaging (white arrow)

Figure 1. The contour of the cochlea on computed tomography and T2-weighted magnetic resonance imaging.

Table 1. Factors affecting the rate of permanent sensorineural hearing loss.

The chi square test	SNHL[1] Absent $n=108$ (86%)	SNHL Present $n=18$ (14%)	*p* value
Dmean cochlear dose			
≤40 Gy	85 (91)	8 (9)	*0.004*
>40 Gy	23 (70)	10 (30)	
Dmax cochlear dose			
≤45 Gy	83 (92)	7 (8)	*0.002*
>45 Gy	25 (69)	11 (31)	
Gender			
Female	19 (79)	5 (21)	0.236
Male	89 (87)	13 (13)	
Age			
≤40 years old	30 (100)	- (0)	*0.005*
>40 years old	78 (81)	18 (19)	
Comorbidity			
No	75 (84)	14 (16)	0.339
Yes	33 (89)	4 (11)	
Localization of the disease			
HNC[2]	86 (84)	16 (16)	0.286
Brain tumours	22 (92)	2 (8)	
Treatment of HNC			
RT	19 (86)	3 (14)	0.531
CRT	67 (84)	13 (16)	
RT techniques			
3D-CRT[3]	64 (87)	10 (13)	0.481
IMRT[4]	44 (85)	8 (15)	
Use of Cisplatin			
No	41 (89)	5 (11)	0.290
Yes	67 (84)	13 (16)	
Cumulative dose of cisplatin			
≤435 mg	40 (60)	4 (31)	*0.053*
>435 mg	27 (40)	9 (69)	

n: the number of ears, SNHL[1]: Sensorineural hearing loss, HNC[2]: Head and neck cancers, 3D-CRT[3]: three-dimensional radiotherapy, IMRT[4]: Intensity modulated radiotherapy.

Table 2. The changes in bone conduction threshold at 0.5–2 kHz and air conduction thresholds at 4 and 6 kHz over time

Conduction thresholds	T_1 $n=126$	T_2 $n=126$	T_3 $n=126$	T_4 $n=126$	T_5 $n=86$	T_6 $n=78$	T_7 $n=58$	T_8 $n=58$	*p* value
Bone (0.5-2 kHz)	15±7	15±6	16±6	16±16	16±16	18±17	18±17	19±19	**0.005**
Air (4 kHz)	35±23	37±24	38±22	41±22	44±23	46±23	48±25	48±25	**<0.001**
Air (6 kHz)	37±24	40±26	41±24	42±23	46±26	51±24	54±23	58±25	**<0.001**

T_1 the start RT, T_2 completion RT, T_3 six months after completion of RT, T_4 one year after completion of RT, T_5 two years after completion of RT, T_6 three years after completion of RT, T_7 four years after completion RT, and T_8 five years after completion of RT, *n*: the number of ears.

Table 3. The effects of age, treatment of head and neck cancers, use of cisplatin, the Dmean and Dmax cochlear doses on bone conduction threshold over time

	T_1 $n=126$	T_2 $n=126$	T_3 $n=126$	T_4 $n=126$	T_5 $n=86$	T_6 $n=78$	T_7 $n=58$	T_8 $n=58$	*p* value
Age									
<40	11±12	11±13	12±13	12±13	13±14	13±14	14±15	16±17	***0.002***
≥40	44±14	43±13	43±13	43±13	43±11	46±10	46±16	40±21	
Treatment[1]									
RT	6±4	7±5	8±4	9±4	7±4	9±5	11±6	10±6	***0.048***
CRT	18±18	18±18	19±8	18±18	19±18	21±18	20±21	22±21	
Cisplatin									
No	6±4	7±5	8±4	9±4	7±4	9±5	11±6	10±6	***0.048***
Yes	18±18	18±18	19±18	18±18	21±18	21±18	20±21	22±21	
Dmean[2]									
≤37 Gy	12±12	12±12	13±12	12±12	13±12	14±12	13±12	15±14	***0.037***
>37 Gy	20±22	22±22	21±21	23±21	22±22	26±22	27±24	27±24	
Dmax[3]									
≤46 Gy	12±12	12±11	13±11	13±11	13±12	14±12	13±12	15±14	***0.030***
>46 Gy	22±23	22±23	22±23	23±22	24±23	27±23	28±25	27±26	

T_1 the start RT, T_2 completion RT, T_3 six months after completion of RT, T_4 one year after completion of RT, T_5 two years after completion of RT, T_6 three years after completion of RT, T_7 four years after completion RT, and T_8 five years after completion of RT, *n*: The number of ear. Treatment[1]: The treatment of head and neck cancers, Dmean[2]: The mean radiation dose of cochlea, Dmax[3]: The maximum radiation dose of cochlea.

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III. INTERNATIONAL CANCER DAYS

HOME EDUCATION SERVICES and HOSPITAL SCHOOLS FOR CHILDREN WITH CANCER IN TURKEY

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Abstract

Home education is the provision of education at home to people who are at the age of compulsory education and who cannot attend pre-school, primary, secondary, or special education schools due to various health problems. Education services offered at home are of great importance for individuals and especially children who have to stay at home due to any illness and cannot continue their face-to-face education. It is seen that a concrete step has been taken, and some developments have been made in Turkey in parallel with the services provided in this regard in the world. [1]. Especially for children, being in environments associated with the disease is a frightening experience for them. It is seen that the relationship between the hospital and the disease creates a negative perception, and the psychology of the children deteriorates. Home education services have started to be offered in order to partially eliminate the negative consequences of being separated from their mothers, school, and friends, and delays in the education of young children [2]. Practices called "Hospital Schools", or "Hospital Classes" started in the 1950s and were opened in some hospitals in Turkey. It is aimed to ensure that school-age children (6-13 years old), who have to be hospitalized, continue their education, and prevent their psychological isolation by being with children who are sick like themselves. Since the conditions of children with cancer change instantly, they should be kept under constant surveillance, and possible risks should be minimized. These educational services provided for children with cancer, whose treatment continues for a very long period, enable them to have fewer problems when they return to school after treatment. Activities in hospital schools also increase the mood of children and support them to respond more positively to treatment [3].

Keywords: *Home Education, Hospital Schools, Cancer, Children*

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SPIRITUAL COUNSELLING FOR CANCER PATIENTS

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Abstract

Cancer is a disease that causes individuals to completely lose their comfort of life and causes deep psychological collapse. Since the death rate in this disease, which has a very difficult diagnosis, treatment, and post-treatment processes, is quite high compared to other diseases, cancer patients fall into despair. As in all diseases, keeping morale and motivation high in cancer increases the chances of success in the treatment process [1]. Sometimes cancer patients are not self-sufficient and seek moral support. In this context, the spiritual counselling support offered is very valuable for them. It helps individuals to realize the effects of their beliefs on their lives, to protect their spiritual and spiritual integrity, to cope with stress, anxiety, fear, anxiety, and depression in life [2]. In this context, it is seen that spiritual counsellors provide an important support in coping with the intense negative emotions experienced by cancer patients [3]. In this study, it was aimed to determine the opinions of individuals who lost their relatives due to cancer, about spiritual counselling. A semi-structured interview form consisting of three questions was used. A total of 10 participants, 7 women and 3 men, were interviewed and their answers were analyzed by content analysis and frequency technique. In the findings obtained, it was determined that the relatives of the participants did not receive spiritual support and they thought positively about this issue. However, it has been concluded that the views of the relatives of the deceased that they will look at spiritual counselling negatively when they are sick are predominant.

Keywords: *Spiritual Counselling, Cancer, Patients, Treatment*

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III. INTERNATIONAL CANCER DAYS

SYNTHESIS, OF NEW DIARYL UREA-IMINE DERIVED COMPOUNDS, INVESTIGATION OF EFFICACY AGANIST BREAST CANCER BY İN SİLİCO AND IN VİTRO METHODS

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Abstract

Cancer is a group of diseases, which consists of uncontrolled proliferation of cells in different organs, and whose clinical appearance, treatment and approach are different from each other. Cancer is a multistep and long-term process at the genotypic and phenotypic level. The most common cancer types in our country were reported as breast, lung, colorectal, prostate and thyroid, respectively. Breast cancer is the first cancer type among women.

In this study, two new imine derivatives were investigated. Firstly, they were fully optimized at B3LYP-D3/6-31G(d) level and simulated spectrum of them were examined in detail. Then, they were synthesized and characterized by ^{1}H-NMR, ^{13}C-NMR, FT-IR, and LC-QTOF-MS. Cell viability tests of these compounds were done using XTT to predict anticancer properties. Molecular docking analyses were performed. As a result, synthesized compounds were exhibited good results against breast cancer (MCF-7)
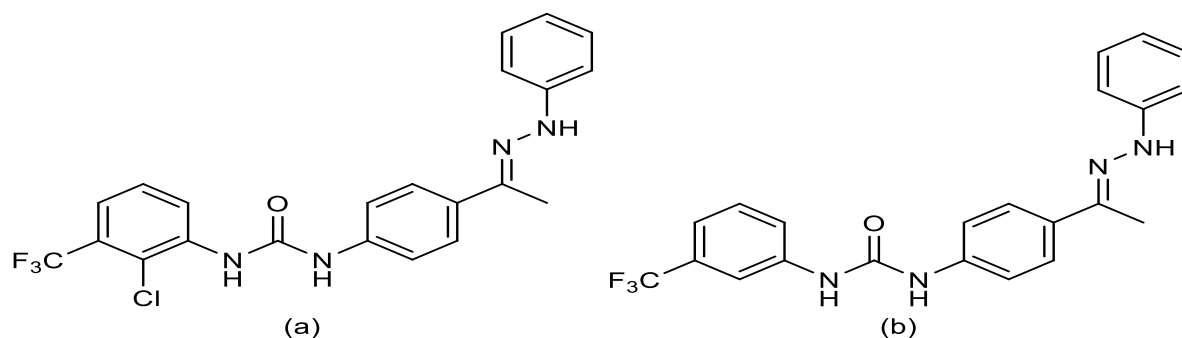
Figure 1. Compound structure of 1-(2-chloro-3-(trifluoromethyl) phenyl)-3-(4-(1-(2-phenylhydrazinelidin) ethyl) phenyl) urea (a)and 1-(4-(1-(2-phenylhydrazinelidin) ethyl) phenyl)-3-(3-(trifluoromethyl) phenyl) urea (b)

PROGNOSTIC FACTORS IN PATIENTS WITH METASTATIC BREAST CANCER

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Abstract

The purpose of this study is to analyze the survival rate of patients with metastatic breast cancer to identify factors related to survival in these patients. The data of 324 patients who were treated for metastatic breast cancer at the Sivas Cumhuriyet University Oncology Center between 2006 and 2019 were retrospectively reviewed. The study results showed that among all the prognostic factors that play significant roles on the survival of patients with metastatic breast cancer, advanced age of the patient (>65 years), development of metastasis after 24 months, multiple organ metastases, presence of liver and brain metastasis, multicentricity positivity, tumor necrosis positivity, extracapsular invasion positivity represent the poor independent prognostic factors; whereas presence of lung metastasis is a good independent prognostic factor.

Keywords: *Metastatic Breast Cancer, Prognostic Factors, Site of Metastasis, Survival*

Introduction

Breast cancer is the most common cancer seen among women throughout the world. Today, metastasis can be seen at a rate of 6-10% of the patients upon diagnosis, despite the presence of advanced screening programs [1,2]. The disease is diagnosed at an early stage in most women; however, depending on the stage at diagnosis, 20-40% of these patients develop distant metastasis within five years [2,3]. Most of the metastases are seen within two or three years; however, they may also develop in the years following the initial diagnosis [2]. Distant organ metastases are frequently seen in the bones. Almost 70% of patients at an advanced stage develop bone metastases [4,5]. The other most common metastatic sites include the liver, lungs, and the brain.

The risk of metastasis in breast cancer is closely associated with the disease stage and the biological characteristics of the tumor. Each of the factors including the size of the tumor, nodal involvement, presence of lymphovascular and perineural invasion, tumor grade, receptor status of hormones such as estrogen and progesterone, and HER2 (human epidermal growth

factor receptor 2) status represent independent prognostic factors for the development of relapse in the patients. Patients with metastatic breast cancer represent a heterogeneous patient group, since they have different patient characteristics and tumor biologies [5].

The purpose of this study is to analyze the survival rate of patients with metastatic breast cancer to identify factors related to survival in these patients.

Methods

The data of 324 patients who were treated for metastatic breast cancer at the Sivas Cumhuriyet University Oncology Center between 2006 and 2019 were retrospectively reviewed. All of patients with metastatic breast cancer were accepted as eligible. Demographic, clinical, and pathological features of the patients were retrieved from the hospital records. The survival data of the patients were obtained from hospital records and unfollowed patients were contacted in order to obtain information about their conditions. Survival was defined as the time between the date of organ metastasis and last contact or death. The performance status of the patients was evaluated by the ECOG (Eastern Cooperative Oncology Group) scoring system at the time of the metastases.

For descriptive statistics, the mean, standard deviation, frequency, and median were used. The survival rates were calculated using the Kaplan-Meier analysis. Multivariate analysis (Cox regression analysis) was used for the evaluation of independent risk factors that had an effect on survival. P values ≤0.05 were accepted as statistically significant.

Results

Clinicopathological features, and initial treatments of the patients are shown in Table 1. Following development of the first metastasis, median survival of the patients was 25 months (0-286 months), two-year survival was 52%, and five-year survival was 24%. Age (≤62 vs >65 years, p<0.001), performance status (ECOG 0 vs 1 vs ≥2, p=0.001), metastasis development time (≤24 vs >24 month, p<0.001), the number of metastases (single organ vs. multiple organs, p=0.019), localization of the metastases (p<0.001 for liver metastasis, and p=0.007 for brain metastasis), ER receptor status (p=0.048), multicentricity (p<0.001), tumor necrosis (p=0.004), extracapsular invasion (p=0.009), CEA level (≤5.2 vs >5.2 ng/dL, p=0.001), Ca 15.3 levels (≤31 vs >31 U/mL, p=0.045), and ki67 leverl (≤14% vs >14%, p=0.011) were the prognostic factors included in the univariate analyses (Table 2). Factors that did not have statistical significance as prognostic factors in terms of survival were determined as age (≤35 vs >35 years), grade, lymphovascular invasion, progesterone receptor status, histopathology, menopause status, HER2 status, perineural invasion (p>0.050) in univariate analysis. The independent prognostic factors in the multivariate analysis were: age (≤65 vs >65 years, p=0.001, HR=2.75, CI=1.54-4.93), metastasis development time (≤24 vs >24 month, p<0.001, HR=0.06, CI=0.01-0.47), number of metastatic sites (single vs multiple organ, p=0.045, HR=1.62, CI=1.01-2.60), liver metastases (p=0.013, HR=1.96, CI=1.15-3.36), brain metastases (p=0.011, HR=1.9, CI=1.16-3.13), lung metastasis (p=0.044, HR=0.06, CI=0.37-0.98), multicentricity (p=0.012, HR=2.15, CI=1.18-3.90), tumor necrosis (p=0.035, HR=2.15, CI=1.18-2.91), extracapsular invasion (p=0.030, HR=1.83, CI=1.06-3.16). Independent prognostic factors in multivariate analysis are shown in Table 3 and Figure 1.

Discussion

The overall survival duration of patients with breast cancer has significantly increased, parallel to the recent advances in early diagnosis techniques and adjuvant treatments. However, patients who develop metastasis still have varied survival durations. Some patients may die in a very short time, while some others may live with the metastasis for many years. Therefore, metastatic breast cancer patients represent a heterogeneous group that involves different clinical entities. Due to the differences in survival durations, determining the prognostic factors for this patient group is of great importance.

Most researchers believe that the age of the patient at diagnosis is a prognostic factor affecting the survival. In the study performed by Largillier et al. in 1038 patients with metastatic breast cancer, it was reported that the survival of patients above 50 years of age was shorter than the survival of patients aged below 50 years (median survival 20 and 31 months, respectively) [6]. In our study, the survival times of patients over the age of 65, not 50, were found to be worse. Some researchers associated the poor prognosis seen in patients with older ages to the comorbidities present in this patient group [7].

Several studies have investigated the effects of the time for metastases development and its localization on survival. These studies have generally shown that patients with longer intervals of metastasis development also had longer survival times [7-10]. Jimeno et al. reported that the interval for metastasis development (<24 months vs ≥24 months) has significant effects on the survival according to a univariate analysis [8]. Our study also shows that early development of metastasis adversely affects survival. Some studies report that the number of metastasis, and localization of metastasis also affect survival [7-8,11-12]. Jimeno et al. showed a statistically significant difference in the survival rates between the cases with single organ metastasis and multiple organ metastases. Additionally, the presence of ≥2 organ metastases was considered to be a poor prognostic factor. Similarly, in the present study, the number of metastases was found to be a prognostic factor affecting the survival in both univariate and multivariate analyses. In the study performed by Jun et al., presence of brain, bone, and liver metastases was observed to represent the prognostic factors that statistically significantly the survival, both in the univariate and the multivariate analyses [7]. The present study revealed that the presence of liver, and brain metastasis was among the factors affecting survival. Lung metastasis was also shown to be a good prognostic factor based on the multivariate analyses.

Although not always, the levels of tumor markers such as CEA and Ca15.3 can be elevated in patients with metastatic breast cancer after development of metastasis. In their study comparing the predictive and prognostic value of circulating tumor cells and tumor markers (CEA, CA15.3 and lactate dehydrogenase) in patients with metastatic breast cancer, Pierga et al. showed that CEA and Ca15.3 levels above the normal interval were poor prognostic factors for progression-free survival according to the univariate analysis [13]. In our study, based on the univariate analyses, the level of Ca15.3 and CEA that is above the normal interval was found to be a prognostic factor affecting survival.

Tumor biology is known to play a significant role in the disease prognosis and patient survival. The results of our study showed that the survival was negatively affected in patients having multicentricity, tumor necrosis, extracapsular invasion. Both the hormone receptor

status and HER2 status in patients with breast cancer have significant roles in the treatment decision and patient prognosis. Several studies have shown that ER (-) and/or PR (-) status, and HER2 (+) are associated with poor treatment response and increased mortality risk in patients with metastatic breast cancer [6,10,14-15]. Our results did not show such a strong relation between the survival and hormone receptor status. Only the univariate analyses showed that ER+ status had positive effects on survival, but no statistical significance was seen in the multivariate analyses.

Conclusion

The study results showed that among all the prognostic factors that play significant roles on the survival of patients with metastatic breast cancer, advanced age of the patient (>65 years), development of metastasis after 24 months, multiple organ metastases, presence of liver and brain metastasis, multicentricity positivity, tumor necrosis positivity, extracapsular invasion positivity represent the poor independent prognostic factors; whereas presence of lung metastasis is a good independent prognostic factor.

Table 1. Clinical and Demographic Characteristics

	Clinical Features	No. of patients (%)
Gender	Female and Male	321 (99) and 3 (1)
Age	≤35 years and >35 years	28 (9) and 293 (91)
Age	≤65 years and >65 years	269 (83) and 55 (17)
Menopause status	Premenopause vs postmenopause	146 (46) and 175 (54)
Comorbidity		124 (38)
	Hypertention	85 (26)
	Diabetes mellitus	50 (15)
	Heart disease	21 (7)
ECOG performance status	ECOG 0	139 (43)
	ECOG 1	119 (37)
	ECOG 2 and high	66 (20)
The initial stage	Stage I	17 (5)
	Stage II	61 (19)
	Stage III	145 (45)
	Stage IV	101 (31)
Histopathology	Invasive ductal carcinoma	268 (83)
	Mixted type	23 (7)
	Invasive lobular carcinoma	14 (4)
	Other	19 (6)
Histopathologic feature	Intraductal component	165/224 (74)
	Multicentricity	52 /252(21)
	Lymphovascular invasion	157/243 (65)
	Perineural invasion	101/231 (44)
	Tumor necrosis	103/204 (51)
	Extracapsular invasion	147/249 (59)
Grade	Grade 1	65 (20)
	Grade 2	155 (48)
	Grade 3	104 (32)
Hormon status	Estrogen receptor (-) and (+)	107 (33) and 217 (67)
	Progesteron receptor (-) and (+)	137 (42) and 187 (58)
	HER2 (-) and (+)	211 (66) and 108 (34)
Histopathological subtype	Luminal A	70 (22)
	Luminal B (Her-)	83 (26)
	Luminal B (Her+)	72 (22)
	Her 2+	36 (11)
	Triple -	58 (18)
Ca 15,3 (U/mL)	≤25 and >25	152 (53) and 135 (47)
CEA (ng/dL)	≤5.2 and >5.2	205 (73) and 75 (23)
NLR (neutrophil lymphocyte ratio)	<2.4 and ≥2.4	141 (46) and 166 (54)
Ki67	≤14 and >14	49 (26) and 141 (74)
Initial treatments	Surgery	259 (80)
	Modified radical mastectomy Breast conserving surgery	193 (75) 65 (25)
	Axillary surgery	249 (77)
	Sentinel lymph node sampling	14 (6)
	Axillary dissection	235 (94)
	Neoadjuvant chemoradiotherapy	34 (11)
	Adjuvant chemotherapy	198 (61)
	Adjuvant hormonotherapy	160 (49)
	Adjuvant radiotherapy	190 (59)
Metastasis development time	≤24 vs >24 month	177 (55) vs 147 (45)
Metastasis sites	Bone	229 (72)
	Lung	112 (35)
	Liver	102 (32)
	Brain	95 829)
	Local recurrence	37 (11)

Table 2. Univariate survival analysis of prognostic markers of primary tumor and survival from first recurrence in patients metastatic breast carcinoma

Univariate analysis	The 2-years survival (%)	The 5-years survival (%)	The median survival (Month)	P value
Age				
≤65 years vs >65 years	56 vs 33	26 vs 10	27 vs 10	<0.001
ECOG PS[3]				
ECOG 0 vs 1 vs ≥2	65 vs 47 vs 32	27 vs 22 vs 14	35 vs 21 vs 2	0.001
Metastasis development time				
≤24 vs >24 month	5 vs 97	0 vs 45	5 vs 53	<0.001
Number of metastatic sites				
Single vs Multiple organ	54 vs 51	31 vs 18	30 vs 24	0.019
Bone metastases				
No vs Yes	54 vs 51	19 vs 24	28 vs 24	0.772
Liver metastases				
No vs Yes	55 vs 45	30 vs 10	28 vs 20	<0.001
Brain metastases				
No vs Yes	56 vs 44	27 vs 15	27 vs 21	0.007
Lung metastasis				
No vs Yes	67 vs 62	25 vs 22	22 vs 31	0.347
Recurrence				
No vs Yes	51 vs 61	24 vs 17	24 vs 36	0.433
Estrogen receptor				
Negative vs Positive	48 vs 54	12 vs 29	22vs 26	0.048
Multicentricity				
No vs Yes	64 vs 48	31 vs 11	38 vs 23	<0.001
Tumor necrosis				
No vs Yes	66 vs 53	35 vs 16	45 vs 25	0.004
Extracapsular invasion				
No vs Yes	75 vs 56	36 vs 23	45 vs 27	0.009
CEA				
≤5.2 vs >5.2 ng/dL	59 vs 30	25 vs 17	31 vs 9	0.001
Ca 15,3				
≤31 vs >31 U/mL	63 vs 41	26 vs 20	35 vs 17	0.045
Ki67				
<14% vs ≥14%	59 vs 45	27 vs 15	45 vs 21	0.022

Table 3. Multivariate survival analysis of prognostic markers of primary tumor and survival from first recurrence in patients metastatic breast carcinoma

Multivariate analysis	P value	Hazard ratio	95% confidence interval
Age ≤65 years vs >65 years	0.001	2.75	1.54-4.93
Metastasis development time ≤24-month vs >24 month	<0.001	0.06	0.01-0.47
Number of metastatic sites Single vs Multiple organ	0.045	1.62	1.01-2.60
Liver metastases No vs Yes	0.013	1.96	1.15-3.36
Brain metastases No vs Yes	0.011	1.9	1.16-3.13
Lung metastasis No vs Yes	0.044	0.06	0.37-0.98
Multicentricity No vs Yes	0.012	2.15	1.18-3.90
Tumor necrosis No vs Yes	0.035	2.15	1.18-2.91
Extracapsular invasion No vs Yes	0.030	1.83	1.06-3.16

Figures 1a/1b/1c/1d. Survival curves
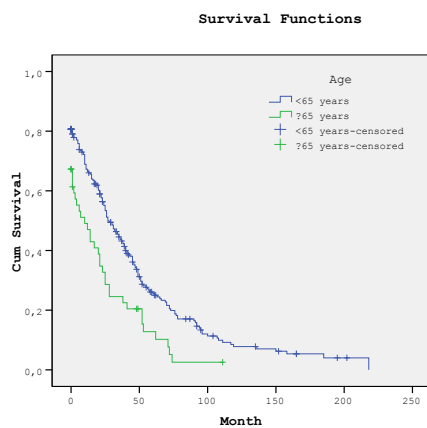
Figure 1a. The survival curve by age (≤65 years vs >65 years).
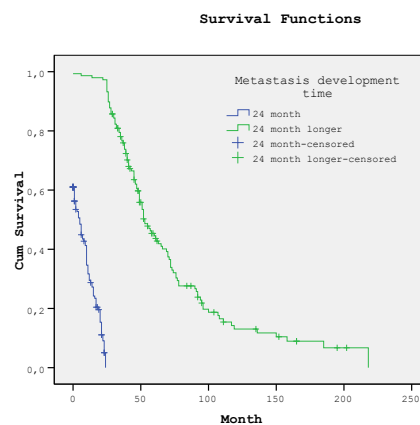
Figure 1b. The survival curve by metastasis development time (≤24-month vs >24 month).
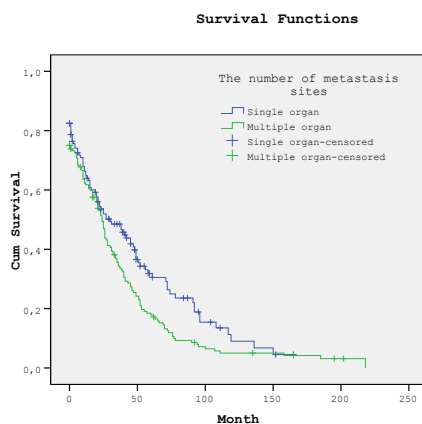
Figure 1c. The survival curve by the number of metastasis site (single organ vs multiple organ metastasis).
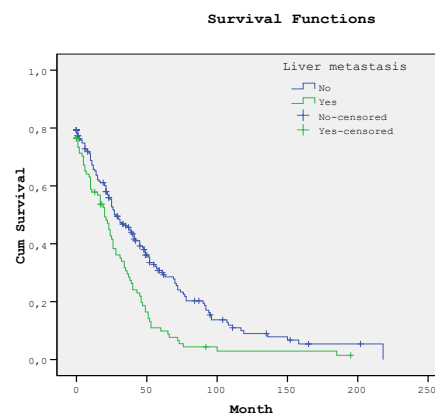
Figure 1d. The survival curve by liver metastasis.

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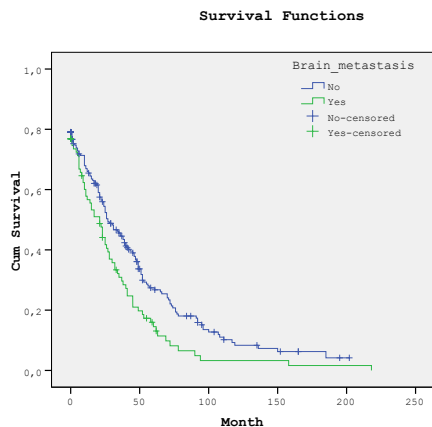
Figure 1g. The survival curve by brain metastasis.
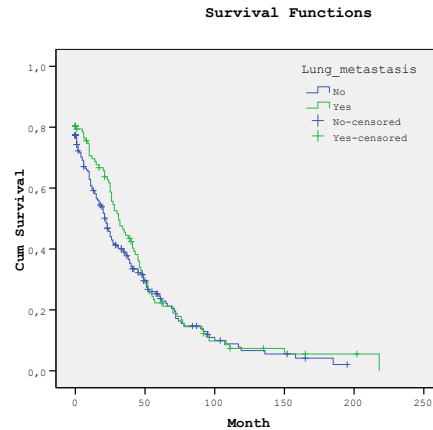
Figure 1h. The survival curve by lung metastasis.

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III. INTERNATIONAL CANCER DAYS

ACUTE TOXICITY OF CURATIVE CHEMORADIOTHERAPY IN PATIENTS WITH COMORBID DISEASE

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Abstract

Aim: Early side effects due to radiotherapy (RT) appear within 90 days of the onset of RT. Comorbid diseases are thought to play a role in the development of chemoradiotherapy side effects. This study was carried out to determine the effect of comorbid diseases on the incidence of early side effects due to chemoradiotherapy.

Methods: The data of 269 patients who applied to Sivas Cumhuriyet University Faculty of Medicine Oncology Center between 2011 and 2017 and were treated curatively were evaluated retrospectively. Routine weekly evaluations of patients according to RTOG (Radiation Therapy Oncology Group) radiotherapy toxicity criteria were obtained by examining patient files. The performance status of the patients was evaluated by the ECOG (Eastern Cooperative Oncology Group) scoring system. Disease stage was determined according to the 2010 UICC/AJCC TNM classification. Medical records were reviewed, and data related to patient characteristics (age and gender), presence of comorbidities, ECOG performance score, diagnosis of the disease, stage of disease, treatment, site of radiotherapy, were collected and classified.

Radiotherapy-induced side effects were assessed according to the Acute Radiation Morbidity Scoring Criteria (the Radiotherapy Oncology Group (RTOG) criteria) (Radiation Therapy Oncology Group, 2012). This scoring system includes non-haematological side effects (skin, mucous membrane, eye, ear, salivary gland, pharynx, and oesophagus, larynx, lung, upper gastrointestinal tract, lower gastrointestinal tract, and pelvis, genitourinary, heart, and central nervous system) and haematological side effects (white blood cell, platelets, neutrophils, haemoglobin, and haematocrit). Side effects were assessed weekly, starting 1 week after the first chemoradiotherapy session.

Patients were categorised in two groups (group 1: no comorbidity and group 2: comorbidity +). Statistical analyses were performed using the SPSS software (ver. 22.0 for Windows; SPSS, Chicago, IL, USA). Descriptive statistics are reported, including percentages, and means with standard deviation. Continuous variables were compared statistically using the unpaired t-test or Mann-Whitney U test, depending on whether the data were normally distributed. Categorical data were compared statistically using chi-squared or Fisher's exact tests. A p value≤0.05 was considered to indicate statistical significance.

Results: In Table 1, the clinical features of the patients are compared according to comorbidity. There was a statistical difference between the groups in terms of age (<0.001), performance status (p=0.003) and disease diagnosis of disease (p=0.14). While 174 (65%) of

the patients had no comorbid disease, 95 (35%) had comorbid disease. The median age of patients without comorbid disease was 54 (19–81 years), and 64 (34–84) patients with comorbidities (p<0.001). The incidence and time of acute non-hematological side effects are shown in Table 2. There was no difference between the groups in terms of the incidence of non-hematological toxicity due to chemoradiotherapy, except for upper gastrointestinal toxicity. There was no difference between the groups in terms of the incidence of hematological toxicity due to chemoradiotherapy (Table 3).

Conclusion: In this study, it was observed that patients with comorbidities tolerated chemoradiotherapy well. It has been determined that the incidence of acute side effects of the treatments is similar between those with and without comorbidities.

Keywords: *Early Side Effect, Comorbidity, Curative Chemoradiotherapy*

Table 1. Comparison of clinical features of patients according to comorbidity

	No comorbidity N=174 (65%)	Comorbidity N=95 (35%)	p value
Gender			
Male	125 (72)	64 (67)	0.264
Female	49 (28)	31 (32)	
Median age (years)	56 (19-81)	64 (34-84)	<0.001
Comorbidity			
Diabetes mellitus	-	31 (33%)	-
Hypertension	-	62 (65%)	-
COPD[1]	-	14 (15%)	-
Coronary artery disease	-	23 (24%)	-
Others	-	9 (9%)	-
ECOG[2] performance status			
ECOG 0	139 (80)	58 (61)	0.003
ECOG 1	29 (17)	25 (26)	
ECOG 2	6 (3)	12 (13)	
Diagnosis of the disease			
Brain tumors	16 (9)	8 (8)	0.014
Head and neck tumors	28 (16)	11 (12)	
Lung tumors	23 (13)	15 (16)	
Gastrointestinal tumors	98 (56)	44 (46)	
Genitourinary tumors	4 (2)	12 (13)	
Gynecological tumors	5 (3)	5 (5)	
Stage			
Stage I	30 (12)	16 (14)	0.628
Stage II	85 (33)	43 (38)	
Stage III	114 (45)	37 (33)	
Stage IV	26 (10)	17 (15)	

[1]COPD: Chronic obstructive pulmonary disease, [2]ECOG: Eastern Cooperative Oncology Group

Table 2. Comparison of early non-heamatological toxicity of chemoradiotherapy according to comorbidity

Side effects	Frequency of side effects		
	No comorbidity N (%)	Comorbidity N (%)	p value
Skin			
Grade 0	133 (76)	67 (71)	0.547
Grade 1-2	40 (23)	27 (28)	
Grade 3-4	1 (1)	1 (1)	
Mucous membrane			
Grade 0	147 (85)	86 (91)	0.284
Grade 1-2	25 (14)	9 (9)	
Grade 3-4	2 (1)	-	
Salivary gland			
Grade 0	153 (88)	85 (90)	0.435
Grade 1-2	21 (12)	10 (10)	
Pharynx & Esophagus			
Grade 0	129 (74)	74 (78)	0.682
Grade 1-2	44 (25)	20 (21)	
Grade 3-4	1 (1)	1 (1)	
Larynx			
Grade 0	156 (90)	87 (92)	0.391
Grade 1-2	18 (10)	8 (8)	
Lung			
Grade 0	160 (92)	87 (92)	0.542
Grade 1-2	14 (8)	8 (8)	
Upper Gastrointestinal			
Grade 0	82 (47)	57 (60)	**0.029**
Grade 1-2	92 (53)	38 (40)	
Lower Gastrointestinal including pelvis			
Grade 0	121 (70)	66 (70)	0.549
Grade 1-2	53 (30)	29 (30)	
Genitourinary			
Grade 0	148 (83)	75 (79)	0.135
Grade 1-2	26 (15)	20 (21)	

Table 3. Comparison of early heamatological toxicity of chemoradiotherapy according to comorbidity

Heamatological toxicity	Frequency of side effects		
	No comorbidity N (%)	Comorbidity N (%)	p value
White blood cell			
Grade 0	117 867)	66 (70)	0.879
Grade 1-2	47 (27)	23 (24)	
Grade 3-4	10 (16)	6 (6)	
Platelets			
Grade 0	150 (86)	83 (87)	0.435
Grade 1-2	23 (13)	10 (11)	
Grade 3-4	1 (1)	2 (2)	
Neutrophils			
Grade 0	137 (79)	75 (79)	0.549
Grade 1-2	37 (21)	20 (21)	
Hemoglobin			
Grade 0	130 (76)	69 (73)	0.408
Grade 1-2	25 (44)	26 (27)	
Hematocrit			
Grade 0	149 86	82 (86)	0.517
Grade 1-2	25 (14)	13 (14)	

III. INTERNATIONAL CANCER DAYS

SURVIVAL RESULTS IN ELDERLY PATIENTS WITH HIGH-GRADE GLIAL TUMOR, SINGLE CENTER RESULTS

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Abstract

We aimed to evaluate the clinical features and survival outcomes of patients aged 65 years and older with high-grade brain tumors (HGGs). The files of patients aged 65 and older who were diagnosed with high-grade brain tumor, who applied to the Oncology Center of Cumhuriyet University Faculty of Medicine between 2007 and 2019, were retrospectively analyzed. In our study, we found that the rates of adherence to standard treatments and completion of treatment were low in the elderly patient group. We have seen that the absence of hypertension, completion of the planned treatment, receiving adjuvant chemotherapy and a good performance score affect survival positively in this patient group. Studies with larger patient groups are needed to see the determinative effectiveness of treatment options and clinical features in patients.

Keywords: *Glial Tumor, High Grade, Elderly Patient*

III. INTERNATIONAL CANCER DAYS

THERAPEUTIC EFFECT OF CRISPR/CAS9 SYSTEM IN CANCER TREATMENT

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Abstract

Cancer is one of the leading causes of death worldwide and is an important public health problem. According to the data, approximately 8.5 million people die each year due to cancer. Cancer arises with the accumulation of genetic and epigenetic changes and if treated with conventional methods, an adequate therapeutic response may not be obtained. In addition, traditional diagnosis and treatment methods can cause complications and serious side effects. All these put a serious burden on both the patient and the country's economy. Recently, the development of clustered regularly spaced short palindromic repeats (CRISPR) technology has been an important therapeutic hope for cancer and other genetically fatal diseases. New-generation technical advances in CRISPR/CAS9 systems have demonstrated a high degree of specificity and flexibility in specific region or regions of the targeted genome. According to the data, the CRISPR/CAS9 technique can significantly inhibit tumor cell growth and metastasis by targeting oncogenes, tumor suppressor genes and other damaged genes [1]. The CRISPR/CAS9 technique, which provides a definitive solution in cancer treatments, is much less costly than other genetic modification techniques and studies in this field are increasing day by day [2]. With these CRISPR/CAS9-based studies, personalized and targeted therapy in cancers will guide future treatment techniques.

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III. INTERNATIONAL CANCER DAYS

MICROORGANISMS ISOLATED FROM BLOODSTREAM INFECTIONS IN CANCER PATIENTS AND THEIR RESISTANCE TO ANTIBIOTICS
(TWO AND A HALF YEARS RETROSPECTIVE EVALUATION)

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Abstract

Objective: Cancer patients are a high-risk patient population for infections caused by various bacterial agents. In particular, bloodstream infections can cause serious complications and even mortality in cancer patients. The data presented on this subject in the literature are limited. However, it is reported in the literature that there is an increase in the incidence of bacterial infections resistant to antimicrobial drugs in cancer patients. This study aimed to determine the dominant bacterial species causing bacteremia and their antibiotic resistance rates in cancer patients being treated in our hospital.

Methods: The data of patients diagnosed with cancer between January 2020 and June 2022 were analyzed retrospectively. The blood samples of the patients (8-10 ml) were inoculated into the BD BACTEC Plus Aerobic medium (Becton Dickinson, USA) culture bottles incubated in the BD BACTEC 9120 (Becton Dickinson, Sparks, USA) culture device. From the bottles in which the device gave a growth signal, passage was made into blood agar and incubated in an oven for 24-48 hours. The microorganisms isolated after incubations were identified with the MALDI Biotyper Microflex LT (Bruker Daltonics, Germany). The antimicrobial susceptibility profile of the bacteria was examined with the BD Phoenix 100 (Becton Dickinson, Sparks, USA). Antimicrobial susceptibility profiles were evaluated in line with the recommendations of the current EUCAST (The European Committee on Antimicrobial Susceptibility Testing) guidelines. If the same microorganism was grown more than once in a patient's blood culture, only the first growth of the microorganism was evaluated. The data were analyzed using the SPSS 22.0 program.

Results: A total of 133 patients, 76 (57.1%) of whom were male and 57 (%42.9) of whom were female, were included in the study. The patients included in the study are between the ages of 22-85. While 33.1% of the patients are in the 50-65 age range, 48.1% are over 65 years old (Table 1). Types of cancer detected in patients; hematological malignancies (27%), lung cancer (13.5%), and colon cancer (10.5%) (Table 2).

A total of 158 bacterial isolates grown in blood cultures of 133 patients were included in the study. Gram-positive bacteria in 54.4% (86) and gram-negative bacteria in 40.5% (64) were detected. Coagulase-negative staphylococci (CoNS) first dominant strain (34.2%), *Enterococcus sp.* second dominant strain (8.2%), and *Staphylococcus aureus* third dominant strain (4.4%) were determined as Gram-positive isolates. In addition, *Escherichia coli* (21.5%) was determined as the most dominant gram-negative bacteria. *K. pneumoniae* (7.6%) and *P. aeruginosa* (3.2%) were detected as other dominant gram-negative bacteria, respectively. While the ESBL positivity rate was 41.2% (14/34) in *E. coli* isolates, it was 25% (3/12) in *K. pneumoniae* isolates. Only one bacterial strain was identified as Methicillin-resistant *S. aureus* (MRSA). Three bacterial strains were identified as vancomycin-resistant *Enterococcus faecium* (VRE) (Table 3).

The antibiotic resistance profiles of the isolated bacteria (*E. coli, K. pneumoniae,* and *S. aureus*) are shown in Table 4. Imipenem or meropenem resistance was not detected in *E. coli* and *K. pneumoniae* bacterial isolates. Amikacin resistance was detected in only one *E. coli* bacterial isolate. The antibacterial effect of penicillin was low (14.3%) against *S. aureus*, but the effects of other antibiotics were high. Nine (26.5%) *E. coli* and three (25%) *K. pneumoniae* isolates were determined to be Multi-Drug-Resistance (MDR) bacterial isolates.

Conclusion: Bloodstream infections remain a significant health problem in cancer patients. In this study, it was determined that Gram-positive bacteria grew more frequently in the blood cultures of cancer patients. The most common bacteria detected in the study was CoNS, followed by *E. coli, Enterococcus sp., K. pneumoniae,* and *S. aureus*, respectively. It has been determined that the isolated bacteria are sensitive to many used antibiotics. The low resistance rates detected in bacterial isolates are promising for our hospital. Analyzing the MDR isolates and resistance profiles with routine bacterial surveillance in cancer patients may guide antimicrobial therapy. In addition, sharing the data obtained at regular intervals can increase the success of the treatment.

Keywords: *Bloodstream Infections, Cancer, Antibiotic Resistance*

Table 1. Distribution of cancer patients by age groups

Age Groups	No. (%) of patients
20-35	5 (3.8)
35-50	20 (15.0)
50-65	44 (33.1)
>65	64 (48.1)
Total	**133**

Table 2. Distribution of patients by cancer types

Cancer Types	No. (%) of patients
Haematological Malignancy	36 (27.0)
Acute Myeloid Leukemia	15 (11.2)
Non-Hodgkin Lymphoma	8 (6.0)
Multiple Myeloma	5 (3.8)
Chronic Lymphocytic Leukemia	4 (3.0)
Acute Lymphoblastic Leukemia	2 (1.5)
Chronic Myeloid Leukemia	2 (1.5)
Lung Cancer	18 (13.5)
Kolon Cancer	14 (10.5)
Gastric Cancer	13 (9.8)
Brain Cancer	10 (7.5)
Pancreatic Cancer	8 (6.0)
Breast Cancer	7 (5.3)
Bladder Cancer	7 (5.3)
Prostate Cancer	5 (3.8)
Ovarian Cancer	4 (3.0)
Other	11 (8.2)
Total	**133**

Table 3. Distribution and antibiotic resistance profile of microorganisms of isolated microorganisms

Pathogenes and resistance	No. (%) of pathogens
Gram-negative Patogens	**64 (40.5)**
Acinetobacter baumannii	3 (1.9)
CR	3
Colistin resistance	-
Klebsiella pneumoniae	12 (7.6)
ESBL	3
CR	2
Klebsiella oxytoca	2 (1.3)
ESBL	1
Escherichia coli	34 (21.5)
ESBL	14
CR	2
Enterobacter species	3 (1.9)
Pseudomonas aureginosa	5 (3.2)
CR	-
Stenotrophomonas maltophilia	3 (1.9)
Burkholderia cepacia	1 (0.6)
Proteus mirabilis	1 (0.6)
Gram positive Patogens	**86 (54.4)**
Staphylococcus aureus	7 (4.4)
Methicillin-susceptible	6
Methicillin-resistant	1
Coagulase-negative staphylococci	54 (34.2)
Streptococcus pneumoniae	2 (1.2)
Enterococcus faecalis	4 (2.5)
Enterococcus faecium	9 (5.7)
Vancomycin-resistant	3
Other	10 (6.3)
Yeast	5 (3.1)
Candida albicans	2
Candida parapsilosis	2
Candida tropicalis	1
Polymicrobial	3 (1.9)
Total	**158**

CR; Carbapenem resistance

Table 4. Resistance profile of bacterial isolates

Antibiotics	*E. coli* (34)	*K. pneumoniae* (12)	*S. aureus* (7)
	Number of resistant isolates (%)		
Amikacin	1 (2.9)	0	0
Amoxicillin /Clavunate	-	-	1 (14.3)
Gentamicin	4 (11.8)	3 (25)	-
Penisilin G	-	-	6 (85.7)
Ampicillin/Sulbactam	17 (50)	7 (58.3)	-
Ceftazidime	11 (32.4)	2 (16.7)	-
Ceftriaxone	14 (41.2)	3 (25)	-
Cefepime	10 (29.4)	2 (16.7)	-
Methicillin	-	-	1 (14.3)
Erythromycin	-	-	1 (14.3)
Clindamycin	-	-	1 (14.3)
Tetracycline	-	-	1 (14.3)
Ciprofloxacin	10 (29.4)	4 (33.3)	0
Levofloxacin	10 (29.4)	4 (33.3)	0
Ertapenem	2 (5.9)	2 (16.7)	-
Imipenem	0	0	-
Meropenem	0	0	-
Piperacillin/Tazobactam	11 (32.4)	5 (41.7)	-
Trimethoprim/Sulfamethoxazole	14 (41.2)	4 (33.3)	0
Vancomycin	-	-	0
Teicoplanin	-	-	0
Linezolid	-	-	0
Daptomycin	-	-	0
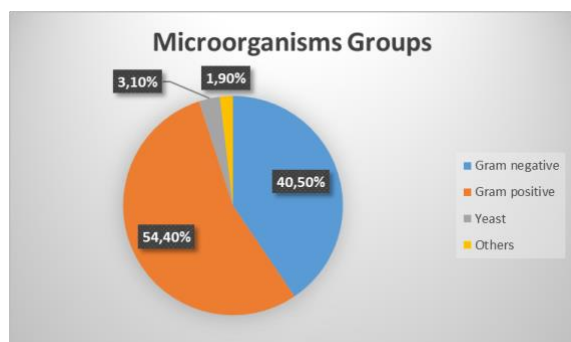
Figure 1. Microorganisms groups
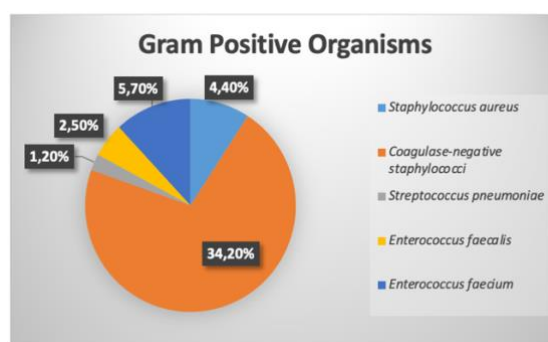
Figure 2. Gram-positive microorganisms
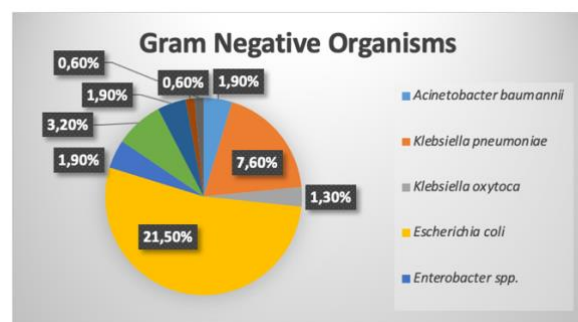
Figure 3. Gram-negative microorganisms

III. INTERNATIONAL CANCER DAYS

CURRENT STATUS OF HPV VACCINES

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Abstract

Human Papilloma Virus (HPV) is a sexually transmitted virus with non-membrane and double-stranded DNA that causes various cancers not only in women but also in men. Cervical cancer is one of these cancers. However, HPV also causes oropharyngeal, anal, vaginal, vulvar, and penile cancers [1]. Recently, studies have emerged that also associate HPV with lung cancer [2]. HPV is responsible for almost all cervical cancers, 87% of anal cancers, 70% of vaginal cancers, and 25-30% of penile, oropharyngeal, and vulvar cancers. There are about 200 HPV types in the world. About 40 of them are located in the anogenital region. 13 Of these viruses have a carcinogenic effect and are called high-risk HPV. 3.1% of cancers seen in the world are cervical cancer due to HPV virus from damaged anogenital mucosa. 3.3% of cancer deaths occur due to cervical cancer [4]. The most important factor in secondary prevention against cervical cancer is vaccination. Bivalent, quadrivalent and nanovalent vaccine types are used prophylactically in the world. However, recently, therapeutically effective vaccines have also started to be used. The World Health Organization (WHO) states that 90% of girls under the age of 15 are vaccinated with a full dose, 70% of women are screened with HPV DNA once until the age of 35 and once again between the ages of 35 and 45, and % of patients with cervical pathology are detected. It aims to reduce the incidence of cervical cancer to 4 in 100000 by 2030, if 90 of them are treated effectively [6]

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PARAMETERS ASSOCIATED WITH LOCAL RECURRENCE IN BREAST CANCER

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Abstract

Introduction: Breast cancer is the most common cancer in women. Surgical and radiotherapy (RT) treatments are used to provide local control of the disease. Although local recurrence rates are considerably reduced with Modified Radical mastectomy (MRM), it loses its advantage in patients with large tumor and lymph node involvement. Compared to MRM recurrence rates are also higher in patients who have undergone Breast conserving surgery (BCS). However, reducing recurrence rates to an acceptable level with postoperative RT after BCS is possible (1-3). In this study, it was aimed to investigate the parameters associated with local recurrence.

Methods: The data of 765 breast cancer patients treated between 2007-2018 at Sivas Cumhuriyet University Faculty of Medicine Oncology Center were examined. Chi-Square, Student T and Correlation tests were used in the analysis of the study.

Results: The median age of the patients was 52 (18-89) years. There were 326 (43%) patients in the premenopausal period and 432 (57%) patients in the postmenopausal period, and 7 (1%) of the patients were male. Pathology: Invasive ductal carcinoma in 556 (73%) patients, invasive lobular carcinoma in 44 (6%) patients, mixed in 57 (7%) patients, other types in 83 (11%) patients, and carcinoma in situ in 25 (3%) patients was seen. Molecular types: there are 204 (27%) luminal A, 232 (30%) luminal B HER negative, 123 (16%) luminal B HER positive, 68 (9%) HER positive, 116 (15%) tripple negative subtypes. Molecular typing of 3% of the patients could not be performed. While 468 (61%) of the patients were at early stage, 237 (31%) were locally advanced, 51 (7%) were at metastatic stage, the stage of 9 (1%) patients was unknown. Treatments: neoadjuvant chemotherapy (NCT) 47 (6%), surgery 726 (95%) (modified radical mastectomy N=431(56%); breast conserving surgery N=295 (39%)), axillary surgery 707 (92%) (sentinel node biopsy N= 115 (15%); axillary dissection N=589 (77%)), adjuvant chemotherapy 599 (78%), hormone therapy (HT) 526 (69%), RT 559 (73%) treatments were administered to the patient. At a median follow-up of 85 (6-304) months local recurrence was observed in 44 (6%) patients. Of the recurrences, 29 (66%) were seen in the chest wall/intact breast, 10 (23%) in the lymphatic area, and 5 (11%) in the chest wall/intact breast+lymphatic area. Estrogen receptor (ER) status, progesterone receptor (PR) status, molecular subtypes, tumor necrosis, use of RT and HT, Ki-67 levels were found to be associated with local recurrence. Table 1 shows parameters associated with local recurrence. A positive

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correlation was found between Ki-67 levels and recurrence (p=0.007, r=0.118). Menopausal status, age, pathological types, HER-2 status, grade, lymphovascular invasion, perineural invasion, presence of intraductal component, extracapsular invasion, types of surgery were not associated with recurrence (p>0.050).

Discussion: More local recurrence was detected in patients with ER and PR negative, tumor necrosis, not receiving RT and HT, high Ki-67 level, and HER positive or triple negative molecular type.

Keywords: *Breast Cancer, Local Recurrence, Ki-67 level, Tumor Necrozis*

Table 1. Parameters associated with local recurrence

	Local recurrence (-) N=721 (%94)	Local recurrence (+) N=44 (%6)	p value
Estrogen receptor			
Negative	199 (90)	22 (10)	0.003
Positive	513 (96)	21 (4)	
unknown	5 (83)	1 (17)	
Progesteron receptor			
Negative	247 (52)	23 (8)	0.024
Positive	464 (96)	20 (4)	
unknown	5 (83)	1 (17)	
Moleculer type			
Luminal A	198 (97)	6 (3)	0.034
Luminal B Her (-)	220 (95)	12 (5)	
Luminal B Her (+)	118 (96)	5 (4)	
Her (+)	60 (88)	8 (12)	
Triple (-)	106 (91)	10 (9)	
Tumor necrosis			
negative	344 (97)	12 (3)	0.020
positive	162 (92)	14 (8)	
Hormonoterapi			
No	213 (89)	26 (11)	<0.001
Yes	508 (97)	18 (3)	
Radiotherapy			
No	186 (90)	20 (10)	0.015
Yes	527 (96)	24 (4)	
Ki-67 level (mean)	28.0±23	41.4±25	0.007

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PATIENTS WITH MALIGNITIS FOLLOW-UP WITH CANDIDEMIA IN A TURKISH TERTIARY HOSPITAL: TYPE AND RESISTANCE ANALYSIS

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Abstract

Invasive candidiasis (IC) is a general term that refers to a group of infectious syndromes caused by various *Candida* species. Candidemia is the most widely recognized syndrome associated with IC (1). Candidemia is an important cause of morbidity and mortality, and its incidence is increasing due to comorbid conditions such as cancer that can affect the immune system. The incidence and resistance patterns of *Candida* species may vary depending on the population, geographic region, and previous antifungal use (2). In this study, it was aimed to identify *Candida* genus yeasts isolated from blood cultures of cancer patients at the species level and to determine their antifungal drug susceptibility.

In this study, the results of samples with *Candida* growth in culture from blood culture bottles sent to the Microbiology Laboratory between January 2016 and July 2022 were retrospectively analyzed from the laboratory and hospital information system. Patients with a diagnosis of malignancy who had Candida fungal growth in at least one blood culture set during treatment in Hematology, Medical Oncology, Surgical Oncology services and Anesthesia Intensive Care Unit and were evaluated as candidemia and treated with antifungal therapy were included in the study. Candida growth in any blood culture could not be evaluated as colonization. The first fungal agent isolated from a patient was included in the study, recurrent growths were not included.

Twenty-three patients with a diagnosis of malignancy who had *Candida* fungal growth in their blood culture were included in the study. The mean age of the study group was 60.65 ± 9.65 years (age range: 41-81 years). 26% of patients are women.

34.8% (8) of the samples were sent from Medical Oncology, 30.4% (7) Hematology, 21.7% (5) Surgical Oncology, and 13% (3) Anesthesia and Intensive Care Unit. *C. albicans* was isolated in 43.5% (10) of the samples with growth detected. In other samples (56.5%) (13), non-albicans species were isolated and their distribution was 30.4% (7) *C. parapsilosis*, 17.4% (4) *C. glabrata*, 4.3% (1) *C. tropicalis*, 4.3% (1) *C. krusei*.

As reported by most centers, although *C. albicans* is still the most common *Candida* species causing candidemia in our hospital, there has been an increase in non-albicans *Candida* species in recent years (3). As reported from many centers, the most common hematological malignancies associated with acute leukemia and lymphoma candidemia in our study were; gastrointestinal cancers were the most common solid tumors (4,5).

Antifungal susceptibilities of *Candida* genus fungi grown in blood cultures of cancer patients are shown in Table 1.

Table 1. Antifungal susceptibilities.

	Amphotericin B		Anidulafungin		Micafungin		Fluconazole		Itraconazole			Posaconazole		Voriconazole		
	S	R	S	R	S	R	S	R	S	I	R	S	R	S	I	R
Etken (n) (%)																
C. albicans (10) (43.5)	10 (100)	0	6 (75)	2 (25)	7 (100)	0	9 (90)	1 (10)	4 (50)	3 (37.5)	1 (12.5)	3 (100)	0	4 (100)	0	0
Non-albicans *Candida* (13) (56.5)	12 (92.3)	1 (7.7)	8 (72.7)	3 (27.3)	10 (100)	0	5 (45.5)	6 (54.5)	1 (12.5)	0	7 (87.5)	1 (12.5)	7 (87.5)	2 (25)	1 (12.5)	5 (62.5)
C. parapsilosis (7) (30.5)	7 (100)	0	6 (85.7)	1 (14.3)	6 (100)	0	3 (42.9)	4 (57.1)	1 (14.3)	0	6 (85.7)	1 (14.3)	6 (85.7)	2 (28.6)	1 (14.3)	4 (57.1)
C. glabrata (4) (17.4)	4 (100)	0	2 (66.7)	1 (33.3)	4 (100)	0	2 (66.7)	1 (33.3)	ND			ND		ND		
C. tropicalis (1) (4.3)	1 (100)	0	0	1 (100)	ND		0	1 (100)	0	0	1 (100)	0	1 (100)	0	0	1 (100)
C. krusei (1) (4.3)	0	1 (100)	0	0	ND		ND		ND			ND		ND		
TOPLAM (23) (100)	22 (95.7)	1 (4.3)	14 (73.7)	5 (26.3)	17 (100)	0	14 (66.7)	7 (33.3)	5 (31.3)	3 (18.7)	8 (50)	4 (36.4)	7 (63.6)	6 (50)	1 (8.3)	5 (41.7)

In our study, fluconazole resistance was detected in only one (10%) of the *C. albicans* isolates. A high fluconazole resistance (54.5%) was detected in non-albicans *Candida* isolates. The high resistance rates of these species, which are starting to be detected more widely, limit the treatment options. Multiple antifungal resistant *C. krusei* and *C. tropicalis* isolates are of concern for our hospital. However, the number of these isolates is limited in our study. Multicenter studies with more patient groups are needed to reveal more accurate results.

It is very important for each center to follow its own epidemiological data and antifungal susceptibility patterns. In this way, we think that empirical treatment can be started early and effectively and this will provide a significant improvement in terms of patient prognosis.

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INVESTIGATION OF THE ANTIPROLIFERATIVE EFFECT OF URIDINE ON SNU-1 CELL LINE

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Abstract

Gastric cancer is a global health problem, with more than one million people diagnosed worldwide each year. Although incidence and mortality have decreased in the last 5 years, gastric cancer ranks third among cancer-related deaths (1). It is also associated with a poor prognosis and the 5-year survival rate is approximately 40% (2-4). Gastric cancer's etiology and pathophysiology have not yet been fully clarified, despite the fact that its contributing elements have been detected (5). Although there are many traditional therapeutic methods used in cancer treatment, such as surgery, chemotherapy and radiotherapy, the ability of cancer cells to survive is still one of the main challenges. To find safer compounds with fewer adverse effects that can be utilized to treat cancer, researchers in the fields of drug design, molecular genetics, and biomedicine are working (6). The aim of this study is to examine the antiproliferative effect of uridine, which is a pyrimidine nucleoside and also found in the structure of nucleotides, nucleotide sugars and nucleic acids (RNA), on gastric cancer cell line.

Method: There are 2 groups in gastric cancer cell culture (SNU-1), the control group and the drug group. Cell viability in SNU-1 cells of the groups was examined using the XTT test. Absorbance was measured using a microplate reader at 450 nanometers. Cell viability of the obtained values was compared with the control group. Statistical evaluation of the data was done with One Way ANOVA. P values less than 0.05 were considered statistically significant. Results: The antiproliferative effect of uridine in SNU-1 cells was not statistically significant ($p > 0.05$). Conclusion: Uridine has no protective effect against gastric cancer.

Keywords: *Gastric cancer, SNU-1 Cell Line, Antiproliferative effect, Uridine*

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ASSESSMENT OF GYNECOLOGICAL MALIGNITIES: A UNIVERSITY HOSPITAL EXPERIENCE

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Abstract

Aim: Cancer is the structures formed by the uncontrolled division and increase of cells occurring in organs or tissues. With the prolongation of the average life expectancy, the importance of cancer in terms of public health is increasing day by day. All over the world, deaths due to cancer come second after deaths caused by cardiovascular diseases (1). According to the World Health Organization (WHO) world cancer statistics for 2020, the most common cancers in women are; breast, colorectal, lung, cervix uteri, and thyroid (2). According to the Ministry of Health Turkey cancer statistics data, in women, respectively; breast, thyroid, colorectal, lung, corpus uteri cancers have been reported as the most common cancers (3). While the most common type of gynecological cancer in women in developed countries is endometrial cancer, it is cervical cancer in underdeveloped or underdeveloped countries (4). The aim of this study is to evaluate the most common gynecological cancers in women in Sivas and compare them with world data.

Methods: The population of this descriptive, cross-sectional study was 01. 01. 2017-31.12. Patients who were diagnosed with gynecological cancer in Sivas Cumhuriyet University Practice and Research Hospital, Gynecology and Obstetrics Clinic between 2021 and 2021. Sample selection was not made, and all patients diagnosed with gynecological cancer were included in the study. Cancer types are classified as endometrium, ovary, cervix, vagina-vulva, leiomyosarcoma and mixed.

Data analysis: Data were analyzed with the statistical program SPSS-22 (SPSS INC., Chicago, IL, USA). Count data are given with numbers and percentages and measurement data with mean, standard deviation, minimum and maximum values.

Results: In a 5-year evaluation including 2017-2021, 299 patients were diagnosed with gynecological cancer at Sivas Cumhuriyet University Hospital. Of these, 59.2% (n=177) originate from the endometrium, 22.0% (n=66) from the ovary, 9.4% (n=28) from the cervix, and 5.4% (n=16) from the vulva-vagina. cancer was diagnosed, 2.7% (n=8) were diagnosed with leiomyosarcoma, and 1.3% (n=4) were diagnosed with mixed cancer. When evaluated by years, 59 patients in 2017, 60 patients in 2018, 50 patients in 2019, 60 patients in 2020, and 70 patients in 2021 were diagnosed with gynecological cancer. The mean age of the patients was 57.2±16.9 (minimum 16, maximum age 94).

Discussion: In a study conducted by Celikgün et al. in Sivas province, endometrial cancer is the 4th most common cancer in women in 2004-2014 (5). According to the

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International Agency for Research on Cancer, the most common gynecological cancer in women in the world is cervical cancer, while endometrial cancer is the third most common cancer in the world. followed by ovarian cancer. In addition, when evaluated in terms of mortality, deaths due to cervical cancer are in the first place, and ovarian cancer is in the second place due to the non-specific symptoms (6). According to the Global Cancer Observatory/Global Cancer Observatory (GLOBOCON) 2018 data, it was determined that 6.6% of women diagnosed with 8.6 million new cancers were diagnosed with cervix, 4.4% with endometrium, and 3.4% with ovarian cancer (7). According to the Turkish Cancer Statistics data, in women of all age groups, 5.6% of endometrial, 3.3% of ovarian and 2.3% of cervix cancers were detected (8). The result of this study is compatible with cancer statistics in Sivas province, Turkey and developed countries.

Conclusion: Cancer affects everyone regardless of gender, socioeconomic differences, and age; it also creates a serious burden on patients, families, and communities (9). Globally, approximately one in every 6 deaths and one out of every 5 deaths in our country are due to cancer (10, 11). Screening programs are important because a significant portion of cancers are preventable diseases. It should be an important goal to determine the prevalence of gynecological cancers, to identify risk factors, and to develop appropriate follow-ups for prevention and treatment.

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III. INTERNATIONAL CANCER DAYS

EFFECT OF COVID-19 PANDEMIC ON PATIENTS UNDERGOING DEFINITIVE CHEMORADIOTHERAPY

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Abstract

Lung cancer is frequently seen in patients who smoke, who are elderly, and who have more comorbid diseases. The risk of being affected by the Covid-19 pandemic is high. Here, we aimed to determine the effectiveness of the definitive chemoradiotherapy (CRT) in patients with non-metastatic non-small cell lung cancers (NSCLC) during the pandemic period. Patients with NSCLCs, between 2020-2022 were evaluated retrospectively. Treatment responses were evaluated, and prognostic factors were investigated. Twenty-eight patients (70%) were men and twelve (30%) were women. Twenty-five (62.5%) patients had comorbidities. All of patients complated their treatments. Objective response rate was 72.5%. Respectively, 72.5% of patients had partial response, 27.5% of patients had stabile disease. 92.5% of patients had a reduction in primary tumor, 42.5% had lymph nodes and 75% had a reduction in stage. Seven (17.5%) patients developed Covid-2019. Passing a Covid-2019 was decreased survival (p=0.012). In conclusion, High response rates have been obtained with CRT treatment applied to NSCLC patients during the Covid-19 pandemic period. Covid-19 infection significantly reduces survival in NSCLC patients receiving CRT.

Keywords: *Covid-2019, Lymph Node Reduction, Chemoradiotherapy, Stage Reduction*

Introduction

Lung cancer is the most common cancer in men and is quite mortal [1]. Since March 2019, Turkey has been struggling with coronavirus (Covid-19) [2]. Death occurs in approximately two percent of patients. Most of the deaths in the Covid-19 epidemic were patients over 60 years of age and with comorbidities [3]. Lung cancer patients are among the groups at high risk in Covid-2019 pandemic. Because cancer patients are mostly elderly, immunosuppressive individuals with multiple comorbidities. Our primary aim in this study was to determine the efficacy of definitive chemoradiotherapy (CRT) treatments in non-metastatic non-small cell lung cancers (NSCLCs) during the Covid-19 pandemic period.

Method

Patients with non-metastatic NSCLC's who applied to the Bursa City Hospital between 2020 and 2022 were evaluated for inclusion in the study. Study was carried out in accordance with the Declaration of Helsinki, data usage permission was obtained. Bursa City Hospital Ethics Committee approval was obtained (Approval Date: 11.08.2021, Number:2021-14-7).

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Criteria for inclusion; 1) age ≥18-80 years, 2) diagnosed with non-metastatic NSCLC, 3) definitive CRT/radioteraphy was performed on the first line for the primary tumor, 4) no active infection at the beginning of treatment.

Criteria for exclusion; 1) having a synchronous/metachronous tumor, 2) having immunsupresive disease, 3) having Covid-19 enfection at diagnosis.

Age, Eastern Cooperative Oncology Group (ECOG) Performance status, comorbidities, smoking status, Covid-19 transmission status, tumor hystology were examined. American Joint Committee on Cancer eighth edition was used for tumor, node, metastases (TNM) classification in clinical staging [4]. Treatment response was evaluated with Response Evaluation Criteria in Solid Tumors (RECIST) criteria [5]. Disease-free survival (DFS) was calculated as the time of diagnosis to recurrence, and overall survival (OS) was calculated as the time of diagnosis to death or last follow-up.

Simultaneus CRT regimen was weekly paclitaxel 45-50mg/m2, carboplatin AUC (2) through 7 weeks. Consolidation chemotherapy regimen was 2 cylus paclitaxel 175-200mg/m2+carboplatin AUC (5-6), after CRT [6]. Patients received 60-70 Gy of definitive radiotherapy in 2 Gy fractions.

Patients were followed up every three months for two-three years with physical examination and laboratory techniques. Contrast-enhanced chest computured tomography (CT) was performed one month after definitive CRT, and *fluorodeoxyglucose* (*FDG*)-positron emission tomography (PET) was performed three months later.

Statistics: After the obtained data were coded with numerical values, they were analyzed with SPSS program version 20. Complementary statistics of the evaluation results were given as numbers and percentages for categorical variables, and as median, standard deviation, minimum and maximum for numerical variables. The Kaplan-Meier method was used to obtain the progression-free survival curve. Factors affecting survival were evaluated with Cox regression analysis. Confidence interval was determined as 95%, *p* value <0.05 for statistical significance.

Results and Discussion

A total of fourty patients were included in the study; 28 patients (70%) were male and 12 (30%) were female. Demographic, clinical, and tumor characteristics of patients are shown in Table-1. 25 (62.5%) of the patients had comorbidities. ECOG performance status was 0-1 in 33 patients (82.5%), 2 or more in 7 patients (17.5%). 16 (40%) patients were Stage IIIA and below, 19 (47.5%) were stage-IIIB, five (12.5%) were stage-IIIC. T1-2 was detected in 11 patients (27.5%), T3-4 in 29 patients (72.5%), N0-1 in 9 patients (22.5%), and N2-3 in 31 patients (77.5%). Covid-19 infection was detected in seven (17.5%) patients. All patients were able to complete their treatment.

After the definitive CRT administration, 72.5% (29) of patients had partial response, 27.5% (11) of patients had stabile disease. Objective response rate was 72.5%. No progressive disease was observed. 92.5% of patients had a reduction in primary tumor, 42.5% had lymph nodes and 75% had a reduction in stage. primary tumor shrinkage was observed in 37 (92.5%) patients, lymph node reduction in 17 (42.5%) and stage reduction in 30 (75%) patients. During a median follow-up of 14.5 (9.3-20) months, recurrence was detected in 22 patients (55%) and

metastasis was detected in 14 patients (35%). The median DFS was 4 months (95% CI 2.6-5.4) and the median OS was 20 months (95% CI 17.7-22.3). The 1-year survival rate was 78.7% and 2-year survival rate was 68.5%. In the Cox-regression analysis, getting Covid-19 infection was reduced survival (p=0.012).

Definitive concomitant CRT is the main treatment option in unresectable Stage-III NSCLC patients, who unsuitable for operation [7]. Our study consisting of mostly stage IIIB-C and N2-3 patients. During the pandemic, CRT resulted significant objective response, stage reduction and lymph node reduction rates. Survival was drastically reduced for those with Covid-19 infection. The limitations of our study are the retrospective nature and limited patient group. Patients receiving maintenance immunotherapy could not be evaluated due to the lack of reimbursement in our country.

Lung cancer is the leading cause of cancer-related death in both sexes [1]. The majority of NSCLC patients are advanced age, immunosuppressive and have excessive comorbidities and they are among the high-risk patients to be affected by the pandemic. In addition, during the pandemic period, simultaneous chemotherapy and radiotherapy treatment increase the risk of transmission of Covid-19 infection to patients, both during the patient's immune suppression and during hospital transportation. Most of our patients were male predominant patients who were older, smokers, and had comorbidities. Seventeen and a half percent of patients developed Covid-19 infection. Consistent with the literatüre, survival decreased in those who had Covid-19 [3].

In lung cancer, approximately one-third of patients are diagnosed at the regional stage. NSCLC survival improves thanks to advances in diagnostic, surgical, radiotherapy procedures, and medical treatments. Administering platinum-based chemotherapy sequentially or concurrently to thoracic irradiation resulted in a improvement of local control, metastasis-free and overall survival [8]. In the studies of Yılmaz U et al., complete, and partial responses were obtained in 15 (18.2%) and 31 (37.8%) Stage IIIA and IIIB patients who underwent definitive CRT [9]. In stage III NSCLC, OS reaches 20-30 months with definitive CRT treatment [7]. In our study, the partial response was observed in 72.5% of patients and median OS was 20 months. The reason for this high rate in our study may be the inclusion of stage I and II patients, albeit small. In addition, all of our patients had completed their treatment.

Recently, immune checkpoint inhibitors have been applied in the treatment of advanced lung cancers. Concurrent CRT with maintenance immunotherapy in inoperable stage III NSCLC is an effective multimodal approach with 2-year OS rates of 60 to 70% [10]. Although immunotherapy could not be applied to our patients in our study, response rates were high, survival rates and survival times were similar to patients who underwent definitive CRT in the literature [1,10]. Completion of the treatment by all of our patients may explain the high treatment response rates. In addition, none of our patients died due to Covid-19 infection. When applied by taking the necessary precautions during the Covid-19 pandemic period, CRT treatment has been used safely in patients and good responses have been obtained.

Conclusion

During the Covid-19 pandemic, definitive CRT is effective and reliable method in NSCLC. Passing Covid-19 infection adversely affects survival.

Acknowledgments

Table 1. Demographic, clinical, and tumor characteristics of patients

Age (mean or median)	60.5±7.9	**Smoking**, pocket/year	30 (5-45)
Gender, n (%) Male Female	28 (70.0) 12 (30.0)	**ECOG* Performance Status** ECOG PS 0-1 ECOG PS 2-3	33 (82.5) 7 (17.5)
Comorbidities, n (%) Yes No	25 (62.5) 15 (37.5)	**Body Mass Index**, n (%) <18.5-24.9 ≥ 25	20 (50.0) 20 (50.0)
Tumor size, cm median	6.1 (5-7.5)	**Obective response rate**, n (%)	29 (72.5)
Tumor size, cm ≥ 3 cm <3 cm	1 (2.5) 39 (97.5)	**Histology**, n (%) Adenocarcinoma Squamous cell carcinoma Mixt	19 (47.5) 19 (47.5) 2 (5)
Response rate, n (%) Partial Response Stabil Disease	29 (72.5) 11 (27.5)	**Getting Covid infection**, n (%) Yes No	7 (17.5) 33 (82.5)
Lymph Nodes N0 N1 N2 N3	5 (12.5) 4 (10.0) 25 (62.5) 6 (15.0)	**Treatment after lymph nodes** N0 N1 N2 N3	11 (27.5) 12 (30.0) 14 (35.0) 3 (7.5)
Clinical Stage, n (%) Stage I A, B Stage II A Stage II B Stage III A Stage III B Stage III C	2 (5.0) - 2 (5.0) 12 (30.0) 19 (47.5) 5 (12.5)	**NACT/CRT After Stage** Stage I A, B Stage II A Stage II B Stage III A Stage III B Stage III C	9 (22.5) 2 (5.0) 10 (25.0) 12 (30.0) 6 (15.0) 1 (2.5)
Recurrence or metastases, n (%) (+) (-)	19 (47.5) 21 (52.5)	**Treatment Completed**, n (%) Yes No	40 (100.0) -
Disease Free Survival (month)	4 (2.6-5.4) [†]	**Overall Survival** (month)	20 (17.7-22.3) [†]

*ECOG: Eastern Cooperative Oncology Group, [†]Kaplan Meier test

Table 2. Factors Affecting Overall Survival in Univariate Cox Regression Analysis

Variables	Univariate Analysis HR (95% CI)	p value
Age (years) ≥65/<65	0.478 (0.165-1.384)	0.174
Gender Male/female	0.603 (0.219-1.665)	0.329
ECOG Performance Status[*] ≥2/0–1	0.925 (0.263-3.256)	0.904
Comorbidities Presence/ Absence	0.664 (0.246-1.791)	0.419
Tumor Size	1.093 (0.855-1.399)	0.478
Getting Covid Enfection Yes/ No	4.035 (1.358-11.992)	**0.012**
Local Recurrence Presence/ Absence	1.564 (0.565-4.331)	0.389
Metastasis Presence/ Absence	1.712 (0.641-4.573)	0.284
Smoking. pocket/year	0.995 (0.976-1.014)	0.605
Body Mass Index ≥25/<25	2.063 (0.746-5.702)	0.163
Treatment Before SUVmax value	1.035 (0.961-1.113)	0.366
Objective Response Rate	1.718 (0.487-6.055)	0.400
Stage reduction after treatment Presence/ Absence	1.309 (0.371-4.613)	0.675
Post-treatment Stage-III Presence/ Absence	1.236 (0.461-3.312)	0.674
Pre-treatment Stage-III Presence/ Absence	0.888 (0.200-3.939)	0.876

*ECOG: Eastern Cooperative Oncology Group [†]PR; Partial Response, SD; Stabil Disease

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EVALUATION OF THE ANTICARCINOGENIC EFFECT OF MELATONIN IN AN IN VITRO EHRLICH ASCITES TUMOR MODEL

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Abstract

Introduction: The main methods used for cancer treatment can be listed as surgery, chemotherapy, radiotherapy, and hormone therapy. However, due to the fact that these methods have some side effects, and the treatments take a long time, patients may go into other searches. An important part of these studies is the strengthening of the antioxidant defense system against cancer-related oxidative stress. Previous studies have reported that melatonin has antitumoral effects against various cancer cells. Although the effect of melatonin has been proven for various cancer cells in the literature review, we see that there are not enough studies on its effect on Ehrlich Ascites Tumor. And the fact that the mechanism of action in the cellular dimension has not been studied in sufficient detail in the studies is one of the issues that need to be clarified.

Methods: EAT cells originating from mouse adenocarcinoma arose spontaneously in a female mouse in 1905. It was subsequently transplanted from a mouse to a mouse simultaneously by Ehrlich and Apolant to become an experimental tumor model. In this study, the effect of melatonin on Ehrlich acid tumor (EAT) cells; Different incubation times (24 and 48 hours) were tested in the 25, 50, 75 and 100 µg/ml dose range. Viable - dead cell, early - late apoptotic cell and total apoptotic cell concentration (cells/ml) were determined as a percentage by Annexin V and Dead Cell Test.

Results: When the number of viable cells was evaluated, there was a significant increase ($p < 0.005$) in the M100 group compared to the control group after 24 hours of incubation. After 48 hours of incubation, viable cell count was lower in M25 ($p < 0.05$), M75 ($p < 0.001$), M100 ($p < 0.005$) groups compared to control group. When the data at the end of the 24-hour incubation were evaluated, it was observed that the number of early apoptotic cells in the M100 group was significantly lower than the control group ($p < 0.005$). At the end of 48 hours, there was a significant increase in the number of late apoptotic cells in the M25 and M75 ($p < 0.005$) groups compared to the control group. When the 24-hour data were evaluated, a significant decrease was observed in the total number of apoptotic cells in the M100 group compared to the control group ($p < 0.05$). After 48 hours, there was a significant increase in the total number of apoptotic cells in the M25 ($p < 0.05$), M75 ($p < 0.005$) and M100 ($p < 0.05$) groups compared to the control group.

Conclusion: Our study showed that Melatonin has an anticarcinogenic effect in cancer. We hope that with the evaluation made in the cell culture study, we have provided useful information to the literature and our study will be a reference for future studies.

Keywords: *Melatonin, Apoptosis, Mice, Ehrlich Ascites Tumor*

EXPOSURE ASSESSMENT AND CANCER RISK CHARACTERIZATION OF AFLATOXIN M1 THROUGH INGESTION OF INFANT FORMULA IN TÜRKİYE

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Abstract

The objectives of the study were to determine the aflatoxin M1 (AFM1) content in ınfant formula samples in Türkiye and to assess the risk of infants' exposure to aflatoxins food contamination. A total number of 72 samples of infant formulas (premature, Hipoallergenic, 0-6, 6-9,9-12 and 12-36 months) were analyzed for the presence of AFM1 using the Enzyme Linked Immunosorbent Assay (ELISA) method. 49% of the samples (35 samples) were contaminated with AFM1 and the group most highly contaminated with AFM1 was infant formulas 12-36 (8 samples) months. In addition, this study aimed at evaluating AFM1 levels especially above international (European Commission) (0.025 µg/kg) and local (Türkiye Food Codex Regulation) (0.025 µg/kg) standards and cancer risks associated with the ingestion of infant formula sampled from Türkiye. Five samples of infant formula had AFM1 concentration above maximum allowable concentration according to the standards. Risk assessments of AFM1 for infants ranged between 0,002- 0,035 ng/kg bw/day, >100.000–5263.15, and 6.6×10^{-4}- 0.022 cases/100,000 person/year respectively for Estimated Daily Intake (EDI), Margin of Exposure (MOE), and Cancer Risks. The riskiest group was determined in the 9-12 months samples. Results of our study indicate the high risk of infants' exposure, who are at the early stage of development and vulnerable to toxic contaminants.

Keywords: *Cancer risk, Estimated Daily Intake, Exposure assessment, Infant formula, Aflatoxin M1*

STRUCTURAL, SPECTRAL, ANTIBACTERIAL AND ANTICANCER INVESTIGATIONS OF SYNTHESIZED ISOXAZOLE DERIVATIVES

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Abstract

Cancer, which is one of the diseases with the highest death rate in the world, affects the lives of many people significantly. Gastric cancer, one of the cancer types with the highest mortality rate, is also in the first place. Synthesized eight isoxazole derivatives were investigated in this study as computationally. These compounds were optimized at B3LYP/6-31+G (d) level in water. C-PCM method was taken into consideration as solvent model. Structural properties of them were examined in detail. Electronic properties of the studied compounds were investigated using contour plot of frontier molecular orbital which are HOMO and LUMO. Furthermore, molecular electrostatic potential (MEP) maps of them examined. Anticancer properties of these compounds are investigated using molecular docking calculations against *H. Pylori* and VEGFR2. Additionally, the pharmacokinetics and pharmacology properties are investigated using ADME and p450 analyses. As a result, 2-(5-(furan-2-yl) isoxazol-3-yl) phenol was represented in Fig. 1 was found as the best inhibitor candidate. It was found that compound 5a is the best inhibitor candidate.
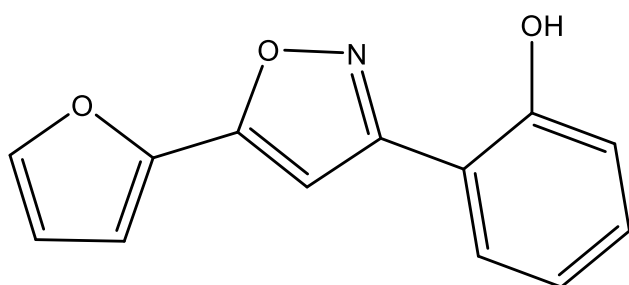
Figure 1. Molecular structure of 2-(5-(furan-2-yl) isoxazol-3-yl) phenol.

COMPARISON OF THE ACTIVITIES OF DIARYL UREA DERIVATIVES BY IN SILICO AND IN VITRO METHODS

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Abstract

Cancer is a disease that occurs as a result of uncontrolled proliferation and growth of cells in any organ or tissue of the body. Cancer is named according to the tissue in which it occurs. More than two hundred types have been identified. It is reported that the most common and fatal cancer types are lung, stomach, liver, colon, and breast cancer by world health organization (WHO).

In this study, two new compounds represented in Fig 1, were investigated by computationally and experimentally. These compounds were optimized at B3LYP/6-31G level in water. C-PCM method was taken into consideration to predict solute-solvent interactions. After then, these compounds were synthesized and characterized by spectral techniques. In this stage ^{1}H-NMR, ^{13}C-NMR, FT-IR, and LC-QTOF-MS was used. Cytotoxicity effect of synthesized compounds were investigated by XTT test. Finally, molecular docking calculations were performed. As a result, experimental results were compared with calculated ones and there was a good agreement in the obtained results. In XTT test, studied compounds have a good anticancer effect and it was supported by molecular docking results.
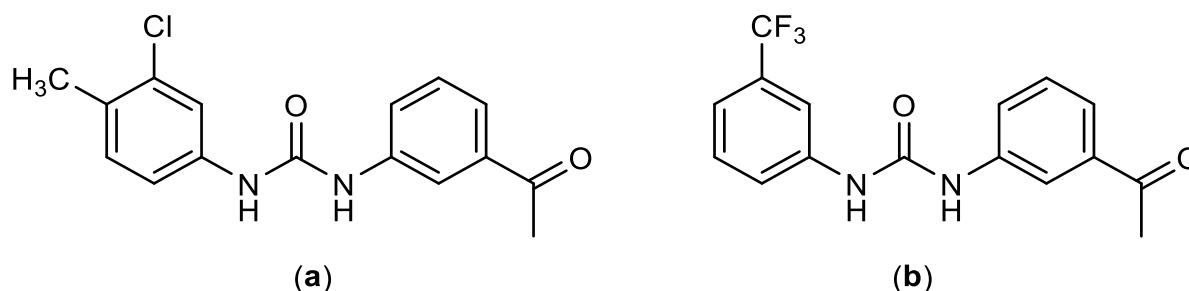
Figure 1. Molecular structure of 1-(3-acetylphenyl)-3-(3-chloro-4-methylphenyl) urea (a) and 1-(3-aseptylphenyl)-3-(3-(trifluoromethyl)phenyl) urea (b).

COMPUTATIONAL CALCULATIONS and MOLECULAR DOCKING ANALYSES OF IMIDAZOLE DERIVATIVES AGAINST MAPK1 in LUNG CANCER

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Abstract

Cancer is a group of more than 100 different diseases. İt can develop almost anywhere in the body. Cancer cells usually group or clump together to form tumors. A growing tumor becomes a lump of cancer cells that can destroy the normal cells around the tumor and damage the body's healthy tissues. Cancer can grow into, or start to push on nearby organs, blood vessels, and nerves. As already noted, there are many distinct varieties of cancer; lung cancer is the second most common cancer worldwide. Whereas lung cancer ranks first place for mortality.

In this research, four compounds were examined. In the beginning, they were optimized by using Gaussian software at B3LYP-D3/6-31G(d) level in the water. Secondly, the electronic properties of the compounds which include the highest occupied molecular orbital (HOMO), the lowest unoccupied molecular orbital (LUMO), and molecular electrostatic potential (MEP) maps were calculated at the same level. Then, these structures interacted with MAPK1 to determine its impact on lung cancer. This protein was chosen from Protein Data Bank (PDB) web service as 4ZXT. That protein is related to Mitogen-activated protein kinase 1 (MAPK 1), also known as ERK2, which is an enzyme that in humans is encoded by the MAPK1 gene. The molecular structure of compounds 1-4 were represented in Fig. 1. As a result, the studied compounds exhibit good activity against MAPK1.
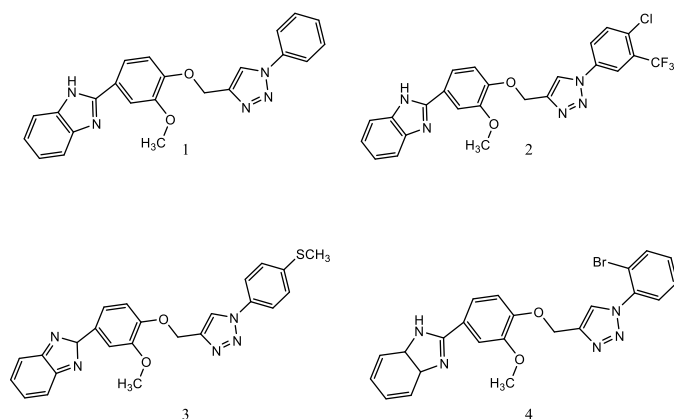
Figure 1. Chemical structure of studied compounds

NANOTECHNOLOGY-BASED RADIOSENSITIZERS FOR CANCER THERAPY

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Abstract

Cancer is a malignant tumor that invades surrounding tissues as a result of uncontrolled cell proliferation and can metastasize distantly through lymph and blood (1). General approaches in cancer treatment; surgery, radiotherapy, chemotherapy, hormone therapy, immune therapy, and targeted therapy (1,2). One of the most used treatment modalities in the clinical treatment of cancer is radiotherapy which uses ionizing radiation (3-5). Although it is tried to reduce the side effect of radiotherapy with the developing technology, the damage it causes to the surrounding healthy tissues cannot be completely prevented. The methods applied to increase the effect of radiation on the target tissue without increasing the applied radiation dose can generally be grouped into three groups. These are a reversal of the radiation resistance in the tumor tissue, increasing the radiation resistance of the healthy tissue, and increasing the sensitivity of the tumor tissue (6). Radiosensitizers are compounds that increase the sensitivity of cells to radiation when applied to cells before or during irradiation (1). There are various substances used as radiosensitizers and called chemical sensitizers. In recent years, the use of nanotechnology-based radiosensitizers in radiotherapy has been intensively researched. Metal-based nanoparticles such as Gold (Au), Gadolinium (Gd), Titanium (Ti), Silver (Ag), Hafnium (Hf), and non-metal nanoparticles such as Silicon and Fullerene, superparamagnetic iron oxide nanoparticles, and quantum dots are examples of nanotechnology-based radiosensitizers (7).

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III. INTERNATIONAL CANCER DAYS

EVALUATION OF THE QUALITY OF LIFE OF CANCER PATIENTS IN TURKEY BY ARTIFICIAL INTELLIGENCE

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Abstract

Digitization, which has gained momentum in all areas of life in recent years, has created an environment where technology is used rather than traditional business methods. The emergence of concepts such as Industry 4.0, artificial intelligence, and machine learning has also shown the development of businesses that reduce errors and costs, where many jobs are done by machines instead of humans. Healthcare, an important function of health, has also been greatly affected by digital transformation.

Based on the World Health Organization's Quality of Life (WHOQOL) Framework, this systematic review aimed to examine the evidence on the prevalence and severity of QOL-related health problems in Turkey and the factors affecting them. We identified appropriate English publications from PubMed, Cumulative Index of Nursing, Allied Health Literature Plus and Full Text, Embase, APA PsycInfo, Scopus, and African Index Medicus databases [1]. Errors that may occur in the delivery of health services are basically quality problems. The traditional quality assessment model developed by Donavedian includes the relationship between structure, process, and results. This model is used to describe the relationship between patient safety and organizational style. According to this model, the relationships between the organizational structure, working styles, processes, and results of a healthcare institution can effectively ensure patient safety. The error is due to the interaction of all these factors [2].

Demographic factors (such as age and marital status), cancer-related factors (such as stage of cancer and type of treatment), and social determinants of health (such as education, access to information and resources, economic difficulties, urban district, and district housing) are also considered. considered. (Quality of life) and QOL from subdomains. Our results indicate a critical need for identifying and managing quality of life issues for cancer patients and caregivers in Turkey. Research should use culturally appropriate and standardized assessment tools and analytical approaches to better understand the QOL challenges facing this population. Comprehensive supportive care is needed to address complex quality of life issues in resource-constrained Turkey.

Keywords: *WHOQOL, QOL, Cancer, Artificial Intelligence*

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INVESTIGATION OF THE AFLATOXIN M_1 PRESENCE IN RAW MILK CONSUMED IN SİVAS PROVINCE-TURKEY

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Abstract

Milk is an important food as it provides micro- and macronutrients essential for the growth and maintenance of human health. Because, milk and its products are highly consumed by all age groups of humans, including infants, it has to be free of toxic compounds, including mycotoxins. However, these products can contain aflatoxin M_1 (AFM$_1$), a metabolite of the mycotoxin aflatoxin B_1 (AFB$_1$), known as the most toxic and powerful natural carcinogen for human and animal [1]. AFM1, known as "milk toxin", is hydroxilated metabolite of aflatoxin B_1. It is secreted in milk produced by dairy cattle after consumption of feed contaminated with AFB$_1$. AFB$_1$ and AFM$_1$ are classified in Class-1 carcinogen, which means there is sufficient evidence of carcinogenicity in humans by International Agency for Research on Cancer (IARC) agency [2]. Human exposure to AFM$_1$ is due to the consumption of contaminated milk and dairy products [3].

In this study, the presence and residue levels of AFM$_1$ in milk offered for sale in Sivas and its region were investigated. For this purpose, raw cow's milk samples (n=60) were used as material. The milk samples were collected periodically from central sales points and surrounding villages between January and February 2017. ELISA method was used for the determination of AFM1. According to the results of the analysis, AFM$_1$ was detected in 55 raw milk samples (91.6%). The lowest level of AFM$_1$ was 1.56, and the highest concentration was 133.78. The mean AFM$_1$ concentration in the samples was calculated as 36.59 ± 3.98 ng/L. AFM$_1$ level was found below the limits determined by the European Union and Turkish Food Codex in 43 samples (78.2%). AFM$_1$ values were determined above 50 ng/L in 12 samples (21.8%). AFM$_1$ was not detected in five samples (8.3%) because their values were below the detection limit of AFM$_1$.

These results show that there is a serious aflatoxin residue in raw milk for public health. Cancer has become one of the most important health problems waiting to be solved today. One of the causes of this disease, AFM1 should not be ignored and should be given due importance. It is recommended to carry out more effective studies to raise awareness of the public and producers about the health effects of aflatoxin in milk and its products and the prevention of aflatoxin formation.

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BRCA1 AND BRCA2 GENE ANALYSIS RESULTS IN PATIENTS WITH BREAST/OVER CA DIAGNOSIS AND HEREDITARY RISK IN TOKAT REGION

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Abstract

Breast cancer is the most common cause of cancer-related death in women in both genders and all ages, according to the 2020 data of the World Health Organization-International Agency for Research on Cancer (IARC) [1,2]. Breast cancer is mostly sporadic, and genetic factors play an important role in 10-15% of cases [3]. Hereditary breast and/or ovarian cancer syndrome (HBOC) is characterized by a familial predisposition to cancers such as female and male breast cancer, ovarian cancer and less frequently pancreatic cancer, prostate cancer, and melanoma. Mostly, mutations in the *BRCA1* and *BRCA2* genes are associated with HBOC syndrome. Mutations in the BRCA1/2 genes are responsible for approximately 25% of HBOC syndrome [4,5].

In this context, a total of forty-one cases, two of which were male, who met the criteria for BRCA1-BRCA2 and inherited risk in breast/ovarian cancer cases who came to our hospital for genetic counseling, were examined.

In our study, detected variants have been reported as harmful (P-pathogenic), possibly harmful (LP -likely pathogenic), unknown clinical significance (VUS- variant of uncertain significance) variants, according to ACMG (American College of Medical Genetics) and AMP (Association of Molecular Pathology) criteria [6].

Benign and likely benign variants were not included in our study. Next-generation sequencing-based multigene panel testing and multiplex ligation-dependent probe amplification testing were used in this study.

Accordingly, p. Ser1140Glufs*4 (c.3416dup) in the BRCA2 gene in a case diagnosed with breast ca; In another case diagnosed with LP recurrent metastatic breast ca, p. Glu149* (c.445G>T) in the BRCA2 gene; P and the BRCA2 gene p. Gln1361Glu (c.4081C>G); VUS, was found to have a heterozygous deletion covering exon 18-19 of the BRCA1 gene in a case with inherited risk.

In our study, 22 breast cancer cases and 3 ovarian cancer cases were included, as an inherited risk was found in the other cases. Based on the importance of examining genetic tests in families with hereditary cancer history and providing genetic counseling, our study emphasizes the importance of screening families associated with breast cancer in the context of genes with variants, sharing the obtained data, and genetic analyzes for cancer susceptibility.

III. INTERNATIONAL CANCER DAYS

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IS BONE SCINTIGRAPHY NECESSARY FOR EACH PROSTATE CANCER PATIENT?

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Abstract

Prostate cancer is the most common cancer in men after lung cancer. In patients diagnosed with prostate cancer, rectal examination, determination of serum prostate-specific antigen (PSA) level, pelvic computed tomography scan and bone scintigraphy are performed for staging. Although bone is the second most common site of metastasis in patients with prostate cancer. The risk of bone metastasis is different for each prostate cancer patient. There are similar recommendations in the guidelines for the indication of bone scintigraphy in patients with prostate cancer. The aim of this study is to compare the findings of bone scintigraphy performed in patients with prostate cancer in our country with the clinical data of the patient in line with the guidelines, and to evaluate the effectiveness of bone scintigraphy in the patient group considered to be low risk in terms of bone metastasis.

This study was carried out between 1 June 2022 and 1 August 2022 in Sivas Numune Hospital Department of Nuclear Medicine. Bone scintigraphy images of 675 patients were evaluated. One hundred and fifty-seven patients were included in the study. The patients' Gleason scores and serum PSA and alkaline phosphatase (ALP) levels obtained within 2 weeks before or after imaging were recorded. Bone scintigraphy findings of the patients were compared by correlating PSA, ALP levels and Gleason scores.

In our study, we examined the findings of 147 prostate cancer patients referred to our clinic for bone scintigraphy. The mean serum PSA levels of patients with bone metastases were 42.35 ng/ml. However, serum PSA levels of 14 of 60 patients with bone metastases were found to be <20 ng/ml. The serum PSA level of three patients was <10 ng/ml. In addition, when the Gleason scores of 60 patients with metastases in bone scintigraphy were analyzed, the Gleason score of 4 patients was ≤6, the Gleason score of 24 patients was 7, and the Gleason score of 32 patients was ≥8. One patient with a Glesaon Score ≤6 had a serum PSA level of <20 ng/ml. Patients with metastases in bone scintigraphy were divided into two groups according to the number of foci as oligometastatic (1-3 metastases) and polymetastatic (more than 3 metastases). Eighteen (12.2%) of 60 patients were oligometastatic, while 42 (28.6%) were polymetastatic. In the univariant analysis, serum PSA level and Gleason score were found to be significantly correlated with the results of bone scintigraphy. No correlation was found with serum ALP levels. In the multivariate analysis, serum PSA level and Gleason score were found to be related.

Our results did not reflect the whole population, it showed that bone scintigraphy could be positive in the patient group, which can be considered as low risk (PSA<10 ng/ml and Gleason Score <7). Bone scintigraphy, which has an important place in the evaluation of bone

metastases in prostate cancer patient management, should be applied to every prostate cancer patient, although it is an imaging method that is costly and causes radiation exposure. Otherwise, the patient's quality of life may decrease, and treatment costs may increase due to late-detected bone metastases.

Keywords: *Prostate Cancer, Prostate-Spesific Antigen, Gleason Sore, Bone Metastasis, Alkaline Phosphatase*

1. Introduction

Cancer is among the leading causes of morbidity and mortality in the world. Prostate cancer is the most common cancer in men after lung cancer [1]. In patients diagnosed with prostate cancer, rectal examination, determination of serum prostate-spesific antigen (PSA) level, pelvic computed tomography scan and bone scintigraphy are performed for staging [2]. Although bone is the second most common site of metastasis in patients with prostate cancer, 13-15% of patients have bone metastases at the time of diagnosis and approximately 80% of patients in advanced stages [3,4]. Therefore, while bone metastases indicate prognosis, they affect patient management and morbidity [5]. The sensitivity of bone scintigraphy, which is the first preferred imaging method for the detection of bone metastases, is approximately 80%. However, although it is sensitive, it may often require more imaging due to its non-specific results [6]. The risk of bone metastasis is different for each prostate cancer patient. Many studies have shown that the incidence of bone metastasis is positively correlated with tumor stage, serum PSA level, and Gleason Score [5]. There are similar recommendations in the guidelines for the indication of bone scintigraphy in patients with prostate cancer (GS>7, PSA level>20 ng/mL) [7,8]. However, in studies conducted in some countries, it has been observed that the incidence of bone metastasis is not low in prostate cancer patients despite low PSA and GS [9,10]. Ito et al. found that the incidence of BM was 36% in patients with PSA≤10ng/mL in the Japan Screening Program [9]. In our country, there are not enough studies on this subject.

The aim of this study is to compare the findings of bone scintigraphy performed in patients with prostate cancer in our country with the clinical data of the patient in line with the guidelines, and to evaluate the effectiveness of bone scintigraphy in the patient group considered to be low risk in terms of bone metastasis. Elucidation of demonstrating whether bone scintigraphy is necessary in patients at low risk for bone metastases can identify patients with a low probability of bone metastasis and prevent long waiting times and unnecessary costs for bone scintigraphy.

2. Method

This study was carried out between 1 June 2022 and 1 August 2022 in Sivas Numune Hospital Department of Nuclear Medicine. Bone scintigraphy images of 675 patients were evaluated. One hundred and fifty-seven patients were included in the study. The patients' Gleason scores and PSA and alkaline phosphatase (ALP) values obtained within 2 weeks before or after imaging were recorded. Bone scintigraphy findings of the patients were compared by correlating PSA, ALP levels and Gleason scores.

Statistical analyses were performed using the Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp). Descriptive statistics specified numbers and percentages (%) for categorical variables. The mean and standard deviation were specified for the normally distributed continuous variables. The median was specified for continuous variables that did not show normal distribution. The conformity of the variables to the normal distribution was examined using histograms, probability charts, and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk test). Quantitative data according to the normal distribution characteristics were evaluated with the Mann-Whitney U test or Student's t-test. Qualitative data were analyzed with the chi-square test. Paired samples T-test was used for normally distributed variables, and the Wilcoxon test was used for non-normally distributed variables to evaluate the relationship between dependent variables. Repetitive measurements analysis of variance was used to evaluate the relationship between repetitive measurements and factors, linear regression for continuous variables, logistic regression for categorical variables, and generally estimated equations for modeling repetitive measurements. The statistical significance level was chosen at a two-sided p-value of 0.05 or less.

3. Results and Discussion

Ten patients were excluded from the study because their clinical data could not be reached. While 60 (40.8%) of the remaining 147 patients had positive results in terms of metastasis, no metastasis was detected in 87 patients. The patients were divided into three groups according to their serum PSA levels and Gleason scores. Patients with PSA <10 ng/ml and Gleason score ≤ 6 are in the low-risk group, patients with 10 ng/ml <PSA <20 ng/ml and/or Gleason score 7 are in the intermediate risk group, PSA > 20 ng/ml or Gleason score is 8-10 patients were included in the high-risk group. The epidemiological and clinical features of the positive and negative patient groups according to the results of bone scintigraphy in terms of metastasis are summarized in Table 1.

Table 1. Epidemiological and clinical features of patients

	All (n=147)	Positive (n=60)	Negative (n=87)	p value (positive vs. negative)
Age (year)				
Mean ± SD	70.49 ± 7.23	70.03 ± 8.37	70.81 ± 6.37	0,379
Range	51-86	51-85	51-86	
PSA (ng/ml)				
Mean ± SD	19.09 ± 28.57	42.35 ± 32.82	3.04 ± 3.05	0,001
Median	5.87	27.37	2.70	
Range	0-152	5.94-152	0–11.49	
ALP (U/L)				
Mean ± SD	83.81 ± 43.29	105.35 ± 55.74	68.96 ± 22.43	0.001
Median	73	88	65	
Range	37-364	43-1032	37-130	
Gleason Score (n/%)				
≤6	72 (49.0)	4 (2.7)	68 (46.3)	
7	30 (20.4)	24 (16.3)	6 (4.1)	0.001
≥8	45 (30.6)	32 (21.8)	13 (8.8)	
Risk Group (n/%)				
Low	67 (45.6)	0 (0)	67 (45.6)	
Intermediate	17 (11.6)	10 (6.8)	7 (4.8)	0.001
High	63 (42.9)	50 (34.0)	13 (8.8)	

SD standard deviation, *PSA* prostate-specific antigen, *ng/ml* nanogram per milliliter, *ALP* alkaline phosphatase, *U/L* units per liter

Patients with metastases in bone scintigraphy were divided into two groups according to the number of foci as oligometastatic (1-3 metastases) and polymetastatic (more than 3 metastases). Eighteen (12.2%) of 60 patients were oligometastatic, while 42 (28.6%) were polymetastatic.

In the univariant analysis, serum PSA level and Gleason score were found to be significantly correlated with the results of bone scintigraphy. No correlation was found with serum ALP levels. In the multivariate analysis, serum PSA level and Gleason score were found to be related.

It is important to determine whether there is bone metastasis in prostate cancer both in the initial staging and in the later staging. Because bone metastasis may change the treatment protocol and may require additional treatments such as radiotherapy. This may result in an increase in costs. However, while bone scintigraphy provides scanning of the whole body in a single session, it is a relatively costly imaging method. In addition, radiation exposure is a negative situation for the patient. For these reasons, it is important to determine in advance which prostate cancer patient should undergo bone scintigraphy in order to avoid unnecessary cost and radiation exposure.

In the European Association of Urology guideline, it is stated that bone scintigraphy may not be performed in prostate cancer patients with PSA<20ng/mL, GS<8 and no bone symptoms [7]. The American Urological Association makes similar recommendations [8]. In line with these guideline recommendations, Briganti et al. In their study with 853 prostate

cancers in Italy, they found the negative predictive value of this recommendation as 99%, sensitivity as 70.8% and specificity as 88.7% [11]. In another study, 672 prostate cancer patients were evaluated and the negative predictive value of bone scintigraphy was found to be 100% in accordance with the guidelines of the European Association of Urology [12]. O'Sullivan et al. reported the negative predictive value as 99%. In another study, the negative predictive value of bone scintigraphy was found to be 100% with guideline recommendations in 124 prostate cancer patients [13]. Contrary to these studies confirming the guideline recommendations, some studies show that bone scintigraphy may also be positive in patients with prostate cancer with PSA<20 ng/mL, GS<8 [11-13].

Al-Ghazo et al. found bone metastasis in 39 (39.7%) of 98 prostate cancer patients in their study [14]. In another study, Wang et al. detected bone metastases in 216/443 patients [15]. Consistent with these studies, we found bone metastases in 40.8% of patients who underwent bone scintigraphy for prostate cancer in our study. However, lower metastasis rates were found in the studies of McArhtur et al and Ozgur et al. [12,16]. The reason for this discrepancy may be that we included not only staging but also all patients in our study or that patients in our country were screened at more advanced stages.

In our study, the mean serum PSA levels of patients with bone metastases were 42.35 ng/ml. However, serum PSA levels of 14 of 60 patients with bone metastases were found to be <20 ng/ml. The serum PSA level of three patients was <10 ng/ml. In addition, when the Gleason scores of 60 patients with metastases in bone scintigraphy were analyzed, the Gleason score of 4 patients was ≤6, the Gleason score of 24 patients was 7, and the Gleason score of 32 patients was ≥8. One patient with a Gleason Score ≤6 had a serum PSA level of <20 ng/ml. If the recommendations of the European Association of Urology or the American Urological Association of were followed, bone metastases in 14 patients would not have been detected. These results were in agreement with the results of Briganti et al. and McArthur et al [11,12].

Ozgur et al. found it useful in estimating the serum PSA level and Gleason score in the univariant analysis they applied in their study, they found only the serum PSA level to be related in the multivariate analysis [16]. In another study, bone scintigraphy results were found to be independently associated with serum PSA level >20 ng/ml and Gleason score ≥7 [14]. In our study, similar to these studies, serum PSA level and Gleason scores were found to be significantly correlated in predicting the outcome of bone scintigraphy in univariant and multivariate analyses.

4. Conclusion

In our study, we examined the findings of 147 prostate cancer patients referred to our clinic for bone scintigraphy. Although our results did not reflect the whole population, it showed that bone scintigraphy could be positive in the patient group, which can be considered as low risk (PSA<10 ng/ml and Gleason Score <7). Bone scintigraphy, which has an important place in the evaluation of bone metastases in prostate cancer patient management, should be applied to every prostate cancer patient, although it is an imaging method that is costly and causes radiation exposure. Otherwise, the patient's quality of life may decrease, and treatment costs may increase due to late-detected bone metastases.

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DESIGN, SYNTHESIS, *IN VITRO* AND *IN SILICO* ANALYSES OF NICOTINAMIDE DERIVATIVES AGAINST GASTRIC CANCER

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Abstract

Cancer is one of the most dangerous diseases in human life and the number of cancer patients is increasing day by day. In the body, cancer cells grow uncontrollably and can spread almost everywhere. There are many cancer types and gastric cancer, one of them, is the sixth most seen cancer type in 2020 via to WHO data. As for mortality, gastric cancer ranks fourth.

In this study, two new compounds, represented in Fig. 1, were investigated as experimentally and computationally. Firstly, mentioned compounds were optimized at M062X/6-31G(d) level in water. Structural and electronic properties were examined in detail. Then, these compounds were synthesized and characterized by IR, ^{1}H-NMR, ^{13}C-NMR and LC-QTOF-MS. Cell viability analyses of them were completed using XTT test to predict anticancer properties. Finally, obtained results in cell viability were supported by molecular docking calculations.
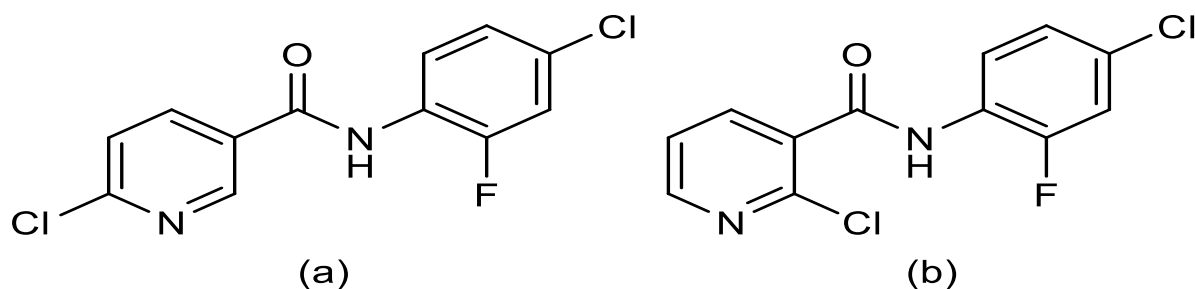
Figure 1. Compound structure of 2-chloro-N-(4-chloro-2-fluorophenyl) nicotinamide (a) and 6-chloro-N-(4-chloro-2-fluorophenyl) nicotinamide (b)

As a result, newly designed compounds are synthesized and characterized. Experimental results were supported by the calculated results. According to XTT analyses, one compound has anticancer properties against gastric cancer.

SPIRITUALITY IN CANCER PATIENTS

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Abstract

Cancer, one of the life-threatening and chronic diseases, directly or indirectly affects many people. Having a cancer patient in the family changes the life course of all members. Anxiety and helplessness about the sick family member not only create an emotional burden but also imposes additional and unusual roles and responsibilities on the patient's relative [1]. Every person has a spiritual dimension. Therefore, in adverse situations such as life-threatening illnesses, spiritual needs that need to be met arise. Along with the physical and psychological needs of the patients, their spiritual needs should also be met. Meeting spiritual needs is essential in providing holistic health care [2]. Cancer, which causes a decrease in the quality of life, increases the need for spiritual support by causing spiritual distress in patients. However, many people who treat and care for cancer patients ignore the spiritual dimension of the sick individual and fall short of participating and adapting to basic care areas [3]. In this review, we aimed to discuss the critical importance of spiritual support, the responsibility of individuals in determining and meeting the spiritual needs of the sick individual, and the perspective of the patients in light of the literature.

Keywords: *Spirituality, Cancer, Patient*

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CAN SYSTEMIC INFLAMMATORY INDEX PREDICT THE PRESENCE OF CANCER IN PATIENTS WITH PERICARDIAL EFFUSION?

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Abstract

Background: Pericardial effusion (PE) is a clinical condition that can occur due to various etiological reasons, especially cancer. In this study, we aimed to investigate the relationship of systemic inflammatory index (SII), an important determinant of inflammation, with the presence of cancer in patients diagnosed with cancer after pericardiocentesis.

Methods: A total of 158 patients who were followed up with the diagnosis of PE and underwent pericardiocentesis between 2006-2022 were included in this retrospective, single-center study. The patients were divided into 2 groups according to whether they were diagnosed with malignancy or not after pericardiocentesis.

Results: Malignancy was detected in 46 patients. The mean SII was 1803.4 (759.8-2160.5) in the malignancy positive group and 1111.8 (522.7-1287.6) in the malignancy negative group. Patients with malignancy had more male gender and lower hemoglobin, low density lipoprotein (LDL) and SII. In multivariate logistic regression analysis; SII (odds ratio [OR], 1.039; 95% confidence interval [CI], 1.009-1.070; p = 0.011) were found to be independent predictors for malignancy. According to the ROC curve analysis, an optimal cut-off value of SII to predict malignancy was found as 1060.6, with 65.2% sensitivity and 65.2% specificity (AUC 0.649, 95% CI: 0.550–0.749, p = 0.003) (Figure 1).

Conclusion: According to these results, the effect of SII assessment on predicting cancer diagnosis in patients with pericardial effusion has been shown for the first time in the literature.

Keywords: *Malignancy, Pericardial Effusion, Systemic Inflammatory Index*

Introduction

Problems in the production or drainage of pericardial fluid play a role in the pathology of pericardial effusion (PE) [1]. Effusions are most often associated with inflammation of the pericardium. This inflammation may occur as a result of a systemic disease or as a result of primary pericardial involvement. Among the most common causes of clinically significant pericardial effusions; malignancy (25%), infection (27%), radiation-induced inflammation (14%), and collagen vascular diseases (12%) [2,3]. Pericardiocentesis provides drainage of the

fluid in the pericardial space, and the procedure is the gold standard for revealing the specific etiology [4].

In recent years, the tumor microenvironment has received increasing attention. Various inflammatory cells and inflammatory mediators emerge as important components of the tumor microenvironment [5]. Peripheral leukocytes, neutrophils, lymphocytes, platelets, and acute phase proteins contribute to the inflammatory response and can be easily detected. In recent years, some studies have shown that systemic inflammatory response is associated with postoperative survival of tumor patients [6,7]. Systemic immune inflammatory index (SII) is a marker reflecting local immune response and systemic inflammation. In the literature, there are studies showing the prognostic value of SII in the presence of various malignancies [8]. In this study, we aimed to examine the relationship between SII and the presence of malignancy in patients presenting with clinically significant PE.

Methods

The data of patients with pericardial effusion admitted to the cardilogy clinic between January 2006 and January 2022 were retrospectively analyzed. This retrospective study was approved by the local ethical committee. This study is designed in line with the principles of the Helsinki Declaration. The patients enrolled in this retrospective single-center study were diagnosed with PE and were performed pericardiocentesis.

Inclusion criteria: Patients over 18 years of age, with a left ventricular ejection fraction (LVEF) >50%, who underwent pericardiocentesis and whose pericardiocentesis materials were examined for malignancy were included in the study.

Exclusion criteria: Patients with missing medical record data and a history of acute coronary syndrome or cardiac surgery in the last 6 months were excluded from this study.

Demographic data of patients, presence of comorbidities such as concomitant hypertension (HT), diabetes mellitus (DM), coronary arterial disease (CAD), echocardiographic findings (LVEF, pericardial effusion size) routine biochemical parameters (hemogram, sodium, potassium, creatine, cholesterol, albumin, C-reactive protein [CRP]) values have been obtained. Clinical characteristics of all patients were recorded using the patient's anamnesis or hospital medical records. SII value was calculated with Neutrophil*Platelet/Lymphocyte formula. Transthoracic echocardiography (TTE) was performed in all patients with Vivid (GE Healthcare) echocardiography device and 1.5–4.5 MHz ultrasound probe by a cardiologist according to the American Society of Echocardiography Standards [9]. LVEF was measured by the Simpson method. Patients with the largest measured effusion size of 10mm or greater were defined as having a clinically significant pericardial effusion. Diastolic compression of the ventricles in transthoracic echocardiography, more than 30% inspiratory decrease in Mitral inflow flow in Doppler measurements, and an inspiratory increase of more than 50% in tricuspid inflow flow were considered as signs of ventricular compression.

Statistical analysis: The study parameters were recorded in the data collection form and statistical analyzes of the obtained data were performed with the help of IBM SPSS version 25.0 program. Descriptive statistics are presented with frequency (%), mean±standard deviation (min-max), and interquartile range. In the statistical analysis, the conformity of the variables to

the normal distribution was examined by histogram graphics and the Kolmogorov-Smirnov test. The Mann Whitney U Test was used when evaluating non-normally distributed (non-parametric) variables between two groups. ROC analysis was used to examine whether the parameters that differed between the groups could predict malignancy. Cases where the p value of <0.05 was considered as statistically significant.

Results

158 patients who underwent pericardiocentesis were included in the study. Malignancy was detected in 46 patients.

The mean SII was 1803.4 (759.8-2160.5) in the malignancy positive group and 1111.8 (522.7-1287.6) in the malignancy negative group. The patients were divided into 2 groups as malignancy positive and negative and their baseline demographic, clinical, echocardiographic and laboratory characteristics are shown in Table 1. Patients with malignancy had more male gender and lower hemoglobin, low density lipoprotein (LDL) and SII.

While primary lung pathology was present in 52% of the patients with cancer, it was followed by pathologies originating from the breast (15%) and stomach (7%), respectively (Table 2).

In the univariate logistic regression analysis, albumin, LDL and SII values were found as possible predictors of malignancy. In multivariate logistic regression analysis; SII (odds ratio [OR], 1.039; 95% confidence interval [CI], 1.009-1.070; p = 0.011) were found to be independent predictors for malignancy.

Table 3 shows the logistic regression analysis results regarding malignancy. ROC analysis was performed to determine the optimal cut-off value of the SII to predict malignancy. According to the ROC curve analysis, an optimal cut-off value of SII to predict malignancy was found as 1060.6, with 65.2% sensitivity and 65.2% specificity (AUC 0.649, 95% CI: 0.550–0.749, p = 0.003) (Figure 1).

Table 1: Baseline characteristics of study patients

	Malignancy Positive (n:46)	Malignancy Negative, (112)	p Value
Sex (Female) (%)	18 (39.1%)	64 (57.1%)	0.040
Age (years)	62.8 ± 16.1	63.6 ±16.1	0.785
Hypertension n, (%)	8 (17.4%)	29 (25.9%)	0.347
Diabetes Mellitus n,(%)	6 (13.0%)	22 (19.6%)	0.449
Coronary Artery Disease n, (%)	1 (2.2%)	7 (6.3%)	0.439
LV Ejection Fraction (%)	57.7 (55.0-60.0)	57.2 (55.0-60.0)	0.531
Hemoglobin (g/dL)	11.8 (10.4-13.0)	12.7 (11.3-14.1)	0.012
White Blood Cell (10^3/ uL)	9.5 (6.5-12.6)	8.8(6.5-10.2)	0.153
Red Blood Cell (10^6 / uL)	4.2(3.8-4.7)	4.4 (3.8-4.9)	0.195
Neutrophil (10^9/L)	7.6 (4.6-11.2)	7.1(4.2-8.6)	0.123
Lymphocyte (10^9/L)	1.5 ± 0.8	1.8 ± 0.7	0.068
Platelet (10^9/L)	277.8 (170.8-345.8)	247.2(180.5-284.0)	0.408
Hematocrit %	37.5 ± 7.5	38.2 ± 5.6	0.483
Creatinine (mg/dl)	1.1 (0.7-1.1)	1.1(0.7-1.0)	0.512
Uric Acid (mg/dl)	6.2 ± 2.1	6.3 ± 2.6	0.762
Total Cholesterol (mg/dl)	151.3 ± 47.3	162.7 ±51.7	0.210
LDL (mg/dl)	84.9 (57.5-102.8)	98.4 (72.4-122.0)	0.034
Albumin (g/L)	3.5 (3.0-4.0)	3.7 (3.4-4.2)	0.162
CRP (nmol/L)	62.8 (8.5-100.8)	53.8 (8.4-76.6)	0.254
SII	1803.4 (759.8-2160.5)	1111.8 (522.7-1287.6)	0.003

CRP:c-reactive protein, LDL: low density lipoprotein, LV:left ventricle, SII:systemic inflammatory index

Table 2. Distribution of patients diagnosed with cancer

Cancer Type	n: 46
Lung Cancer	24 (52%)
Breast Cancer	7 (15%)
Gastric Cancer	3 (7%)
Leukemia	2 (4%)
Prostate Cancer	2 (4%)
Testis Cancer	1 (2%)
Renal Cancer	1 (2%)
Bladder Cancer	1 (2%)
Soft Tissue Cancer	1 (2%)
Colon Cancer	1 (2%)
Lymphoma	1 (2%)
Thyroid Cancer	1 (2%)

Table 3. Univariable and multivariable Cox regression analyses for predicting malignancy

Variable	Univariate			Multivariate		
	p Value	HR	(95% CI)	p Value	HR	(95% CI)
Albumin (g/L)	0.024	0.483	0.257-0.908			
LDL (mg/dl)	0.049	0.990	0.980-1.000			
SII	0.007	1.041	1.011-1.072	0.011	1.039	1.009-1.070
CRP (nmol/L)	0.460	1.002	0.997-1.007			

CI: confidence interval, CRP:c-reactive protein, HR: hazard ratio, LDL:low density lipoprotein, SII:systemic inflammatory index
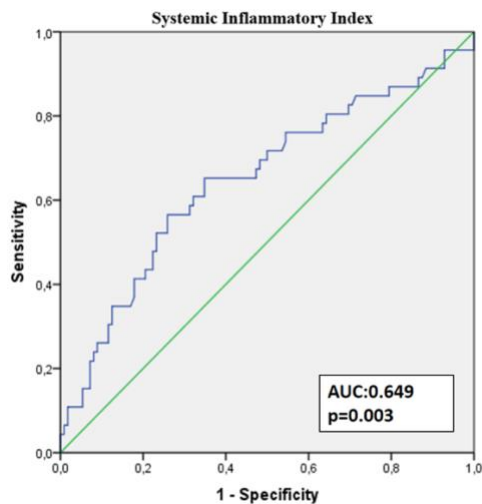
Figure 1: ROC curve of frontal QRS-T angle

Discussion

In this study, we investigated the effect of SII on the presence of malignancy in patients with pericardial effusion. We discovered that the SII value was quite high in patients with malignancy when compared with patients whose pericardial effusion was not caused by malignancy. To the best of our knowledge, our study is the first to examine the association of SII with the presence of malignancy in patients with pericardial effusion.

Although inflammation is mainly a part of the body's immune response and even the beginning of the healing process, it is a tissue reaction that should be considered and invites many diseases, especially cancers and rheumatological diseases, when it becomes chronic [10]. Blood-based systemic inflammation markers are of great importance in screening for systemic inflammation. Hemoglobin, leukocytes, platelets, neutrophils, and lymphocytes are some of them. It has been discovered that parameters such as SII can be used in many conditions such as cancer, especially inflammatory and cardiovascular diseases [11].

Pericardial effusions may have variable clinical features depending on the amount of fluid collected in the pericardial cavity and the pressure exerted by the fluid on the cardiac spaces [12]. The rate of fluid collection and the flexibility of the pericardial space are the most important factors determining the hemodynamic effects and the occurrence of symptoms. The onset of symptoms of pericardial effusion associated with malignancy may not be evident. Because fluid accumulation is chronic and slow, even large effusions may be asymptomatic in many patients. Malignant pericardial effusions are encountered in 1-4% in general autopsies and in 15-30% in autopsies of cancer patients [13,14]. Lung cancer (30%), breast cancer (23%), lymphomas and leukemias are most common [15]. Pericardial fluid analysis is important in determining the etiology. High protein exudative effusions indicate a more serious disease than transudate effusions. While proteins abundant in plasma such as albumin and antitrypsin can be found in the transudate fluid by ultrafiltration from the capillaries, high molecular weight proteins such as alpha 2 microglobulin, haptoglobulin, immunoglobulin, fibrinogen, complements, lipoprotein, and collagen are detected in exudative pericardial effusions [16,17]. In our study, pericardiocentesis was performed on all patients and fluid analyzes were examined to determine the etiology.

In inflammation, neutrophil precursors such as myelocytes and promyelocytes may be released [18]. An increase in the number of neutrophils causes an increase in the release of nitric oxide and arginase. The released enzymes cause T cell activation disorders and an increase in vascular endothelial growth factor (VEGF) production. As a result of these processes, tumor neovascularization occurs [19]. Platelets are also part of the inflammatory response and are present in the tumor microenvironment in response to tumor growth and angiogenesis [20]. Lymphocytes exert an inhibitory effect on tumor growth by secreting cytokines such as interferon gamma (IFN- γ) and tumor necrosis factor alfa (TNF-α) [21]. The decrease in the number and function of lymphocytes in cancer patients may weaken the immunological defense. Therefore, an increase in neutrophil and platelet levels along with a decrease in lymphocytes is considered a response to systemic inflammation in cancer patients [22]. Therefore, the SII value based on the above three types of inflammatory cells may better indicate the balance between tumor and immune status in cancer patients [23]. In our study, the SII value was found to be higher in patients with malignancy. SII value is a simple, economical and reproducible test that can be used routinely in patients with pericardial effusion with suspected cancer.

Although we discovered noteworthy findings in our study, our primary limitations are the small sample size, single-center, and retrospective approach. Another limitation of our study is that only patients who underwent pericardiocentesis were included.

Conclusion

According to these results, the effect of SII assessment on predicting cancer diagnosis in patients with pericardial effusion has been shown for the first time in the literature. SII elevation detected before the pericardiocentesis procedure will be a warning factor for detailed cancer screening in patients with pericardial effusion.

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Declaration of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper as well.

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GIANT RETROPERITONEAL LIPOSARCOMA: CASE REPORT

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Abstract

Retroperitoneal liposarcoma is a rare mesenchymal tumor representing 0.07% to 0.2% of all neoplasia. Retroperitoneal liposarcomas are generally seen in individuals between 40-60 years old, however are also seen in younger ages. MRI provides important information about localization of mass, tumor infiltration and relationship between vascular structures before the operation. In addition, CT and MRI provide reliable data about early diagnosis of local recurrence at follow-up. Aggressive surgical resection is the treatment option for extending survival. Nephroureterectomy should be added to aggressive resection. Due to high rates of local recurrence, patients should be followed-up by CT and MRI in first two years quarterly, then once in every 6 months per following 3 years. Here, we presented a case as follow; 59 years old male who complained with right flank pain and diagnosed as myxoid type liposarcomas.

Keywords: *Retroperitoneal Tumors, Liposarcomas, Surgical Treatment*

Introduction

The retroperitoneal region forms part of the lumboiliac region. The upper border is formed by the 12th rib and vertebrae, the inferior border is formed by the sacrum and iliac wing, the anterior border is by the peritoneal cover, the posterior border is by the posterior abdominal wall, and the lateral border is by the quadratus lumborum muscles.

The concept of retroperitoneal tumor was first defined by Morgagni in 1761, but Lobstein used this term for the first time in 1834 (1). Retroperitoneal region tumors include many histopathologically different subclasses (2,3). Primary retroperitoneal tumors: They may originate from neural, mesodermal, urogenital ridge or embryonic remnant tissues. They can be benign or malignant. However, contrary to expectations, 70-80% of tumors in this region exhibit a malignant behavior (4,5).

Retroperitoneal tumors are mostly seen in the 4th and 5th decades and show an equal gender distribution (5,6). Lymphomas, which constitute approximately 1/3 of retroperitoneal region tumors, are seen as the most frequently detected tumors. In the second frequency, mixed tumors containing neuroblastoma and liposarcoma components are encountered.

In general, the prognosis in malignant retroperitoneal tumors is worse than expected. Tumor-free survival rate is only around 15% at the 5th year (7-9). Patients often present to the

physician with the presence of abdominal mass and pain in the clinic. Although rarer, other complaints; gastrointestinal disturbances, low back pain, weight gain or loss, abdominal distention, or genitourinary system complaints. In addition to all these general system complaints, there may be complaints that take the patient to the doctor in much more general complaints such as fever and anorexia (10).

On physical examination, malignant tumors are harder and fixed, while benign tumors have a softer consistency (10).

In diagnosis, abdominal US, CT, MRI can provide more detailed information about tumor location, base, presence of invasion, and anatomical relationship with other systems (11). Needle biopsy is significant in the diagnosis of masses with difficulty in differential diagnosis (12).

The transperitoneal approach with a midline abdominal incision is the route of choice for total resection of the tumor. Thus, all solid organs and vascular and lymphatic structures can be checked for invasion. However, alternatives to the said incision can also be used. However, today, despite all the technological possibilities and detailed preoperative examination, complete resection of the mass can be performed only in 50% of the patients with radical surgery. Adjuvant treatment protocols should be added to cases where complete resection is not possible. Determining the localization of the tumor with radiopaque clips during surgery will guide the radiotherapy to be applied later.

Unfortunately, recurrence of primary retroperitoneal tumors is quite common. Even in the case with a good response to treatment, slow-developing late recurrences are not uncommon. Therefore, the patient should be included in a multidisciplinary follow-up protocol after treatment and followed up for recurrence, and in case of recurrence, the patient should be given a chance for secondary surgery (6).

In this article, it is aimed to present a retroperitoneal liposarcoma case with literature information and to discuss the treatment options.

Case Report

A 59-year-old male patient was admitted to the urology outpatient clinic with the complaint of blunt pain in the right side for ~3 months.On physical examination, no pathology was found in the urogenital system.In the examination performed with computed tomography (CT) of the whole abdomen, a 9x12x13.5 cm hypodense cystic mass displacing the right kidney was observed in the right retroperitoneal area (Picture 1).It was observed that the described lesion did not cause any signs of invasion in adjacent anatomical structures and the adjacent bone cortex was normalSerum biochemistry, hematological test results and tumor markers were normal.As a result of the radiological examination and physical examination, no distant metastasis was found.With the preliminary diagnosis of right renal cyst and right retroperitoneal cyst, the decision of laparoscopic cyst excision was madeThe surgical field was controlled by entering the laparoscope in the right flank position.When it was determined that the lesion was a mass, open retroperitoneal mass excision was decided.A right anterosubcostal incision was made and the abdomen was entered. With the opening of the peritoneum, a mass of ~30 cm rich in fatty tissue was observed, invading the right kidney and under the liver and the surrounding tissues pushing them forward.The mass was dissected from the surrounding tissues and

removed as a whole (Picture 2).The patient did not develop any complications in the postoperative period, and was discharged on the 6th postoperative day after the drain was removed.In the macroscopic pathology of the mass, a lesion of 30x25x15 cm, weighing 5250 g, was observed.Pathological examination was evaluated as grade II myxoid type liposarcoma.No tumoral invasion or lymphovascular invasion was detected in the surgical margins.Adjuvant radiotherapy was recommended to the patient who was evaluated in the urooncology council in the postoperative period.However, radiotherapy could not be performed because the radiotherapy surface area was large and other tissues could not be preserved.No tumor recurrence was detected in the patient's 28-month follow-up period.
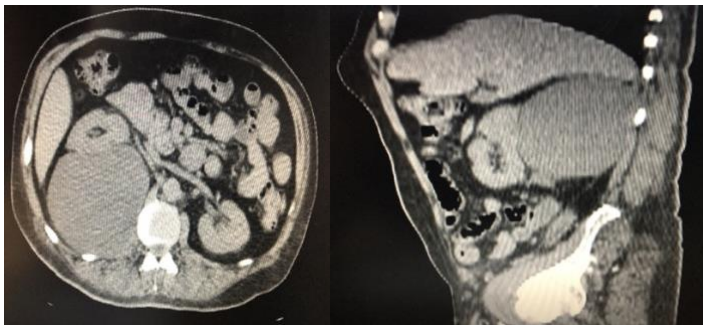
Figure 1. CT images

Figure 2. Macroscopic view of the mass

Discussion

Retroperitoneal liposarcoma is a rare mesenchymal tumor representing 0.07% to 0.2% of all neoplasia (13). They occur at all ages, with a peak incidence in mid-fifties (14). The gender distribution is approximately equal (15). As potentially the largest tumors found in the human body, retroperitoneal liposarcoma can grow to extremely large size before inducing clinical symptoms because the potential space of the retroperitoneum is loose and expandable without any bony boundaries (16).

Liposarcomas can be divided into five types pathologically: highly differentiated, myxoid, polymorphic, round cell, and dedifferentiated (17). The prognosis of well-differentiated and myxoid liposarcomas is good.

Retroperitoneal liposarcoma, which occurs mainly in patients aged 60 to 70 years, is rare and without obvious symptoms in the early stage. Accurate diagnosis and complete resection are vital for the treatment of retroperitoneal liposarcoma.

Retroperitoneal liposarcoma has no obvious symptoms in the early stage, and a prominent feature is a huge abdominal mass with mild symptoms (18).

When diagnosed, Retroperitoneal liposarcoma is often in the late stage, and the corresponding symptoms appear only when the adjacent organs are compressed or when tumors gradually increase in size (19). When the gastrointestinal tract is compressed, patients may feel fullness, anorexia, nausea, vomiting, diarrhea, abdominal pain, bloating, and pain related to constipation or defecation pain (19). In addition, pressure on the kidney may cause hydronephrosis, and pressure on the bladder may cause frequent urination and urgency (20). Pressure into the chest from a large tumor may lead to breathing difficulties (21).

Preoperative diagnosis is of great importance in the optimal treatment of retroperitoneal liposarcoma. Computed tomography (CT) is the most common used imaging tool for the diagnosis and preoperative evaluation of retroperitoneal liposarcoma. CT of the chest is required before surgery to rule out any metastasis to the lung. Furthermore, CT also plays an important role in preoperative staging. Low grade liposarcomas tend to present with mostly fat and very little soft tissue signals on CT, whereas high grade liposarcoma appear with dense and heterogenous signals after enhancement with contrast injection. Magnetic resonance imaging and ultrasound are useful options when more precise anatomical information is needed in liver or muscular regions (22). Up to now, there is no clear evidence in literatures supporting the need for histological biopsy of a suspected retroperitoneal liposarcoma before treatment, as most tumors located in the retroperitoneum are much more likely to be liposarcoma requiring surgical interventions (23). Aspiration cytology is recommended for patients with distant metastases or unresectable neoplasms in order to inform plans for preoperative radiotherapy or chemotherapy.

Complete surgical resection with negative margins is the main treatment for retroperitoneal liposarcoma. In a single-center study of 500 patients with retroperitoneal liposarcoma, patients who underwent complete surgical resection with negative margins had a median survival of 103 months. However, the median survival in patients who did not undergo complete resection was only approximately 18 months (24). If it is difficult to remove the tumor completely in the advanced stage, tumor reduction surgery should still be performed to reduce the symptoms of compression, prolong survival time, and improve quality of life (25). For patients with recurrent liposarcomas, reoperation should be performed.

Radiotherapy, including preoperatively, intraoperatively, and postoperatively, can be used to treat retroperitoneal liposarcoma to improve quality of life and tumor-free survival (26). Although well-differentiated and slow-growing retroperitoneal liposarcoma is relatively sensitive to radiotherapy, this modality is not a substitute for surgery. The combination of intraoperative radiotherapy, surgical resection, and postoperative external irradiation can control the patient's condition effectively (27). However, it is still controversial whether adjuvant radiotherapy can improve the survival rate of retroperitoneal liposarcoma patients owing to the lack of sufficient clinical evidence.

Adjuvant or neoadjuvant chemotherapy is not a standard treatment method for retroperitoneal liposarcoma patients; however, it might be an option when the tumor is unresectable or insensitive to radiotherapy (28). Although there are no specific chemotherapeutic drugs for liposarcoma, some combined chemotherapy agents possess significance for micro metastatic liposarcoma (29).

Radiotherapy and chemotherapy for retroperitoneal liposarcoma have not provided definitive effects. Therefore, tumors that recur post-surgery are recommended to be treated as soon as possible. Regular postoperative follow-up is required for retroperitoneal liposarcoma patients. Scientists should focus on the molecular mechanisms of liposarcoma to develop new targeted drugs for retroperitoneal liposarcoma. Surgery combined with targeted drugs, radiotherapy, or chemotherapy might reduce tumor recurrence and improve the prognosis of retroperitoneal liposarcoma patients.

Conclusion

In conclusion, retroperitoneal liposarcoma is an uncommon aggressive neoplasm with atypical clinical manifestations. CT can be reliably used as a diagnostic tool. Complete resection is the gold standard for treatment of this disease. Tumors with a diameter greater than 30 cm alone should not be considered as a contraindication to surgical resection. Wide excision along with adjacent organs in order to obtain negative surgical margins is justified in the case of local invasion. The role of adjuvant radio or chemotherapy remains controversial to date. The resection of the giant tumor was successful with no post-operative complications. However, since our follow-up period is only 28 months, the long-term outcome still needs further evaluation.

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PATHOLOGICAL PROGNOSTIC FEATURES AND ANALYSIS OF RENAL CELL CARCINOMA

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Abstract

Renal cell carcinomas are 2-3% of all adult cancers. Kidney cancer is currently the seventh most common cancer in men and the tenth most common in women [1]. There were 19,3 million new cancer diagnoses and 10 million cancer deaths worldwide in 2020 [2].

Survival in renal cell carcinomas has a strong correlation with the stage of diagnosis. 5-year survival in stage 1 tumors is 93%, 72,5% in cases with local lymph node metastases and 12% in metastatic carcinomas cases [3]. There is an inverse correlation between age / tumor size and survival. Metastatic lymph node, tumor necrosis and adipose tissue invasion is associated with poor prognosis [4].

The study is including 179 cases with renal cell carcinoma which diagnosed in the Sivas Cumhuriyet University Department of Pathology at between from 2017 to 2022. The clinical and pathological datas of these cases were retrospectively analyzed from the hospital patient system. The distribution sex of cases are 111 males (62%) and 68 females (38%). The mean age of the 179 cases was $58,5\pm11,9$ years (range of 21-90). The mean tumor diameter is $5,7\pm3,4$ (range of 1-19 cm).

Radical nephrectomies were evaluated for vascular invasion, ureter invasion, capsule/adipose tissue invasion, lymph node metastasis and adrenal gland metastasis.

There is a statistically significant relationship between nuclear grade and vein invasion, micro vascular invasion, capsule/adipose tissue invasion ($p<0,05$). There is a statistically significant relationship between tumor diameters and vein invasion, micro vascular invasion, capsule/adipose tissue invasion, lymph node metastases ($p<0,05$). There is not a statistically significant relationship between subtypes and vein invasion, micro vascular invasion, capsule/adipose tissue invasion, lymph node metastases, adrenal gland metastases ($p>0,05$).

It was observed that the invasions increased as the nuclear grade and tumor diameters increased. These observations are statistically significant.

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QUANTITATIVE DIFFUSION-WEIGHTED MAGNETIC RESONANCE IMAGING OF BREAST CANCERS: THE RELATIONSHIP BETWEEN HISTOLOGICAL GRADE, RECEPTOR AND KI-67 PROLIFRATION

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Abstract

Objective: To determine the relationship between the histological grade of the tumor, the receptor status, and the ki-67 proliferation index of the apparent diffusion coefficient (ADC) measured in diffusion-weighted magnetic resonance imaging (DWI) of patients with breast cancer.

Method: We retrospectively analyzed the DWIs of 50 patients with invasive breast cancer with 1.5 tesla mr. ADCs were measured and recorded, and we correlated these data with tumor grade, receptor status, and Ki-67 status. The Ki-67 proliferation index was categorized as high ($\geq$15%) or low (<15%).

Results: The mean age of the patients was 57.2±11.75(33-82) years. Nineteen (38%) of the lesions were on the right, 31 (62%) were in the left breast, and most frequently in the upper outer quadrant of the left breast (30%). The mean transverse diameters of the lesions were 21.49±11.61mm (4-53) and the AP diameters were 15.55±7.65 (4-43) mm. The mean ADC values of the lesions were 902.90±121.43(600-1300) x10 −3 mm 2 /s. When the grade of the lesions and their ADC were compared, no statistically significant correlation was found ($p\geq$0.05). 50% of the lesions were grade 2, 40% were grade 1 and 10% were grade 3. It was statistically significant between the grade of the lesions and the diameters of transverse and AP (p=0.018, p=0.003, respectively). As the diameter of the lesions increased, the grade increased, but AP showed a strong correlation with the diameter. Although the relationship between the mean ADC of the lesions and their receptor status and ki-67 was not statistically significant, there was a negative correlation between ADC and ki-67.

Discussion and Conclusion: In studies in the literature, a significant relationship was found between ADC and ki-67. (1-3) In our study, however, no significant correlation was found between the ADC values of the lesions and their receptor and ki-67 status. A significant correlation was found between the grade and diameters of the lesions.

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APPROACHES TO CYTOTOXIC ACTIVITY STUDIES ON PLANT-BASED PRODUCTS AGAINST CANCER

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Abstract

Cytotoxic activity assays provide basic information about the behavior of a sample on cell viability and are used in different stages of drug discovery. Compounds displaying cytotoxic effects are regarded as having remarkable potential against cancer. Cancer is one of the main health problems which is characterized by uncontrolled growth and spread of abnormal cells. According to the WHO report, this disease is the second leading cause of death, responsible for one in six deaths globally. Several types of cancer can be treated with chemotherapy, radiation therapy, hormonal therapy, or surgery. However, the need to discover new strategies and new compounds in treatment remains important. Natural products have been recognized as prominent mediators of the critical pathways involved in the development and progression of cancer. Among the natural sources, plant extracts and their pure compounds have been considered the main source. Medicinal plants provide us with many potentially active compounds that can serve as lead compounds in cancer treatment. Indeed, over 60% of drugs commercially used for anticancer therapy are derived or originated from plants [1]. When evaluating *in vitro* anticancer activity of a natural compound, many factors must be considered such as dose, efficiency, reliability, speed, time, cost, and no interaction with the tested compounds. The most appropriate cytotoxic method should be selected according to the properties and chemical structures of natural compounds, the ultimate goal of the study, cell types, etc. This study aims to summarize the methodological points that should be taken into consideration while conducting a cytotoxic activity study on plant-based products along with the representative cytotoxic screening studies on some plant extracts and isolated compounds to introduce new strategies for cancer treatment.

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INVESTIGATION OF THE ANTIPROLIFERATIVE EFFECT OF URIDINE ON MCF-7 CELL LINE

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Abstract

Background: Breast cancer is one of the most often diagnosed cancer types in women. The prevalence of breast cancer increases every year due to genetic factors, lifestyle, and environmental factors and is tending towards younger women. Although modern treatment choices can put cancer patients in remission, the side effects of current medications are a serious issue that limits physicians' capacity to use available treatment strategies. In this context, more research into the development of new pharmacological medicines with fewer side effects is required. The aim of this study was to investigate the antiproliferative effect of uridine that is one of the supplements, on the MCF-7 cell line.

Methods: Using XTT test, the effect of uridine on the survival of MCF-7 cell line was investigated. These cells were cultivated at a concentration of 1×10^4 cells per well and incubated overnight before the addition of uridine. After that the different concentrations (100, 200, 500 and 1000 μM) of uridine were applied to cells for 24 h. Cells that had not been treated were used as a control. After incubation, 50 μL of XTT mixture was supplemented to each well. Following 4-hour incubation, the cells were shaken, and the absorbance was measured using a microplate reader (Thermo Fisher Scientific, Altrincham, United Kingdom) at 450 nm. Cell viability was evaluated as a percentage of live cells versus untreated cells after each experiment was done three time. Statistical evaluation of the data was performed by One Way ANOVA, statistical significance was defined at $p<0.05$.

Results: There was no significant decrease in the viability of MCF-7 cells in treated-groups compared to the control. ($p>0.05$).

Conclusions: Uridine did not produce anticancer effect against breast cancer.

Keywords: *Uridine, Breast Cancer, MCF-7 cell Line, Antiproliferative Effect.*

III. INTERNATIONAL CANCER DAYS

ABDOMINAL TUBERCULOSIS MIMICKING MALIGNANCY: CASE REPORTS AND REVIEW OF THE LITERATURE

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Abstract

Introduction: Tuberculosis is a disease caused by *Mycobacterium tuberculosis* infection, which still cannot be completely eradicated despite all the prevention efforts in our country. It can show multisystemic involvement and has high morbidity and mortality. Primary pulmonary tuberculosis: It is a clinical condition that has problems in its diagnosis because its symptoms are indistinct, and it is confused with other lower respiratory tract diseases [1]. Tuberculosis peritonitis is a rare form of tuberculosis; may present with symptoms of fever, weight loss, abdominal pain, and abdominal distension. Tbc is among the diseases that are difficult to diagnose because of its non-specific clinical and imaging findings mimicking malignancy [2]. In this article, four tuberculous peritonitis patients of different ages are presented, showing the difficulty in diagnosis and follow-up.

Case 1: A 19-year-old patient presents with abdominal and groin pain. There is widespread abdominal tenderness on examination. Laparoscopy is performed with the pre-diagnosis of abscess and ovarian malignancy due to widespread ascites in the abdomen and Ca-125:404 in the examinations.

Case 2: A 30-year-old patient presents with severe abdominal and groin pain. On ultrasound, free fluid is found in the Douglas and right paraovarian area. Laparoscopy is performed with the prediagnoses of intra-abdominal abscess and ovarian malignancy on Ca-125:53.6 oma in the examinations.

Case 3: A 50-year-old postmenopausal patient presents with abdominal pain. Laparoscopy is performed with the pre-diagnosis of ovarian malignancy due to the detection of diffuse free fluid in the abdomen and Ca-125:817 in the Douglas and paraovarian areas on ultrasound.

Case 4: A 69-year-old postmenopausal patient applies to the internal medicine outpatient clinic due to fatigue, loss of appetite, and weight loss. In the examinations, diffuse free fluid was observed in the pelvic region and multiple lymphadenopathies was observed. Due to Ca-125:221, laparoscopy is performed with the preliminary diagnosis of ovarian malignancy. These four patients were evaluated by Infectious Diseases and diagnosed as tbc peritonitis, and quadruple anti-tbc drug therapy was initiated.

Discussion: Although malignancies come to mind first in female patients presenting with abdominal pain, pelvic mass, ascites, and elevated CA125 levels, abdominal-perirhinal tuberculosis should also be considered as a preliminary diagnosis [3]. In cases where

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tuberculosis is clinically suspected, it is recommended to initiate antituberculosis treatment without waiting for the biochemical and microbiological diagnosis to be finalized. In case of negative ADA levels and PCR tests in samples taken from ascitic fluid and in the presence of clinical suspicion, intraoperative frozen examination with laparoscopy may prevent unnecessary major surgeries.

Keywords: *Extrapulmonary Tuberculosis, CA-125, Malignancy*

Introduction

Tuberculosis (TB) is a disease caused by *Mycobacterium tuberculosis* infection, which still cannot be completely eradicated despite all prevention efforts in our country. It can show multisystemic involvement and has high morbidity and mortality. Primary pulmonary tuberculosis: It is a clinical condition that has problems in its diagnosis because its symptoms are indistinct, and it is confused with other lower respiratory tract diseases (1). Tuberculosis peritonitis is a rare form of tuberculosis; may present with symptoms of fever, weight loss, abdominal pain, and abdominal distension. There are usually no specific symptoms and no history of tuberculosis contact. Although CA-125 is a non-specific indicator of ovarian cancer, it may be found to be higher than normal in patients with tuberculous peritonitis. Tbp is among the diseases that are difficult to diagnose because of its non-specific clinical and imaging findings mimicking malignancy (2-5). In this article, four tuberculous peritonitis patients of different ages are presented, showing the difficulty in diagnosis and follow-up.

Case 1

A 19-year-old patient was admitted to an external center with abdominal and groin pain 9 months ago and was referred to gastroenterology to investigate the etiology of ascites in the abdomen. Weight loss, cough, nausea after feeding, last night sweats, and chills were present in the history of the patient. In the examination of the patient with diffuse abdominal tenderness, Crp: 125.7, Sedimentation: 37, Wbc: 6.49, Hb: 11,3, Plt: 379, Ca-125: 404, Ca-15-3: 48.7 in the laboratory. other values were within normal limits. In the ultrasonography, the uterus was within normal limits and the bilateral ovaries were multicystic. Douglas, paraovarian, free fluid was observed in the lower abdominal quadrants, hepatic and spleen areas, so the patient was transferred from gastroenterology to gynecology and laparoscopy was planned. In the intraoperative observation, miliary implants and omental cake form were observed on all peritheonal surfaces, liver, intestine, and omentum. Approximately 1 liter of free fluid was observed in the pelvis. In the case, free fluid was aspirated and sent to pathology and microbiology. Peritoneal biopsy was taken from the implants and sent to pathology. Frozen result was reported as no malignancy. In the final pathology report, it was reported as chronic necrotizing granulomatous inflammatory reaction and reactive mesothelial cell hyperplasia. In the microbiology test results of the patient; Paracentesis material ARB microscopy was negative, peritoneal culture microscopy was 2450 leukocytes/mm3 (98% MNL, 2% PMNL) and no bacteria could be seen. The patient's PPD (tuberculin – Montoux skin test) result in 72 hours is 14 mm (>6 positive). The patient was seen by Infectious Diseases with the results and evaluated as tbc peritonitis, and quadruple anti-tbc drug therapy was started.

Case 2

A 30-year-old patient presented with complaints of abdominal and inguinal pain. In the ultrasonography; 48*45.5 mm hemorrhagic cystic structure in the right ovary and polycystic structure in the left ovary. Free fluid was present in Douglas and right paraovarian area. In its laboratory, Crp:49.95, Wbc:5.31, Hb:11.4, Plt:259, Ca-125:53.6, Ca-15-3:30.1, Sedimentation:10, Beta-hcg: negative and other values were within normal limits. Antibiotherapy was started for the patient with a preliminary diagnosis of pelvic inflammatory disease. Since there was no change in inguinal pain after antibiotic therapy, it was recommended to be evaluated with diagnostic laparoscopy. In the intraoperative observation of the patient, extensive implants and approximately 1 liter of free fluid were observed on the intra-abdominal and peritheonal surfaces. Free fluid was aspirated and separated for pathology and microbiology, biopsy was taken from the peritoneum and sent for frozen examination. The frozen result was reported as no malignancy was observed. As a result of the final pathology, It was reported as a chronic granulomatous inflammatory reaction. Peritoneal culture microscopy of the patient was 2880 leukocytes/mm3 (85% MNL, 15% PMNL), and bacteria could not be grown. The result of the patient's PPD test at 72 hours is 14 mm (>6 positive). The patient was seen by Infectious Diseases with the results and evaluated as tbc peritonitis, and quadruple anti-tbc drug therapy was started.

Case 3

A 50-year-old postmenopausal patient presented with abdominal pain. Acute abdomen was not observed in the abdominal examination. In ultrasonography, the endometrium is thin and regular, and no pathology is observed in the bilateral adnexa. In the Douglas and paraovarian areas, diffuse free fluid was observed in the abdomen. In his laboratory; Crp:132.54, Wbc:6.41, Hb:11.1, Plt:396, Ca-125:817, Ca-15-3:53.6, Sedim:115, Beta-hcg: negative and other values was within normal limits. Laparoscopic fluid and tissue sampling was performed to investigate the etiology of intra-abdominal free fluid. Peritoneal biopsy pathology result: It was reported as caseified granulomatous peritonitis. In the microbiology test results of the patient, the result of the PPD test at 72 hours is 0 mm (>6 positive). The patient was seen by Infectious Diseases with the results and evaluated as tbc peritonitis, and quadruple anti-tbc drug therapy was started.

Case 4

A 69-year-old postmenopausal patient applied to the internal medicine outpatient clinic due to fatigue, loss of appetite, and weight loss. In the patient's laboratory; Crp:72.33, Wbc:7.54, Hb:10.6, Plt:221, Ca-125:221, Ca-15-3:62.4, Ca-19.9:422, Sedimentation:115, Beta- hcg was negative and other values were within normal limits. Crp and sedimentation elevation were started to be investigated with the pre-diagnosis of malignancy and admission to the internal medicine service. In the tomography taken, Multiple lymphadenopathies were observed in the prevascular, paraaortic, subaortic, paratracheal, subcarinal, paraesophageal air and bilateral hilar regions, showing conglomeration, and the larger one with a central necrotic character and a short diameter of approximately 3 cm. Diffuse free fluid was observed in the pelvic region. In the pet-ct taken afterwards; Histopathological examination of diffuse lymph nodes for possible malignant lymphoproliferative diseases was recommended. Lesions defined

in the bones of the skeletal system, uterus, liver, and spleen were also evaluated in favor of metastasis. Laparoscopy was planned for the patient due to diffuse free fluid and lymphoadenopathy. Diffuse fluid and lymphoadenopathy were observed in the intraoperative observation, and biopsies were taken. As a result of pathology, it was reported as chronic necrotizing granulomatous lymphadenitis and chronic necrotizing granulomatous inflammatory reaction. The result of the patient's PPD test at 72 hours was 0 mm (>6 positive). The patient was seen by Infectious Diseases with the results and evaluated as tbc peritonitis, and quadruple anti-tbc drug therapy was started.

Discussion

Although malignancies are the first thing that comes to mind in female patients who present with abdominal pain, pelvic mass, ascites, and elevated CA125 levels, abdominal-peritheonal tuberculosis should also be considered as a preliminary diagnosis (6). However, it may not always be possible to make a definitive diagnosis of abdominal TB. A high level of suspicion of the presence of the disease is perhaps more important than the diagnostic procedures to be performed. Normal lung findings are observed in 40% of patients. While the PPD test can aid diagnosis, this test has low specificity and indicates the patient's immune status rather than active infection. Although imaging methods such as ultrasonography, tomography and magnetic resonance can be used in the differential diagnosis, the findings are often nonspecific. It has been suggested that the ideal method in the diagnosis of pelvic tuberculosis is to measure PCR and adenosine deaminase (ADA) levels in fluid samples taken by paracentesis. High protein in ascites and intense lymphocyte monitoring in smear are also findings supporting tuberculosis. In cases where tuberculosis is clinically suspected, it is recommended to start antituberculosis treatment without waiting for the diagnosis to be confirmed biochemically and microbiologically (6,7). The approach to abdominal tbc in treatment is the same as the pulmonary tbc approach. The use of CA 125 levels in differential diagnosis is limited due to its high incidence in both benign and malignant diseases. However, in patients with peritoneal and pleural tuberculosis, CA 125 values, which were found to be high before treatment, are seen to decrease in serial measurements after treatment, and it is thought that CA 125 can be used as a marker in the response of infection to treatment in these cases (8). In case of negative ADA levels and PCR tests in samples taken from ascitic fluid and in the presence of clinical suspicion, intraoperative frozen examination with laparoscopy may prevent unnecessary major surgeries.

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IN SILICO-BASED VACCINE DESIGN TARGETING EBV-ENCODED NUCLEAR ANTIGEN 1 (EBNA1)

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Abstract

Epstein-Barr virus (EBV) is one of the oncogenic viruses infecting more than 90% of humans [1]. no specific targeted therapies or vaccines have been developed yet [2]. EBV-encoded nuclear antigen 1 (EBNA1) gene encodes an important protein that plays critical role EBV replication and in promoting the transformation of normal cells into tumor cells [3]. Disclosing this, the present study described an epitope-based peptide vaccine against EBV. T-cell epitope prediction tools were utilized for this purpose, followed by molecular docking. Here, all available protein sequences of all EBNA1 of EBV were collected and examined via in silico methods to determine the most immunogenic protein. First, Multiple sequence alignment and evolution analysis were undertaken. Further, potential antigenic proteins were selected. An allergenicity test was performed to exclude possible allergens. From the identified antigenic protein, the peptide sequence VGDADYFEY were considered the most potential T-cell epitopes. Moreover, this peptide interacted with HLA-A*01:01 with the highest binding energy and stability, and also has the maximum population coverage and a good conservancy. In silico cloning was used to optimize the vaccine construct's codon usage by determining the maximal protein expression. The recombinant plasmid sequence was constructed by inducing the adapted codon sequence into the plasmid vector.
The results imply that the designed epitopes could induce a strong immunity against EBV.

Keywords: *Epstein-Barr virus, epitope, EBNA1, vaccine design*

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INVESTIGATION OF ANTIPROLIFERATIVE EFFECT OF MALVA SYLVESTRIS EXTRACT ON BREAST CANCER AND ANTIOXIDANT PROPERTIES

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Abstract

Malva sylvestris is an endemic species known to have antioxidant, antimicrobial and aromatic properties. It is known that the usage of endemic plants to date back to the 4th century. In our country, the cultivation of aromatic and medicinal plants is increasing, and the spread area is expanding. The richness of Malva species in terms of flavonoids, mucilages, terpenoids and essential oils has been demonstrated in past studies. Although many cancer studies have been conducted with Malva species, there are still researches open to development and there are new studies that can be done.

In this study, IC_{50} values for Total Antioxidant Status (TAS) were determined by taking the ethanol extract of the aerial parts of Malva sylvestris. Then, cytotoxicities in breast cancer cell line (MCF-7) and healthy fibroblast cell line were determined by MTT method. Accordingly, while the IC_{50} dose of Salvia Cadmica was 97.78 ± 6.89 µg/mL for the MCF-7 cell line, it was higher than 400 µg/mL for the healthy fibroblast cell line. In addition, while the IC_{50} dose found in antioxidant potency studies for Malvia Sylvestris was 13.42 ± 4.33 µg/mL, the value found for Trolox equivalent Vitamin E was 24.69 ± 4.67 µg/mL. This indicated that Malvia Sylvestris plant showed high antioxidant properties.

Keywords: *Malva sylvestris, Breast Cancer, Cytotoxicity, MTT, IC_{50}, Antioxidant*

EVALUATION OF THE ATTITUDES OF WOMEN LIVING IN SIVAS REGARDING CANCER SCREENING

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Abstract

Aim: Our aim in this study is to evaluate the attitudes of women living in Sivas towards cancer screening.

Method: It is a descriptive cross-sectional study. The research sample consists of women over the age of 18 living in Sivas. The first 18 questions of the research questionnaire were about women's sociodemographic characteristics and cancer screening. The other 24 questions were the Attitude Scale for Cancer Screenings. This scale, developed by Öztürk et al., is a one-dimensional and 5-point Likert type. The Cronbach alpha coefficient of the scale was calculated as 0.95 [1]. A minimum of 24 and a maximum of 120 points can be obtained from the scale. As the score increases, it is interpreted in favor of a positive attitude towards cancer screening. ANOVA, Student-T, chi-square, and Pearson correlation analysis tests were used for statistical analysis.

Results: 97 women who agreed to participate in the study were included in the study. The mean age of the women was 45.6 ± 11.3 (min:25-max:66). Of the participants, 72.2% (n=70) were married, and 59.8% (n=58) had secondary school or below education level. All of the participants had social security. 77.3% (n=75) had cancer in their close circle. 40.2% (n=39) had first-degree relatives, 14.4% (n=14) had 2nd degree or higher relatives, and 22.7% (n=22) had cancer in close friends. All of the participants had heard of cancer screenings. 71.1% (n=69) had at least one cancer screening test.

There was a significant difference between having a screening test at least once and those diagnosed with cancer in their close relatives (p<0.001). All first-degree relatives with cancer, 57.1% of 2nd and 3rd relatives with cancer, and all close friends with cancer had cancer screening test. Attitudes towards Cancer Screening Scale mean scores were 89.4 ± 11.4 (min:74-max:116). No significant correlation was found between the age of the participants and the scale score (p=0.952, r=-0.006). There was no significant difference between the education level (p=0.651), income level (p=0.079), marital status (p=0.764) and scale scores of the participants. The attitudes of smokers (94.8 ± 13.4) towards cancer screening were more positive (p=0.045) than non-smokers (88.4 ± 10.7). Among the participants, those with chronic diseases had a higher attitude score (92.5 ± 13.6) towards cancer screening (p=0.003). The scores of those who had cancer diagnosis in their close circle were higher (p<0.001). The score (93.9 ± 14.5) of those whose first-degree relatives had cancer was higher than the others. Women who had at least one cancer screening test (92.6 ± 11.3) had a more positive attitude towards screening compared to those who never had it (81.5 ± 6.6) (p<0.001).

Conclusion: In our study, we found that smokers, those with a chronic disease diagnosis, and women with cancer in their close circle had a higher attitude scale score towards cancer screening.

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HISTOPATHOLOGIC AND DEMOGRAPHIC FEATURES OF EYELID TUMORS

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Abstract

Objective: To evaluate the clinical, histopathological, and demographic features of eyelid tumors.

Methods: The medical records of patients who have been operated for eyelid tumor excision at ophthalmology clinic of our hospital between 2006 and 2021 were evaluated retrospectively.

Results:253 patients with the histopathological diagnosis were included in the study. The mean age of the patients was 50.5±21.2, of whom 143 (56.5%) were female and 110 (43.5%) were male. Tumor localization was on the upper eyelid in 110 (43.5%) patients, on the lower eyelid in 139 (54.9%) patients and on both the lower and upper eyelids in 4 (1.6%) patients. Of the eyelid tumors, 139 (54.9%) were epidermal, 28 (11.1%) was adnexal and 46 (18.2%) were stromal of the epidermal tumors, 97 (69.8%) were non-melanotic and 42 (30.2%) were melanotic. Benign eyelid tumors were observed in 188 (74.3) cases with a mean age of 45.6±21.2 years. The most common benign eyelid tumor was intradermal nevus in 32 (12.6%) patients, followed by verruca vulgaris in 21 (8.3%) patients and seborrheic keratosis in 15 (5.9%) patients. Malign eyelid tumors were observed in 65 (25.7%) cases with a mean age of 64.6±13.8 years. Basal cell carcinoma (BCC) was observed in 53 (20.9%) patients and squamous cell carcinoma in 5 (2%) patients. Eyelid reconstruction was performed in 18 (34%) patients in BCCs and at least one surgical margin was positive in 28 (52.8%) patients at the primary excision. Six (11.3%) patients diagnosed with BCC had a recurrence and 4 (7.5%) patients had a diagnosis of BCC in a different anatomical localization.

Conclusion: The most common eyelid tumor was BCC in our study population. Eyelid tumors were mostly benign with intradermal nevus being the most common benign eyelid tumor. Benign tumors were frequently observed in the young-middle aged group whereas malignant tumors were observed more frequently in the middle-advanced age group.

Keywords: *Eyelid Tumors, Histopathology, Basal Cell Carcinoma, Benign Malign*

THE RELATIONSHIP BETWEEN SPOUSE SUPPORT AND BODY CATHEXIS SCALE IN MASTECTOMY PATIENTS

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Abstract

Aim: This study was planned to determine the relationship between spousal support and body cathexis in patients who underwent mastectomy for breast cancer.

Method: This research is a descriptive cross-sectional study. The sample of the study consisted of 32 patients who completed chemotherapy or radiotherapy after mastectomy and met the inclusion criteria. The obtained data were collected by the researcher by face-to-face or telephone interview using a questionnaire form, questions including spousal support, and the "Body Cathexis Scale".

Results: The mean total body perception score of women with breast cancer was 125.09±21.83, considered low. In this study, it was determined that the mean score of body perception of women whose spouse is hopeful, who cares about their spouse's health, who have spousal harmony and spousal support were higher than those who did not, but the difference was not statistically significant (p>0.05).

Conclusion: It was concluded that although spousal support has an effect on body cathexis in women with mastectomy, body cathexis is mostly related to the perception of one's own body. For this reason, it may be recommended that nurses plan interventions that will improve body cathexis positively for women who have undergone mastectomy due to breast cancer and include their spouses in these interventions.

Keywords: *Breast Cancer, Mastectomy, Body Cathexis, Spouse Support, Nursing.*

Introduction

According to the data of 2020 published by the International Agency for Research on Cancer, breast cancer ranks first among the most common cancer types in women [1]. Similar to the world data, according to the 2017 Cancer Statistics of Turkey, breast cancer ranks first in women with a rate of 25.5% [2]. From the past to the present, the female breast is seen as a symbol of aesthetic appearance, sexuality, motherhood and feeding the baby in many societies. Mastectomy is one of the most frequently performed surgical methods in women diagnosed with breast cancer. Mastectomy is defined as the removal/amputation of one or both breasts, which means sexuality, femininity, beauty, and motherhood. In addition to mastectomy, breast cancer treatment is a long and difficult process in which chemotherapy, radiotherapy, biological agents, and hormone therapy methods are used [3]. These methods in the oncological treatment process may negatively affect the way patients perceive their bodies [4]. Problems such as

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deterioration/ugliness or loss of one or both breasts as a result of cancer surgery, and surgical scarring cause a change in the physical appearance of the woman, changing her body image, and this change can be perceived as a threat to self-esteem [5]. Radiotherapy treatment applied in addition to mastectomy causes skin changes in women; Systemic treatments such as hormone or chemotherapy treatment cause weight gain and hair loss. Physical changes seen during these treatments also negatively affect women's body image [6]. This change in women's body perception due to the breast cancer treatment process includes the perception of femininity, body integrity, not feeling sexually attractive, change in self-consciousness about appearance and dissatisfaction with surgical scars [7, 8]. Changes in body image are associated with various problems such as fear of losing their feminine characteristics, sexual dysfunction, negative marital adjustment, and family fragmentation [5,9]. Spousal support is very important in the breast cancer treatment process, which is quite challenging and tiring for women. Married women with breast cancer perceive their spouses as their primary source of support, and spouses can be invaluable sources of support in coping with the challenges of breast cancer [10]. Although body perception is related to one's perception of one's own body [11], it is also a concept with a social aspect as it is affected by the evaluation of women's bodies by others [12, 13]. For this reason, it is thought that the spouse may have an effect on the body image of the woman. In the literature, there are mostly studies on breast cancer spousal adjustment, and studies involving spousal support are very few. No study has been found examining the relationship between spousal support and body cathexis. It is very important to determine the relationship between spousal support and body cathexis in women undergoing mastectomy and to increase studies on this subject. Therefore, this study was conducted to determine the relationship between spousal support and body cathexis in patients undergoing mastectomy.

Method

Type, location, universe, and sample of the study: This research is a descriptive cross-sectional study. The research population consisted of women who completed chemotherapy or radiotherapy treatment after mastectomy in Sivas Cumhuriyet University Health Services Application and Research Hospital Oncology unit between 23.07.2022 and 20.08.2022. The sample is those who have completed chemotherapy or radiotherapy treatment after mastectomy in Sivas Cumhuriyet University Health Services Application and Research Hospital Oncology, are married and live with their spouse, are over 20 years old, have cognitive competence and agree to participate in the research. formed patients. According to the data obtained from the hospital unit, the number of patients who completed chemotherapy or radiotherapy treatment after mastectomy in the last year was 100. The sample size of the study was determined by the G*Power 3.1.9.7 program. In the power analysis performed by a biostatistics expert considering the inclusion criteria in the study, the sample size was determined as 30 people when the effect size was 80%, the power was 90%, and the significance level was 0.05. This study was completed with 32 patients.

Data collection: In the study, patients who came to the oncology unit for control, who completed chemotherapy or radiotherapy after mastectomy, and who met the inclusion criteria were determined. When the patients applied for control, the purpose of the study was explained to the patients who met the research criteria, either face-to-face or by telephone, and written

consent was obtained from the patients who agreed to participate in the study. A questionnaire form created by the researchers in line with the literature was filled in the identified patients by asking questions on the body image scale, including spousal support. Patients completed the questions in approximately 15-20 minutes.

Questionnaire Form: The patient information form was composed of two parts. In the first part, there are 11 questions about the introductory characteristics of women in order to determine the age, education status, working status, with whom she lives, income status, organ metastasis status, chemotherapy or radiotherapy status, smoking status, duration of the marriage, and disease stage. In the second part, there are 5 questions to determine spousal support in the disease process, which were created by the researchers in line with the literature [5,14,15].

Body Cathexis Scale: This scale, originally called the Bady Cathexis Scale (BCS), was developed by Secard and Jurard in 1953 [16]. Its validity and reliability were established by Hovardaoğlu in 1989 [17]. In the study conducted by Hovardaoğlu, the Cronbach alpha value of the scale was found to be 0.91. It is a scale that determines satisfaction with one's body part or function. The scale is a five-point Likert-type measurement tool consisting of 40 items. Each item receives scores ranging from 1 to 5 and there are response options such as "I like it very much", "I like it very much", "I am undecided", "I don't like it" and "I don't like it at all". Accordingly, the score that can be obtained varies between 40-200. The cut-off score of the scale was 135, and those with a score below 135 were defined as the group with low body cathexis [18].

Ethical Approval: Before starting the research, the ethics committee approval number 2022-06/49 from the ethics committee of the institution where the research will be conducted and the necessary permissions from the management of the institution where the study will be conducted were obtained. The ethical principles in the Declaration of Helsinki were complied with in the study. Before the survey forms were applied, the purpose of the study was explained to the women and the forms were applied to those who agreed to participate in the study after obtaining their consent.

Statistical Method: The data obtained from our study were evaluated with the SPSS 22.00 program. In the analysis of the data, numbers, percentages were calculated, and descriptive statistics were used. Body image total score averages were given for introductory features and spouse-related questions. The normality of the data was checked with the Kolmogorov-Smirnov (K-S) test. Since the data did not show normal distribution, Mann Whitney U for two independent groups; Kruskal Wallis test was used for more than two groups. The error level was taken as $p < 0.05$.

Results and Discussion

Table 1 shows the comparison of the descriptive characteristics and body image mean scores of the patients. The mean age of the patients was 46.31±7.64; Education level of 62.5% is primary school, 90.6% is unemployed, 84.4% lives with nuclear family, 90.6% has income equal to expenditure, 100% has no organ metastasis, 100% received chemotherapy, 78.1% received radiotherapy, 87.5% were non-smoker, 62.5% were married for 21 years or more, and 59.4% were stage 2. There was no statistically significant difference between the descriptive

characteristics of women and their body image mean scores (p>0.05). The mean total body perception score of the women was 125.09±21.83 and it was determined as low. In a study similar to the results of this study, it was determined that the body image of women who underwent mastectomy was negatively affected because the breast means femininity, beauty, and motherhood [13]. This negative change in body image leads to depression, anxiety [19] and a decrease in sexual desire [7] in women. In order to cope with body image and the problems it brings, nurses need to plan an individualized holistic care for women who have undergone mastectomy, starting from the treatment process.

Table 2 shows the comparison of the mean scores of the patients with the support of their spouses and body image. After the operation, 68.8% of the patients did not have adjustment problems after their spouse got sick, 75% of them took care of their spouse's health after they got sick, 71.9% of them supported their spouses after they got sick, 75% of them said that their spouse was hopeful after the illness. It was determined that 71.9 of them were interested in their spouses as in the past. In other studies, similar to the results of this study, the majority of women stated that their relationship with their spouse did not change after breast cancer [20, 21]. In another study, it was determined that women's body perceptions were negatively affected due to mastectomy, and therefore, the relationship of women with their spouses was not the same as before [13]. In another study, it was determined that cancer did not cause conflict in the relationship with the spouse and did not affect the intimacy with the spouse. It was stated that the relationship was negatively affected only because they were ashamed of their wounds in the early stages of the treatment process or because chemotherapy caused a decrease in sexual life [22].

The mean BCS score of the women who did not have adjustment problems with their spouses after becoming ill was 126.00±20.76, and 123.10±25.08 for women who had adjustment problems with their spouses; The mean BCS score of women who were taken care of by their spouses after they became ill was 127.21±20.34, and 118.75±26.24 for those who were not taken care of by their spouses; the mean BCS score of women with spousal support was 126.91±20.75; those without spousal support were 120.44±25.07; BCS mean score of women who were given hope by their spouses was 127.21±20.34; 118.75±26.24 of those who were not given hope by their spouse; The mean BCS score of women who received attention from their spouses after the illness, as in the past, was 126.91±20.75; was 120.44±25.07, who did not receive attention from their spouses as in the past. In this study, it was determined that the mean score of body perception of women whose spouse is hopeful, who cares about their spouse's health, who have spousal harmony and spousal support were higher than those who did not, but the difference was not statistically significant (p>0.05). In a study, it was stated that body image was affected by the relationship with the spouse, similar to the results of this study, but this was not statistically significant [21]. Arikan et al. In another study, it was reported that spousal support during cancer treatment had a positive effect on body image [23]. In another study, it was determined that spousal support in women with breast cancer contributed to the emotional and physical health of women [24]. Similarly, in another study, it was reported that surgery in women with breast cancer caused problems in the relationship with the spouse due to decreased body image satisfaction and sexual life [20, 25]. In a study conducted with cancer

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patients, it was stated that satisfaction with the spouse had a positive effect on the spouse's view of the patient's body, but not on the patient's own body [26]. According to this result, it can be said that although spouse support has an effect on body image in women with mastectomy, body image is mostly related to the perception of one's own body.

Conclusion

It was concluded that although spousal support has an effect on body image in women with mastectomy, body image is mostly related to the perception of one's own body. For this reason, it can be recommended that nurses plan interventions that will positively improve body image for women who have undergone mastectomy due to breast cancer and include their spouses in these interventions.

Table 1. Comparison of Descriptive Characteristics and Body Perception Scores of Women with Breast Cancer

Descriptive features	n	%	BCS mean±SD	Test	p
Age; Mean±SD	46.31±7.64				
Educational status					
Literate-Primary Education	21	65.6	125.38±23.23	KW=0.003	0.998
High school	7	21.9	125.14±21.21		
University	4	12.5	123.50±20.49		
Working status					
Working	3	9.4	139.00±12.53	U=25.500	0.258
Not working	29	90.6	123.66±22.21		
With whom she lives					
Nuclear family	27	84.4	126.85±21.93	U=50.000	0.389
Extended family	5	15.6	115.60±20.80		
Income status					
Income less than expenses	3	9.4	113.67±16.07	U=28.500	0.349
Income equals expense	29	90.6	126.28±22.21		
Organ metastasis					
There is	-	-	-	-	-
no	32	100	-		
Chemotherapy					
Yes	32	100	-	-	-
No	-	-	-		
Radiotherapy					
Yes	25	78.1	122.04±22.94	U=53.000	0.123
No	7	21.9	136.00±13.39		
Smoking					
Yes	4	12.5	105.25±22.38	U=26.500	0.094
No	28	87.5	127.93±20.61		
Duration of marriage					
11-20 years	12	37.5	131.17±22.69	U=94.500	0.326
21 years and above	30	62.5	121.45±21.02		
Stage of the disease					
stage 1	2	6.2	125.50±20.51	KW=0.014	0.905
stage 2	19	59.4	124.16±25.63		
stage 3	11	34.3	126.64±15.74		
Total	32	100.0	125.09±21.83	**Min-max** 87-166	

Table 2. Comparison of Spousal Support and Body Perception Scores of Women with Breast Cancer

	n	%	BCS Mean±SD	Test/U	p
The state of having adjustment problems after being sick with the spouse					
Yes	10	31.2	123.10±25.08	104.500	0.826
No	22	68.8	126.00±20.76		
The state of taking care of the woman's health after the spouse is sick					
Yes	24	75	127.21±20.34	74.500	0.357
No	8	25	118.75±26.24		
Spouse support after illness					
Yes	23	71.9	126.91±20.75	88.000	0.536
No	9	28.1	120.44±25.07		
Spouse's hope after illness					
Yes	24	75	127.21±20.34	74.500	0.357
No	8	25	118.75±26.24		
Spouse caring as before after illness					
Yes	23	71.9	126.91±20.75	88.000	0.536
No	9	28.1	120.44±25.07		

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III. INTERNATIONAL CANCER DAYS

DETERMINATION OF THE ANXIETY OF SURVIVORS WHO UNDERWENT BREAST SURGERY: A RETROSPECTIVE STUDY

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Abstract

Aim: In order to determine cancer anxiety and to support patients psychologically, the evaluation of the anxieties of individuals diagnosed with cancer and surviving cancer at intervals has an important place in the field of psycho-oncology. For this reason, this study was planned as a descriptive and retrospective study to determine the anxieties of individuals diagnosed with breast cancer, the most common type of cancer in women, undergoing breast surgery and surviving cancer.

Method: The research is descriptive and retrospective. The study was conducted with a total of 76 women who had undergone breast surgery at a university hospital and who had overcome cancer and met the inclusion criteria. The data were obtained by the researchers through a face-to-face interview method with a questionnaire form and the "Anxiety Assessment Scale of Individuals Who Conquered Cancer".

Results: The mean age of the women participating in the study was 47.74 ± 9.34 years. It was determined that the total mean score of the women in the scale was 14.16 ± 3.56, the mean total score in the cancer anxiety sub-dimension of the scale was 8.49 ± 22.34, and the total mean score in the general health anxiety sub-dimension was 5.67 ± 1.42. It was found that there was a strong positive correlation between the cancer anxiety sub-dimension of women and the general health sub-dimension ($r=0.784$, $p<0.001$). It was determined that there was a strong positive correlation between the scale sub-dimensions and the scale total score averages ($p<0.001$).

Conclusion: It was determined that women who had breast surgery and who were survivors had a high level of cancer anxiety and general health anxiety, as well as high levels of anxiety. This result is important for the planning of nursing interventions that are necessary to recognize and support the anxieties of women who have undergone breast surgery and who are survivors.

Keywords: *Breast Cancer, Cancer Survivor, Breast Surgery, Anxiety, Nursing*

Introduction

Breast cancer is the most common type of cancer among women and causes the highest number of cancer-related deaths. According to the data of the International Agency for Research on Cancer (2020), breast cancer has a rate of 47.8 per hundred thousand among women in the world [1]. According to the 2017 data of the Ministry of Health in Turkey, breast cancer ranks first among the top 10 cancers among women, and its incidence is 47.7 per hundred thousand [2]. Although breast cancer increases at a rate of 0.5% each year [3], 1 out of every 4 women

diagnosed with cancer is breast cancer [4]. Although breast cancer is so common, the 5-year survival rate for all stages of breast cancer is 90% with advances in early diagnosis, surgical techniques, and targeted therapy [3].

The increase in survival time has revealed the term "survivor" associated with cancer. According to the National Cancer Institute, individuals are referred to as "survivors" throughout their entire lives from the time of cancer diagnosis. Although the term "Survivor" has been defined in various ways, it is generally used for individuals who try to maintain the balance of their life from the moment of diagnosis. As the lifetime increases, cancer survivors face many problems such as toxicity, pain, fatigue, functional limitations, anxiety about a possible relapse or new onset of cancer, mood disorders, sexual, social and relational problems, cognitive disorders and uncertainty about the future.

Cancer-related anxiety is one of the problems that individuals have to cope with in the long term. Cancer survivors experience different levels of anxiety during screening tests, when being diagnosed, receiving treatment, or in different situations associated with cancer recurrence [7]. These concerns are associated with many reasons, including health anxiety, uncertainty [8], recurrence, cancer progression, and fear of dying [9]. Cancer-related anxiety can cause increased pain level, impaired sleep quality, nausea and vomiting [7], fatigue, and depression. These effects of anxiety negatively affect the quality of life of cancer survivors. [10]. As a result of increasing anxiety, although the psychosocial impact of cancer diagnosis is increasing gradually, it is becoming an important clinical problem. Interventions to assess and reduce the anxiety of the individual are important to support them in the post-treatment period [11] In order to determine cancer anxiety and to support patients psychologically, the evaluation of the anxieties of individuals diagnosed with cancer and surviving cancer at intervals has an important place in the field of psycho-oncology. For this reason, this study was planned as a descriptive and retrospective study to determine the anxieties of individuals diagnosed with breast cancer, the most common type of cancer in women, undergoing breast surgery and surviving cancer.

Method

The Type of Research: The research is a descriptive and retrospective study.

The Location of Research: The research was carried out at Sivas Cumhuriyet University Health Services Research and Application Hospital.

The Population and The Sample: The population of the study consisted of patients who underwent breast surgery and defeated cancer in Sivas Cumhuriyet University Health Services Research and Application Hospital. After obtaining the approval of the ethics committee, the hospital archives were scanned. Patients who underwent breast surgery for breast cancer were reached and information was obtained about whether they defeated the cancer or not in the study. and it was learned that 166 individuals defeated breast cancer after undergoing breast surgery. After the population was determined, the sample was calculated using the formula "n=N.t².p. q/d²(N-1) +t². (p.q)" (t=1.96, p=0.90, q=0.10, d=0.05). a total of 76 individuals constituted the sample of the study. Individuals were selected with a computer program, which is one of the simple randomization methods, and the individuals were contacted by phone respectively, and a total of 80 patients were reached. 4 people as fourth, twelfth, thirty-seventh

and seventy-first, refused to participate in the study. The application was terminated when 76 people were randomly reached.

Data Collection Tools: Two data collection tools were used in the study: The questionnaire form developed by the researchers in line with the literature, and "Scale for Assessment of Survivor Concerns: ASC"

The questionnaire form: In the form created by evaluating the literature [12-14], It consisted of a total of 12 questions about individuals' age, education level, marital status, employment status, income status, occupation, family structure, number of children, if any, place of residence, surgical procedure applied, the presence of treatment applied after the surgical procedure, and fear of recurrence.

Scale for Assessment of Survivor Concerns: ASC: The scale was developed by Gotay and Pagano in 2007 to assess fear of cancer recurrence and general health in cancer patients [15]. It consists of 2 subscales: cancer anxiety subscale and general health anxiety subscale. The scale was first developed to have a total of 6 items, 3 in each subscale. However, since the 6th item of the scale was "concern for the health of their children" and could not be applied to those who did not have children, the scale was revised, and this item was removed and reduced to 5 items. It is recommended to use the new 5-item form of the scale. According to the revised scale, the cancer anxiety subscale consists of 3 items and the general health anxiety subscale consists of 2 items. Scale for Evaluating Anxiety of Individuals Who Have Been Cancer; It is a 4-point Likert-type scale evaluated as "not at all" and "a lot". A minimum of 5 and a maximum of 20 points can be obtained from the scale. A high score from the scale indicates a high level of anxiety. The subscales can be used independently, and the internal consistency of the subscales was found to be 0.93 and 0.63, respectively [15]. The validity and reliability of the Turkish version of the scale was determined by Serçekuş et al. (2020), the Cronbach alpha internal consistency coefficient was found to be 0.86 [16]. In this study, the Cronbach's alpha coefficient of the cancer anxiety sub-dimension of the scale was found to be 0.90.

Application of Research and Ethical Approval: Before starting the study, the data were obtained with the above-mentioned forms after obtaining permission from the Sivas Cumhuriyet University Non-Interventional Clinical Research Ethics Committee (File No: 2022-05/10) and written and verbal consent from the cancer survivors who accepted to participate in the study.

Institutional permission was obtained to access the phone numbers of the patients from the hospital archive. After obtaining the permission of the institution, people who were diagnosed with breast cancer in the last 1 year and therefore underwent breast surgery were contacted by phone. The study was conducted with individuals who met the inclusion criteria and agreed to participate in the study. The forms were applied face-to-face by the researchers by making an appointment after making phone calls with the individuals. The application of the forms was completed in approximately 20 minutes.

Inclusion criteria in the study

- Being 18 years or older,
- Breast surgery due to breast cancer in the last 1 year,
- Being able to speak Turkish,

- No communication problem,
- No identified cancer metastasis,
- No cancer recurrence.

Data Analysis: SPSS (Statistical Package for Social Science) version 22.0 program was used to evaluate the research data. In the analysis of the data obtained from the questionnaire form of the individuals participating in the research, descriptive statistics were given, and the number and percentage distribution was determined. Whether the data were normally distributed or not was determined by the Kolmogorov-Smirnov (K-S) test. Apart from marital status and family structure parameters, it was determined that the scale items, scale sub-dimensions and scale total score mean values, have normal distribution along with other parameters. Parametric tests were used for normally distributed data and analyzed with independent samples t-test for two independent groups and F-test (ANOVA) for more than two groups. Non-parametric tests were used for data not normally distributed. It was evaluated with the Mann Whitney U test for two independent groups and the Kruskal Wallis test for more than two independent groups. Significance level was accepted as $p < 0.05$.

Findings And Discussion

The descriptive characteristics of the participants are given in Table 1. According to the table, the mean age of the participants was 47.74 ± 9.34. 57.9% of the women are in the age range of 25-49, 43.4% are secondary school graduates, 89.5% are married, 81.6% are unemployed, 50% have less income than expenses, 86.8% have a nuclear family structure. It was found that 34.2% had 2 children, 71.1% lived in the city, 75% underwent mastectomy and 56.6% received chemotherapy + radiotherapy after surgery. 77.6% of the women stated that they experienced fear related to the recurrence of the disease. The average scores of the participants from Scale for Assessment of Survivor Concerns (ASC) are given in Table 2. When the table was evaluated, it was determined that the total mean score of ASC was 14.16 ± 3.56, the mean total score of the cancer anxiety sub-dimension of the scale was 8.49 ± 22.34, and the mean total score of the general health anxiety sub-dimension was 5.67 ± 1.42. In this study, it was determined that women with breast cancer living with cancer who have undergone breast surgery had high levels of total anxiety. In a study, it was determined that those living with breast cancer had high levels of anxiety up to 5 to 6 years [17]. In another study, it was reported that those living with breast cancer (especially advanced stage and receiving chemotherapy) experienced higher levels of anxiety compared to healthy controls [18]. The literature supports the findings of this study. The increased level of anxiety in those living with breast cancer negatively affects their quality of life, preventing them from returning to daily life activities and participating in their own care [19]. For this reason, it is necessary for nurses to determine the anxiety level of individuals living with breast cancer, to follow them for a long time and to plan interventions to control the level of anxiety in order to return to their daily life activities.

The ASC cancer anxiety sub-dimension indicates anxiety associated with cancer recurrence. In this study, cancer anxiety sub-dimension score averages were found to be high. In a study, it was determined that women with breast cancer who had a fear of recurrence experienced higher anxiety and had the most fear of recurrence before the physician examination [20]. In this study, the expression of experiencing anxiety before the diagnostic

tests, which is one of the cancer anxiety sub-dimension items of the scale, is included. The results of these and other studies show that women with breast cancer experience anxiety associated with cancer recurrence. Anxiety associated with cancer recurrence may prevent patients from seeking regular health check-ups. In addition, the fear of cancer recurrence causes an increase in anxiety, depression and fatigue levels that affect daily and social activities, difficulty in role function and a decrease in quality of life [21,22]. For this reason, nurses should monitor the anxiety level of women with breast cancer related to cancer recurrence in the long term and plan interventions.

In Table 3, the relationship between the descriptive characteristics of the participants and the ASC sub-dimension and total score averages is given. As seen in the table, it was found that there was a statistically significant relationship (p<0.05) between the income status of the participants and the general health anxiety sub-dimension. It was determined that the general health anxiety of the women whose income level is lower than the expenditure level is higher. Apart from this finding, it was determined that there was no significant difference (p>0.05) between any other variable, the scale sub-dimension and the total mean score. In line with the findings of this study, the American Cancer Society guidelines state that individuals with low economic status experience higher levels of anxiety and recommend in-depth evaluation of these patients [23]. This study showed that women who had breast surgery and beat cancer had high anxiety. However, no significant difference was found in cancer, general health and total anxiety levels in individuals who underwent breast-conserving surgery and mastectomy (p>0.05). In a similar study, no difference was found in the level of anxiety according to the type of surgery [24]. According to these results, it can be said that anxiety is not affected by the type of surgery but may be related to the recurrence of the disease.

Pearson correlation analysis between ASC sub-dimensions is given in Table 4. When the table was examined, it was found that there was a strong positive correlation between the cancer anxiety sub-dimension and the general health sub-dimension (r=0.784, p<0.001). It was determined that there was a strong positive correlation between the scale sub-dimensions and the scale total score averages (p<0.001). Similarly, in a study, it was stated that fear of cancer recurrence increases general health anxiety [22]. These findings indicate that cancer-related anxiety increases general health anxiety.

Conclusion

It was determined that cancer anxiety and general health anxiety were at high levels as well as the high anxiety of women who had breast surgery and beat the cancer. This result is important for the planning of nursing interventions that are necessary to recognize the anxiety of women who have had breast surgery and beat the cancer and support them. It can be recommended to monitor the anxiety levels of those living with breast cancer for a longer time, to determine the risk factors and to plan nursing interventions to reduce the anxiety level.

Table 1. Descriptive Characteristics of the Participants (N=76)

Descriptive features		
	Mean±SD	
Age ranges	47.74±9.34	
	n	**%**
Age		
25-49 ages	44	57.9
50 ages and older	32	42.1
Education Level		
Primary	24	31.6
Secondary	33	43.4
University	14	18.4
Postgraduate	5	6.6
Marital Status		
Married	68	89.5
Single	8	10.5
Working Status		
Employed	14	18.4
Unemployed	62	81.6
Income Status		
Income is less than expense	38	50
Income is equal to expense	29	38.2
Income is more than expense	9	11.8
Family Structure		
Nuclear	66	86.8
Extended	7	9.2
Broken	3	3.9
Number of Children		
No children	13	17.1
1 child	13	17.1
2 children	26	34.2
3 children	18	23.7
4 and more children	6	7.9
Living Place		
Rural	15	19.7
Urban	54	71.1
Metropolis	7	9.2
Applied surgical procedure		
Breast conserving surgery	19	25
Mastectomy	57	75
Treatment after surgery		
None	7	9.2
KT	17	22.4
RT	1	1.3
HRT	2	2.6
KT+RT	43	56.6
KT+RT+HRT	6	7.9
Fear of recurrence		
Have fear	59	77.6
No fear	17	22.4

KT: Chemotherapy, RT: Radiotherapy, HRT: Hormone replacement therapy

Table 2. The mean scores of the participants from the Scale for Assessment of Survivor Concerns (N=76)

ASC Sub-dimensions	Mean ±SD	Min-Max
Cancer anxiety	8.49±22.34	3-8
General health anxiety	5.67±1.42	3-12
Scale total score	14.16±3.56	6-20

Scale for Assessment of Survivor Concerns: ASC

Table 3. The Relationship Between the Descriptive Characteristics of the Participants and the Mean Scores of the Scale for Assessment of Survivor Concerns (N=76)

Descriptive features	Scale for Assessment of Survivor Concerns					
	Cancer Anxiety		General Health Anxiety		ASC Total	
Age	Mean± SD	Test	Mean± SD	Test	Mean± SD	Test
25-49 ages	9.02±2.16	t=2.743 p=0.102	6.09±1.38	t=0.771 p=0.383	15.11±3.36	t=1.203 p=0.276
50 ages and older	7.75±2.41		5.09±1.28		12.84±3.47	
Education Level						
Primary	8.63±2.43	F=0.636 p=0.594	5.46±1.44	F=0.880 p=0.456	14.03±3.63	F=0.620 p=0.604
Secondary	8.15±2.29		5.70±1.53		13.85±3.69	
University	9.14±2.11		6.14±1.17		15.29±3.10	
Postgraduate	8.20±3.11		5.20±1.10		13.40±4.04	
Marital Status						
Married	8.44±2.33	Z=-0.778 p=0.437	5.69±1.44	Z=-0.314 p=0.753	14.13±3.59	Z=-0.162 p=0.871
Single	8.88±2.53		5.50±1.31		14.38±3.58	
Working Status						
Employed	8.71±2.67	t=0.355 p=0.553	5.79±1.12	t=3.270 p=0.075	14.50±3.67	t=0.000 p=0.990
Unemployed	8.44±2.28		5.66±1.48		14.08±3.56	
Income Status						
Income is less than expense	8.81±1.93	F=0.919 p=0.404	6.13±1.23	F=4.800 p=**0.011***	14.95±3.07	F=2.189 p=0.119
Income is equal to expense	8.03±2.65		5.10±1.50		13.71±3.86	
Income is more than expense	8.56±2.78		5.56±1.33		14.11±4.08	
Family Structure						
Nuclear	8.65±2.19	KW=2.365 p=0.307	5.68±1.37	KW=1.241 p=0.538	14.33±3.34	KW=2.22 p=0.329
Extended	7.14±2.79		5.29±1.25		12.43±4.03	
Broken	8.00±4.36		6.33±2.89		14.33±7.23	
Number of children						
No children	8.85±1.86	F=1.230 p=0.306	5.62±1.19	F=0.917 p=0.459	14.46±2.82	F=0.976 p=0.426
1 child	8.69±2.39		6.00±1.35		14.69±3.54	
2 children	8.77±2.37		5.92±1.60		14.69±3.80	
3 children	7.44±2.53		5.28±1.45		12.72±3.85	
4 and more children	9.17±2.23		5.17±0.98		14.33±2.94	
Living place						
Rural	8.40±2.13	F=2.377 p=0.100	5.53±1.25	F=2.156 p=0.123	13.93±3.76	F=2.558 p=0.084
Urban	8.28±2.45		5.57±1.47		13.85±1.15	
Metropolis	10.29±0.76		6.71±0.95		17.00±3.56	
Applied surgical procedure						
Breast conserving surgery	8.74±0.49	t=1.623 p=0.207	5.42±0.34	t=0.598 p=0.442	14.16±3.22	t=0.334 p=0.565
Mastectomy	8.40±0.32		5.75±0.19		14.16±3.70	
Treatment after surgery						
None	7.86±2.79	F=0.954 p=0.452	5.43±1.60	F=1.232 p=0.304	13.29±3.90	F=0.729 p=0.604
KT	7.82±2.74		5.24±0.00		13.06±4.22	
RT	8.00±0.00		4.00±0.00		12.00±0.00	
HRT	8.00±2.22		6.00±1.30		14.00±0.00	
KT+RT	8.67±1.41		5.98±1.60		14.65±3.40	
KT+RT+HRT	10.00±2.34		5.17±1.42		15.17±2.86	

*p<0.05, ASC: Scale for Assessment of Survivor Concerns

Table 4. Correlation analysis between the sub-dimensions of the Scale for Assessment of Survivor Concerns (N=76)

ASC Sub-dimensions	Cancer Anxiety		General Health Anxiety		ASC Total Score	
	r	p	r	p	r	p
Cancer Anxiety	1		0.784	**0.000****	0.969	**0.000****
General Health Anxiety	0.784	**0.000****	1		0.913	**0.000****
Scale Total Score	0.969	**0.000****	0.913	**0.000****	1	

*** p<0.001, ASC: Scale for Assessment of Survivor Concerns**

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PREGNANCY AND BREAST CANCER: FOLLOW-UP, TREATMENT AND PERINATAL OUTCOMES

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Abstract

Objective: Gestational breast cancer (or pregnancy-associated breast cancer) is defined as breast cancer that is diagnosed during pregnancy, in the first postpartum year, or any time during lactation. Gestational breast cancer presents a challenging clinical situation, since the welfare of both the mother and the fetus must be taken into account. The aim of this study was to evaluate obstetric and perinatal outcomes in women diagnosed with breast cancer before or during pregnancy followed in a tertiary care center.

Method: The cases diagnosed with breast cancer before or during pregnancy whose antenatal follow-up and delivery at the Department of Obstetrics and Gynecology in Ege University School of Medicine Hospital, between January 2011 and December 2020 were retrospectively analyzed in the study group.

Results: Six patients who diagnosed with breast cancer were identified during the study period. While four cases were diagnosed during pregnancy, two cases were diagnosed before pregnancy. The predominat histopathological type among the patients was infiltrating ductal carcinoma with 83,3%. The average gestational age at delivery was 33±1.4weeks (range 31-34 weeks) among women with live birth. The rate of cesarean section was 75% (n: 3/4) and all indications depended on the maternal factors.

Conclusion: If the breast cancer is diagnosed during the pregnancy, these cases should be evaluated by a multidisciplinary team including breast surgeon or surgical oncologist, medical oncologist, and maternal fetal medicine. This population should be treated according to guidelines for nonpregnant patients and treatment should not be delayed.

Keywords: *Breast Cancer, Pregnancy, Gestational Breast Cancer, Chemotherapy, Surgery*

Introduction

Globally, breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death in women. In the United States, breast cancer is the most commonly diagnosed cancer and the second most common cause of cancer death in women [1]. Gestational breast cancer (or pregnancy-associated breast cancer) is defined as breast cancer that is diagnosed during pregnancy, in the first postpartum year, or any time during lactation.

Breast cancer is one of the most common malignancies encountered in pregnant women. The reported incidence ranges from 1.3 to 3.32 cases per 10,000 live births. Although only 0.2% to 3.8% of breast cancers diagnosed in women younger than age 50 are pregnancy associated,

almost 10% to 20% of breast cancers diagnosed in women in their 30s are discovered during pregnancy [2-4]. Gestational breast cancer presents a challenging clinical situation, since the welfare of both the mother and the fetus must be taken into account. There are limited prospective data about diagnosis, treatment, and outcome of breast cancer during pregnancy; much of the clinical evidence is limited to retrospective case series and case reports.

The aim of this study was to evaluate obstetric and perinatal outcomes in women diagnosed with breast cancer before or during pregnancy followed in a tertiary care center.

Method

The cases diagnosed with breast cancer before or during pregnancy whose antenatal follow-up and delivery at the Department of Obstetrics and Gynecology in Ege University School of Medicine Hospital, between January 2011 and December 2020 were retrospectively analyzed in the study group.

The data related to the demographic characteristics, age, parity, date of diagnosis, histologic types, treatment, type of delivery, delivery week, birth weight, the indication for cesarean section were accessed from the patients' antenatal follow-up files. The pregnancy outcomes like abortion, congenital anomalies and pregnancy complications were investigated in detail.

Descriptive statistics were presented. The numerical variables were given in mean, standard deviation, or median (min-max). The categorical variables were given in numbers and percentages. The statistical and multivariate analysis could not be performed due to the nature of the study and a small number of critical outcomes.

Results

Six patients who diagnosed with breast cancer were identified during the study period (one twin pregnancy and five singletons). While four cases were diagnosed during pregnancy, two cases were diagnosed before pregnancy. Clinical characteristics and obstetric outcomes are shown in Table 1.

Table 1. Clinical characteristics and obstetric outcomes

	Age	Parity	Date of diagnosis	Histologic Types	Treatment	Delivery week	Delivery mode	Birth weight	Fetal status	Obstetric complications
1	30	P	10 weeks	MC	MRM+ALND+C	33	C/S	2210-1780	LB	SGA
2	31	NP	BP	IDC	MRM+ALND+C+RT+ET	31	NSVD	1650	LB	PPROM
3	30	NP	31 weeks	IDC	MRM+ALND	34	C/S	2780	LB	-
4	33	P	13 weeks	IDC	MRM+ALND+C+RT+ET	13	TA	-	T	-
5	42	P	BP	IDC	MRM+ALND+C+RT+ET	7	TA	-	IUFD	-
6	29	NP	28 weeks	IDC	MRM+ALND	34	C/S	2360	LB	-

NP: Nulliparous, P: Parous BP: Before pregnancy, IDC: Infiltrating Ductal Carcinoma, MC: Medullary Carcinoma MRM: Modified Radical Mastectomy, ALND: Axillary lymph node dissection, C: Chemotherapy, RT: Radiation Therapy, ET: Endocrine Therapy, NSVD: Normal Spontaneous Vaginal Delivery C/S: Cesarean Section, TA: Therapeutic Abortion, LB: Live Birth, IUFD: Intrauterine Fetal Death, T: Termination, SGA: Small Gestational Age, PPROM: Preterm Premature Rupture of Membranes

The predominat histopathological type among the patients was infiltrating ductal carcinoma with 83,3%. All cases accepted the surgical treatment or chemotherapy recommended during pregnancy. Elective termination was carried out in only one patient in the

13th week due to patient preference, expedite cancer treatment, most frequently to initiate chemotherapy at first and early second trimester.

The average gestational age at delivery was 33±1.4weeks (range 31-34 weeks) among women with live birth. The rate of cesarean section was 75% (n: 3/4) and all indications depended on the maternal factors. While SGA was observed in only one case who received chemotherapy during pregnancy, no fetal anomaly was observed in cases, who had given live birth.

Conclusion

Gestational breast cancer is actually still a rare entity, but the incidence is increasing. Thus gynecologists, obstetricians and oncologists may be confronted with this complex situation more often and should be familiar with the management possibilities.

In general, pregnant women with breast cancer should be treated according to guidelines for nonpregnant patients, with some modifications to protect the fetus. However, the treatment should be approached with curative intent. Therefore, treatment of gestational breast cancer should not be unnecessarily delayed because of pregnancy. Informed consent is a critical component of choosing appropriate therapy. Although pregnancy termination may be considered during treatment planning, pregnancy termination has not been demonstrated to improve outcomes in gestational breast cancer.

Information on the prognosis of breast cancer during pregnancy is crucial when counseling patients whether to continue pregnancy or not. Contemporary studies that specifically evaluated the outcomes of women diagnosed with breast cancer during pregnancy have consistently shown that there is no negative impact on survival when accounting for age, stage, tumor subtype, and treatment [5-7]. In our study, treatment was not delayed in cases diagnosed during pregnancy. All cases were treated according to guidelines.

Two important multicentric studies analyzed obstetrical outcome in patients with breast cancer during pregnancy [8,9]. Both showed an increased prevalence of preterm labor in patients who received chemotherapy. Birthweight was also lower after intrauterine exposure to chemotherapy. İn our study, all live births were delivered prematurely (maternal and obstetric indications). SGA was observed in the patient who received chemotherapy in the intrauterine period. İn the study of Hahn et al., the rate of congenital malformation was 3.2 % [10]. In our study, we observed no fetal anomaly in women, who had given live birth.

The small sample size, the retrospective nature of the study and insufficient neonatal data were all limitations of our study.

If the breast cancer is diagnosed during the pregnancy, these cases should be evaluated by a multidisciplinary team including breast surgeon or surgical oncologist, medical oncologist, and maternal fetal medicine. This population should be treated according to guidelines for nonpregnant patients and treatment should not be delayed.

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III. INTERNATIONAL CANCER DAYS

CASE OF LOW DIFFERENTIAL THYROID PACLINOMA RESULTING IN PLEURAL METASTASIS

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Abstract

A thyroid cancer that is physiologically and physically in between anaplastic and well-differentiated thyroid carcinomas is referred to as an indifferentiated thyroid carcinoma. An aggressive and progressing thyroid cancer affects 4–7% of patients. The thyroid gland, which is located 2.5 cm inside the right lobe of the patient, underwent surgery in 2011. The left lobe was found to have a 6 mm papillary microcarcinoma with an anaplastic center and indifferent carcinoma. Seven lymph nodes were extracted and identified as reactive during the right central neck dissection. Thyroid tumors that are indifferentiated account for 4–7% of cases and progress rapidly. The most frequently reported metastatic lesions in investigations of thyroid papillary carcinoma metastases have been found in the lung and bone, though less frequently in the brain, adrenal, liver, and skin. This aims to report a rare instance of indifferent thyroid cancer pleural metastases in the literature. Patients with pleural involvement should be evaluated for thyroid papillary cancer.

Keywords: *Thyroid Papillary Carcinoma, Pleura, Metastasis*

Introduction

Papillary, follicular, and indifferentiated major categories are used to classify thyroid follicle epithelium cancers. 80–90% of thyroid cancer cases fall into this category (6). An aggressive tumor is anaplastic thyroid carcinoma (ATC). The illness is often progressive or locally advanced at the time of diagnosis. 90% of all endocrine malignancies are thyroid cancers, while ATC accounts for 1-5% of thyroid cancers (1-3). It is one of the thyroid's indistinct carcinomas. Risk factors include advanced age, chronic thyroid illness, long-term radiation exposure, and an iodine shortage. 20% of the individuals were found to have ATC based on papillary or follicular cancer. Patients typically present with a rapidly expanding neck mass and compression symptoms such as stridor, dysphonia, dysphagia, and neck discomfort. In some cases, recurrent laryngeal nerve invasion has also been linked to vocal cord paralysis (4). In addition to local invasion in the area, anaplastic thyroid carcinoma can metastasize to nearby lymph nodes and far-off locations. The phrase "indifferentiated thyroid carcinomas" refers to thyroid malignancies that are physiologically and physically neither anaplastic nor well-differentiated. It accounts for 4–7% of thyroid tumors and progresses rapidly. The lung might spread to the bones. Rarely, metastases to the liver, adrenal glands, and skin may also be

visible. In this report, we will discuss the treatment and follow-up of a female patient who received a diagnosis of indifferentiated thyroid cancer in 2011 and showed signs of metastases.

Method

In the right lobe, 2.5 cm. A 6 mm papillary microcarcinoma in the left lobe was found in a 68-year-old female patient with indifferentiated carcinoma and anaplastic focal. Then, radioactive iodine treatment (RAI) with 129 MCI was administered. The patient's thyroglobulin (Tg) value was determined to be high when he applied to the endocrinology clinic in 2020 after not visiting our clinic frequently, and he was assessed for metastatic focus. At the Sivas Cumhuriyet University Medical Faculty Hospital, ultrasound and PET/CT were done. He was simultaneously monitored in clinics for nuclear medicine and endocrinology.

Results and Discussion

Findings

In the right lobe, 2.5 cm. A 6 mm papillary microcarcinoma in the left lobe was found in a 68-year-old female patient with indifferentiated carcinoma and anaplastic focal. Then, radioactive iodine treatment (RAI) with 129 MCI was administered. The patient's thyroglobulin (Tg) value was determined to be high when he applied to the endocrinology clinic in 2020 after not visiting our clinic frequently, and he was assessed for metastatic focus.

Due to a Tg value of 47, the neck USG conducted found no abnormal findings. 200 MCI After 8*7 mm enhanced 18 F-FDG uptakes in the right lung upper lobe posterior was seen on a whole-body PET CT scan in May 2020, RAI therapy was administered. After receiving therapy, our patient's Tg readings dropped, and they were monitored. When our patient was reevaluated six months after receiving RAI, there was a minor rise in Tg values, but no discernible pathological 18 F-FDG uptake was seen in the nodular lesions seen in the right lung's upper lobe posterior and upper lobe apicolateral by PET/CT on June 7, 2021. It is consistent with a comprehensive metabolic reaction and a close anatomical response. The patient may benefit from RAI treatment despite the fact that no new lesions were seen on PET/CT, according to the council's 7.07 ruling. 200 MCI treatments were administered in 2021. Following the therapy, it was observed that the patient's Tg readings had decreased. Approximately a year after treatment, the patient's Tg increased once more on the PET/CT taken on June 3, 2012, which also revealed irregular pleural thickenings and lesions with increased 18 F-FDG uptake on the costal pleural surfaces in the right hemithorax, as well as pleural malignancies (primary mezetolioma? secondary? Thyroid? A histological investigation is advised to exclude the patient was given the advice to have a pleural procedure after a pleural biopsy revealed thyroid metastases. When a patient declines surgery, another 200 MCI RAI therapy is scheduled.
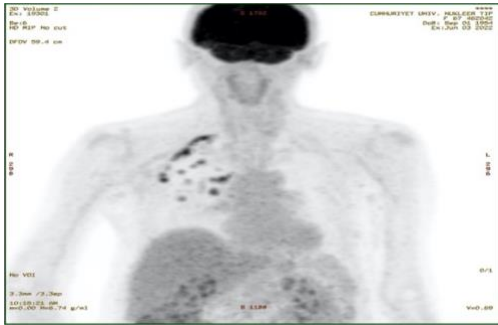
Figure 1. PET/BT
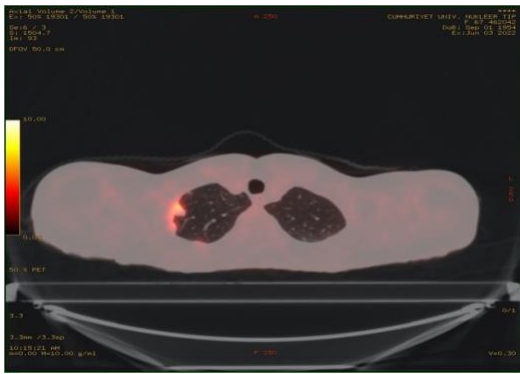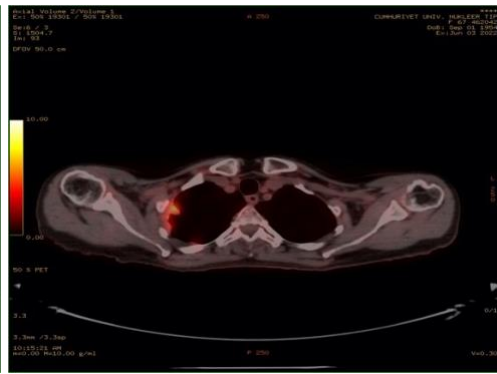
Figure 2. PET/BT Plevral Metastasis   **Figure 3.** PET/BT Plevral Metastasis

Conclusion

The term "indifferentiated thyroid carcinomas" refers to thyroid tumors that are morphologically classified as neither anaplastic nor well-differentiated thyroid tumors. Thyroid tumors develop quickly in 4–7% of cases. Extensive thyroid papillary carcinoma metastases are depicted as and improvements in education, brain, adrenal, and skin metastases are also favorable. Most often, diffuse and micronodular metastases develop from primary tumors (5). Even though these metastatic lesions are typically asymptomatic, they are the ones most likely to benefit from RAI ablation when they are found by scans. We want to provide a case of undifferentiated thyroid cancer pleural metastasis, which is quite uncommon in the literature. Patients with pleural involvement should be evaluated for thyroid papillary cancer.

Acknowledgments

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SYNTHESIS OF NOVEL CHROMENE DERIVATIVES AND DFT CALCULATIONS

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Abstract

Today, many compounds used as drugs in medical treatment are in the class of heterocyclic compounds. Chromene derivatives, which can be obtained naturally or synthetically, are important among the heterocyclic compounds and they are show various biological activities. For example, it is mentioned in the literature that some chromene derivatives have important activities such as antimicrobial, antitumor, and antiviral.

In this study, eight chromene derivatives were synthesized and characterized by ^{1}H-NMR, ^{13}C-NMR, FT-IR, and GC-MS spectroscopy techniques. Then, these compounds were optimized at B3LYP/6-31G level in water. Experimental spectral data were compared with the calculated data.

a: Ar = 4-BrPh   Ar' = 4-OCH$_3$Ph   **e:** Ar = 4-CH$_3$Ph   Ar' = 4-CH$_3$Ph
b: Ar = 4-ClPh   Ar' = 4-OCH$_3$Ph   **f:** Ar = 4-CH$_3$Ph   Ar' = 4-OCH$_3$Ph
c: Ar = 4-OCH$_3$Ph   Ar' = 4-ClPh   **g:** Ar = 4-OCH$_3$Ph   Ar' = 4-CH$_3$Ph
d: Ar = 4-OCH$_3$Ph   Ar' = 4-OCH$_3$Ph   **h:** Ar = 4-CH$_3$Ph   Ar' = 2-tiyofen
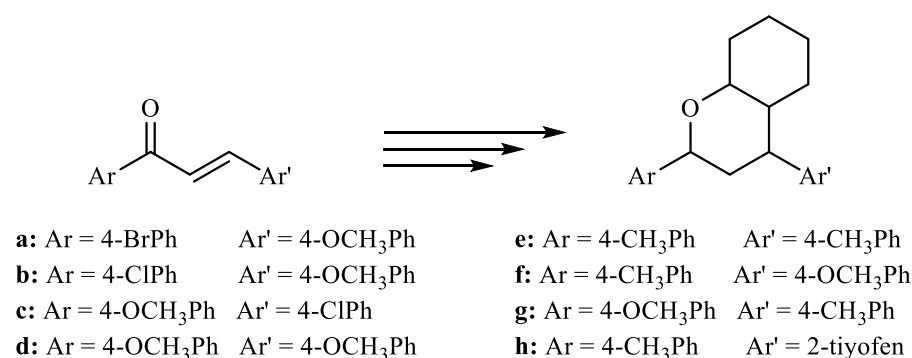
Figure 1. Synthesis scheme

THE EFFECT OF TUMOR MASS BONE METASTASIS ON SURVIVAL IN LUNG CANCER PATIENTS

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Abstract

In this study, it was aimed to investigate the effect of bone metastases with tumor mass on survival in patients with lung cancer. The patients were subsequently categorized as having bone metastasis with or without a tumor mass. The presence of bone metastasis with tumor mass in metastatic lung cancer has been identified as one of the independent prognostic factors that adversely affect survival.

Keywords: *Lung Cancer, Bone Metastasis with Tumor Mass, Survival*

Introduction

Lung cancer frequently metastasizes to organs such as bone, brain, and liver. Bone metastases develop as a result of interactions between tumor cells and bone cells. Cancer cells can induce various metastatic bone lesions through different mechanisms that depend on the primary disease. Two types of metastatic bone lesions have been described [1,2]. The first is an osteolytic lesion that progresses with bone resorption as a result of osteoclast activation. The second is an osteoblastic lesion that triggers bone formation and osteoblastic cell activation. Both lesions may be present concomitantly in some patients (mixed type) following the stimulation of two different types of bone tissue cells. Alternatively, the tumor itself may grow inside the bone tissue and destroy the bone directly [3]. These types of lesions may cause an increase in complications (e.g., spinal cord compression, pathologic fracture) due to metastasis-related bone destruction and suggest the presence of a significant tumor burden.

General treatment procedures for patients with bone metastasis include bisphosphonate administration, chemotherapy, and palliative radiation therapy. Despite the use of these treatment modalities, the responses are fairly poor, and the patients' quality of life is impaired. The prognosis may vary among patients depending on factors such as age, patient performance status, metastatic interval, and number of metastatic sites [4,5]. Nevertheless, these factors are not particularly efficient with respect to decision making in routine clinical practice. Moreover, data on the prognostic impact of the mechanism type on metastasis to the bone and the additional role of tumor masses in these patients are lacking.

In this study, it was aimed to investigate the effect of bone metastases with tumor mass on survival in patients with lung cancer.

Materials and Methods

The data of 173 patients who received palliative radiotherapy for lung cancer bone metastasis in the Department of Radiation Oncology at Sivas Cumhuriyet University between 2010-2017 were analyzed. For analysis, all patients were divided into three subgroups with respect to the type of bone metastasis: osteolytic, osteoblastic, and mixed type. The patients were subsequently categorized as having bone metastasis with or without a tumor mass. Figure 1 shows bone metastasis with tumor mass.

All patients were treated with palliative radiotherapy and bisphosphonate. During the treatment period, all patients were examined by a radiation oncologist immediately before and 1 month after radiotherapy. The physical examination findings, body weight, Eastern Cooperative Oncology Group (ECOG) performance scores, and histopathological, radiological, and laboratory data (alkaline phosphatase [ALP] and calcium levels) were recorded. The patients' survival data were obtained from the hospital records, and patients lost to follow-up were contacted to obtain information about their conditions. Survival was defined as the time between the date of the first recognition of bone metastasis and that of the last contact or death.

Prior to palliative radiotherapy, each patient's performance status was scored according to the ECOG scoring system. Weight loss was defined as loss of >10% of the body weight in 1 month.

Bone metastasis was revealed by computerized tomography or magnetic resonance imaging or confirmed by bone scintigraphy and positron emission tomography. Pain intensity was evaluated using visual analogue scales. Patients were routinely asked to rate the pain intensity by placing a mark on a 10-mm visual analogue scale at the start of radiotherapy and 1 month after radiotherapy. This scaling system was used to evaluate the pain intensity only at the radiotherapy-affected region. The response to radiotherapy was determined by calculating the difference between the pain intensity on visual analogue scales before and 1 month after the initiation of radiotherapy.

The Statistical Package for Social Sciences (SPSS) for Windows 22.0 (SPSS, Inc., Chicago, IL, USA) was used for the statistical analysis. For descriptive statistics, the mean, standard deviation, frequency, and median were used. Categorical data were compared statistically using the chi-square or Fisher's exact test. The survival rates were calculated according to the Kaplan–Meier method. A multivariate analysis (Cox regression analysis) was used to evaluate the independent risk factors that affected survival. P values ≤0.05 were accepted as statistically significant.

Results

The median age of the patients was 60 (37-87), and the median duration of metastasis was 9 (1-80) months. 89 (51%) patients had metastases at the time of diagnosis. Site of metastasis: skull 18 (10%), rib 85 (49%), sternum 41 (24%), scapula 37 (21%), long bones 87 (50%), vertebra 145 (84%), pelvis 117 (%) 68). The general characteristics of patients with and without bone metastases with tumor masses are shown in Table 1. In univariate analysis, bone metastasis with tumor mass (p=0.002), high alkaline phosphatase (p=0.046), high number of lesions (p=0.010), poor performance status (p=0.002), weight loss (p=0.002) , male gender

(p=0.004) were determined as factors affecting the prognosis negatively. The results of univariate analysis are given in Table 2. In multivariate analysis, bone metastasis with tumor mass (without vs. with bone metastasis with tumor mass: HR=1.56, CI=1.07-2.27, p=0.020), weight loss (with or without weight loss; HR=1.86, CI=1.29-2.68, p=0.001), number of lesions (1 vs. 2-9 lesions; HR=3.62, CI=1.61-8.16, p=0.020; 1 vs. 10 or more lesions; HR=3.81, CI=1.64-8.84, p=0.020), gender (female vs. male; HR=0.58, CI=0.34-0.95, p=0.032) and age ($\geq$65 years vs. <65 years; HR=1.61, CI=1.13-2.30, p=0.009) were found to be statistically significant prognostic factors. The survival curve of patients without and with bone metastasis with tumor mass is shown in Figure 2.

Discussion

The prevalence of bone metastasis is higher in advanced stage cancers. Patients diagnosed with bone metastasis are usually incurable. However, the survival duration varies based on the primary disease. Accordingly, it is very important to determine the prognostic factors once a diagnosis of bone metastasis has been made. The present study investigated the prognostic and clinical importance of bone metastasis with a tumor mass and found that the presence of bone metastasis with a tumor mass was an apparently strong negative prognostic factor for survival in lung cancer.

Bone metastases are associated with a set of complications. The frequencies of these complications vary depending on the features of the metastatic lesions. For example, pathologic fractures and spinal cord compression are encountered more frequently with osteolytic lesions, as these lesions cause bone destruction [1-6]. It is rational to expect that bone metastases with tumor masses would present more complications. Spinal cord compression was found to be more frequent among cases of bone metastasis with a tumor mass. In terms of pathologic fractures, akaline phosphatase and high serum calcium levels, the number of lesions, number of organ metastases and responses to radiotherapy, no differences were observed between patients with bone metastasis with a tumor mass and those with other types of bone metastases. However, the association of squamous cell carcinoma, female gender, lytic lesion, and bone metastasis with tumor mass was common.

Some researchers have studied prognostic factors in patients with bone metastases [4-7]. In a study of 350 patients with skeletal metastases, Katagiri et al. reported that the patient's performance status, primary lesion site, presence of multiple skeletal metastases, presence of visceral or cerebral metastases, and history of previous chemotherapy were important prognostic factors [4]. Van der Linder et al. reported a median survival time of 7 months for 342 patients with vertebral metastases, and Karnofsky stated that the performance score, primary tumor type, and absence of visceral metastasis were significant predictors for survival [5]. In the present study, the presence of bone metastasis with a tumor mass, male gender, weight loss, having a large number of lesions, poor ECOG performance status were found to be poor prognostic factors in univariate analysis. In addition, in multivariate analysis, the presence of bone metastasis with a tumor mass, weight loss, male gender, having a large number of lesions, old age were also independent poor prognostic factors.

Conclusion

The presence of bone metastasis with tumor mass in metastatic lung cancer has been identified as one of the independent prognostic factors that adversely affect survival. In addition, the association of squamous cell lung carcinoma, female gender, lytic lesion, and bone metastasis with tumor mass was common.
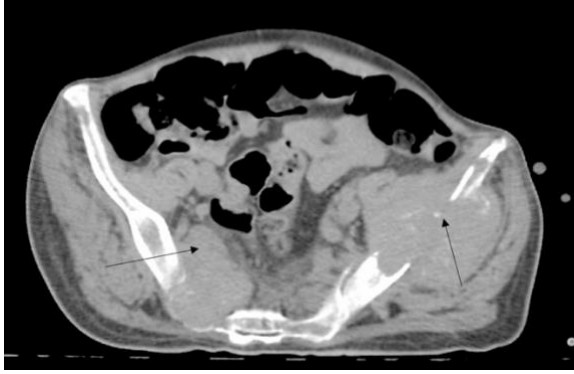
Figure 1. Bone metastasis with tumor mass (lesion indicated by arrow)

Table 1. General characteristics of the patients

	Bone metastasis without tumor mass N=121 (%70)	Bone metastasis with tumor mass N=52 (%30)	*p* value
Sex			
Female	98 (67)	49 (33)	0.018
Male	23 (89)	3 (11)	
Pathology			
Squamous cell carcinoma	26 (59)	18 (41)	
Adenocarcinoma	56 (70)	24 (30)	0.045
Small cell carcinoma	32 (84)	6 (16)	
Others	7 (64)	4 (36)	
Weight loss			
No	69 (66)	36 (34)	0.090
Yes	52 (77)	16 (23)	
ECOG			
ECOG 0	12 (60)	8 (40)	
ECOG 1	52 (75)	17 (25)	0.354
ECOG 2 and above	57 (68)	27 (32)	
Alkaline phosphatase			
<130 IU/L	65 (68)	30 (32)	0.214
≥130 IU/L	52 (75)	17 (25)	
Calcium			
<10.7 mg/dL	114 (72)	45 (28)	0.247
≥10.7 mg/dL	5 (56)	4 (44)	
Metastasis type			
lytic	32 (48)	34 (52)	
Osteoblastic	62 (95)	3 (5)	<0.001
Mixed	27 (71)	11 (29)	
Number of lesions			
1	11 (85)	2 (15)	
2-9	75 (72)	29 (28)	0.219
10 and above	35 (63)	21 (37)	
Spinal cord compression			
No	107 (88)	14 (12)	0.025
Yes	39 (75)	13 (25)	
Pathological fracture			
No	105 (71)	42 (27)	0.215
Yes	16 (62)	10 (38)	
Number of organ metastases			
Bone metastasis	33 (72)	13 (28)	0.456
Multiorgan metastasis	88 (69)	39 (31)	
Radiotherapy dose			
8 Gy/1 fraction	9 (100)	-	
20 Gy/5 fraction	15 (79)	4 (21)	0.067
30 Gy/10 fraction	95 (66)	48 (34)	
Radiotherapy response			
No	18 (64)	10 (36)	0.568
Yes	40 (63)	23 (37)	

Table 2. Prognostic factors affecting survival in lung cancer patients with bone metastases

Univariate analysis	1 year survival (%)	Median survival (Month)	p value
Bone metastasis with tumor mass			
No	31	6	0.002
Yes	14	3	
Metastasis type			
lytic	16	4	0.123
Osteoblastic	31	6	
Mixed	26	4	
Alkaline phosphatase			
<130 IU/L	31	6	0.046
≥130 IU/L	18	3	
Calcium			
<10.7 mg/dL	26	5	0.201
≥10.7 mg/dL	-	1	
Number of lesions			
1	51	17	0.010
2-9	23	5	
10 and above	20	4	
Number of organ metastases			
Bone metastasis	33	6	0.079
Multiorgan metastasis	24	4	
ECOG			
ECOG 0	36	6	0.002
ECOG 1	36	6	
ECOG 2 and above	15	3	
Weight loss			
No	32	6	0.036
Yes	17	4	
Pathology			
Squamous cell carcinoma	18	4	0.055
Adenocarcinoma	36	6	
Small cell carcinoma	14	4	
Others			
Sex			
Female	21	4	0.004
Male	59	13	
Age			
<65 years	33	6	0.087
≥65 years	17	3	

Table 3. Independent prognostic factors affecting survival in lung cancer patients with bone metastases

	p value	HR	%95 CI
Bone metastasis with tumor mass			
Yes vs. No	0.020	1.56	1.07-2.27
Sex			
Female vs. Male	0.032	0.56	0.34-0.95
Age			
≥65 vs. <65 years	0.009	1.61	1.31-2.30
Weight loss			
Yes vs. No	0.001	1.86	1.29-2.68
Number of lesions			
2-9 vs. 1 lesion	0.002	3.62	1.61-8.16
≥10 vs. 1 lesion	0.002	3.81	1.64-8.84
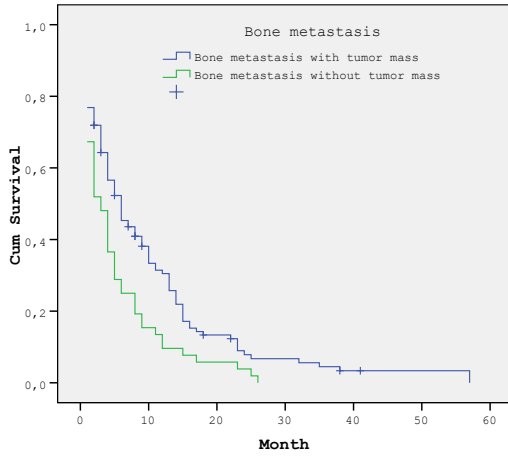
Figure 2. The survival curve of patients without and with bone metastasis with tumor mass

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DETERMINATION OF CYTOTOXIC EFFECT OF AMYGDALIN IN DLD-1 CELL LINE AND ANTICYTOTOXIC EFFECT IN CCD-18CO CELL LINE

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Abstract

Amygdalin has been used for years as a component of different pharmaceuticals with anti-inflammatory, antimicrobial or regenerative properties in the pharmaceutical industry [1]. Amygdalin is commonly found in the seeds of Rosaceae fruits such as apricots, peaches, and plums, and mainly in bitter almonds (about 2-3%). It is an aromatic aminoglycoside with a molecular formula of $C_{20}H_{27}NO_{11}$ and a molecular weight of 457.43, containing one unit of benzaldehyde, one unit of hydrocyanic acid and two units of glucose [2]. The antitumor effects of amygdalin are mainly through influencing the cell cycle, inducing apoptosis, producing cytotoxic effects, and regulating the body's immune function [3]. The aim of this study was to evaluate the cytotoxic and anticytotoxic effects of amygdalin on human colon cancer cells (DLD-1) and normal colon epithelial cells (CCD-18Co) using the MTT test. For this purpose, cells were grown in flasks containing RPMI-1640 (Roswell Park Memorial Institute) (DLD-1) and EMEM (Eagle's Minimum Essential Medium) including 10% fetal bovine serum (FBS) at 37°C under 5% CO_2. Cells were treated with different concentrations of amygdalin (100-50-25-12.5-6.25-3.125-1.56 g/mol) for 24 hours. Cell viability was measured using the following formula: Viability (%) = mean experimental (optical density) OD value / mean control OD value) x 100%. It showed that amygdalin has the ability to induce cytotoxicity in the cancer cell line used, depending on the concentration. According to the results, the percent viability values for the DLD-1 cell line are between 48.3-71.6%; The percent viability values for the CCD-18Co cell line ranged from 101.6% to 117.9%. IC50 values were measured as 74.03 g/mol and CCD-18Co 79.66 g/mol for the DLD-1 cell line. Amygdalin exhibited cytotoxic effect in DLD-1 cell line and anticytotoxic effect in CCD-18Co cell line. More research is needed to elucidate the pharmacological mechanisms of amygdalin in terms of optimal dosage, feasibility of combining amygdalin with other antitumor drugs, and even artificial synthesis of the active

ingredients in amygdalin to increase its antitumor activities. Our work will be supported by PCR, Real-time PCR and Western Blot.

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INVESTIGATION OF PARACETAMOL, PARABEN AMOUNTS IN SEPAL AND SEPAL STEMS OF *Diospyros kaki* FRUIT

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Abstract

The paradise palm (*Diospyros kaki*), which is a winter fruit, is very beneficial for human health. Persimmon, paradise palm, Japanese palm, or Mediterranean palm, locally known as ambe or amme. It is a tree species from the *Ebenaceae* family that grows in subtropical climate zones such as the Mediterranean Region.

Persimmon leaves contain flavonoid oligomers, tannins, phenols, organic acids, chlorophyll, vitamin C and caffeine (1). Its leaves are widely used for tea in Asia. Previous studies have shown that persimmon leaves have beneficial effects on hemostasis, constipation, hypertension, apoplexy, and atherosclerosis (1-5).

Paracetamol (acetaminophen) was marred by the discovery in 1966 that a major overdose could be complicated by serious and sometimes fatal liver damage (6).

In this study, it was aimed to determine whether Paracetamol and Paraben substances are found in the stem parts of the *Diospyros kaki* plant and its fruit, and if so, to determine the amount. It is the stem parts that hold the fruit of the persimmon plant analyzed in this research. These are the dates of paradise bought from the markets in Konya in November-December 2021. Persimmon fruits were dried by removing the stems and methylene was extracted at a ratio of 1:10. Methylene was evaporated in the evaporator and the extraction was analyzed in Aksaray University Central Laboratory. It is aimed to determine the amount of paracetamol and paraben in the ethanol extract of the stem parts surrounding the persimmon. The substances obtained as a result of the extraction were analyzed by Aksaray University Scientific and Technological Application and Research Center Agilent 1260 brand (U.S.A.) 1200 Infinity Series model HPLC device.

In our research, the amount of Paracetamol and Paraben substance investigated in the methanol extract of fruit stalks; Paracetamol was determined as 3.32 ppm, but Paraben could not be detected. High and low doses of paracetamol cause problems in treatment, it is very important to know how much it is found in all plants. Paraben is a carcinogenic substance or not, it is of great importance for health.

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FORSKOLIN ENHANCES THE PACLITAXEL SENSITIVITY OF BREAST CANCER CELLS

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Abstract

Forskolin is a labdane diterpene isolated from the Indian plant Coleus forskohlii, functions as a hedgehog pathway antagonist, and has been proven effective medication for various diseases including heart disease, hypertension, diabetes, and asthma [1]. Forskolin activates adenylate cyclase, which increases intracellular cAMP levels. Studies have shown that Forskolin has an antioxidant and anti-inflammatory action in various tissues and cell types [2]. In the present study, we aimed to investigate the effects of Forskolin in breast cancer cells treated with paclitaxel. Cell proliferation assay was handled by XTT, and apoptosis was determined by flow cytometry analysis. Increasing concentrations of Forskolin and paclitaxel were applied alone to MCF-7 cells and the IC_{50} of both molecules was calculated as 47.2 µM and 7.5 µM, respectively. When ineffective concentration (5 µM) forskolin was administered in combination with increasing concentrations of paclitaxel, the IC_{50} of paclitaxel was found to be 6.2 µM. Apoptosis results determined by the flow cytometry method show that administration of Forskolin-paclitaxel combination induces apoptosis in MCF-7 cells more than paclitaxel alone. According to our results, it is thought that the combination of Forskolin and paclitaxel may be an alternative anticancer strategy that can enhance cytotoxicity through the induction of apoptosis in breast cancer.
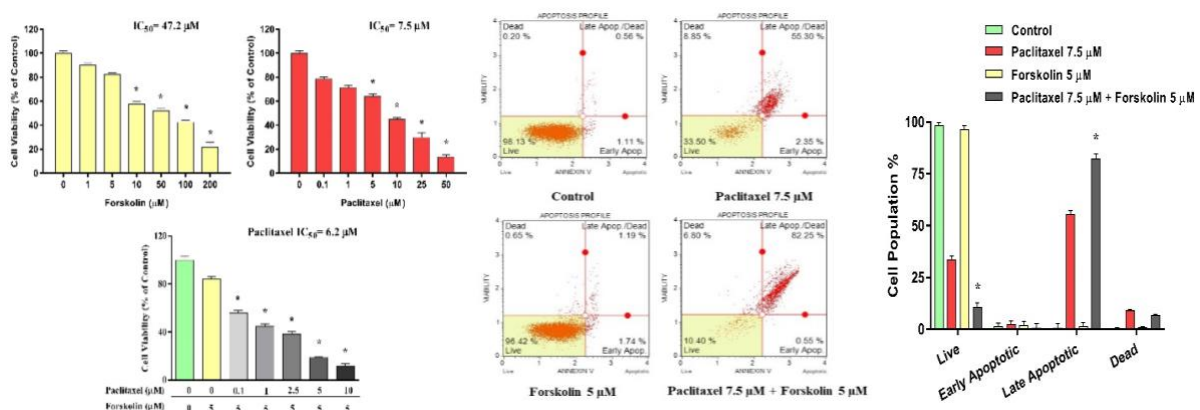
Figure 1. The effects of Forskolin and Paclitaxel administration on cytotoxicity and apoptosis in MCF-7 cells.

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III. INTERNATIONAL CANCER DAYS

DETERMINING THE NEEDS OF LUNG CANCER PATIENTS RECEIVING OUTPATIENT CHEMOTHERAPY TREATMENT

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Abstract

Aim: To determine the needs of adult lung cancer patients receiving outpatient chemotherapy treatment at Sivas Cumhuriyet University Health Services Practice and Research Hospital, Oncology Center.

Method: The study is descriptive-cross-sectional. "Personal Information Form" and "Cancer Needs Scale Short Form" were used to question the sociodemographic and disease status of the patients [1]. SPSS 24 package program was used to evaluate the data, Kruskal-Wallis, Mann Whitney U tests and percentage, mean, standard deviation were used. Significance was accepted as $p < 0.05$.

Results: It was determined that the care needs of lung cancer patients were moderate. Cancer Needs Scale Short Form total score average (min:7.81, max:97.66) was 45.27±18.47. The mean scores of the sub-dimensions of the scale were 50.27±27±20.87, Psychological 47.57±21.81, Interpersonal Relations 44.08±23.58, Physical and Daily Life 42.87±31.21, Patient Care and Support 34.23±21.30, respectively. While the need for health information is in the first place as patient needs, care and support take place in the last place. The mean age of the patients (min:34, max:80) was 62.08±7.914, 20% of the participants (n=18) were female, (n=72) 80% were male, (n=82) 91.1% 'i are married, (n=8) 8.9% are single. Of the 68 smokers, 94.1% (n=64) were male and 5.88% (n=4) were female. 52.3% (n=47) of the patients were diagnosed 20 days to 6 months ago, 11.1% of them were at Stage I, 11.1% at Stage II, 30.0% at Stage III, 47.8% at IV. Stage Lung cancer was determined.

Conclusion and Recommendations: Systematic assessment of the needs of lung cancer patients is an important step in planning patient-centered, patient-specific cancer care. By determining the care needs of patients, it can be ensured that they benefit from health care services effectively. We believe that including the patient in care and determining the needs of the patient himself will lead to the quality of care and increase patient satisfaction.

Keywords: *Lung Cancer, Outpatient Treatment, Care Needs*

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CONTACT WITH HARMFUL CHEMICALS AND CANCER

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Abstract

Problems such as changes in people's lifestyles and standards and environmental pollution have seriously affected human health. It is known that many substances that people eat, drink, use in daily life and are exposed to are harmful to human health. At the beginning of these substances are the substances called "chemicals". The use of these chemicals has accelerated with the development of industry and technology. It has been determined that many chemicals, which were previously considered harmless, cause diseases, irreversible damages, and deterioration of the genetic structure over time.

Cancer is one of the diseases caused by these chemicals. In the cancer statistics of 2020, it has been reported that there are 201 cases of cancer in every 100 thousand people in the world. Despite all the successes in the diagnosis, treatment, and prevention of cancer in recent years; Unfortunately, the war waged by scientists against cancer has not been fully won yet. In this study, the relationship between cancer and chemicals that are frequently used in daily life without being aware of it are discussed.

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EVALUATION OF EMOTIONAL LABOR AND COMPASSION FATIGUE IN HEALTH PROFESSIONALS WORKING WITH ONCOLOGY PATIENTS

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Abstract

Introduction: Cancer is the most important health problem today leading cause of death worldwide. Emotional labor, by definition, refers to the emotional effort of a person in the work environment. In other words, emotional labour is defined as the management of the feelings in workplace. Emotions are the last phenomenon; health care workers may incorporate to the labour process. Health care workers have to exert emotional labor in order to reach an effective result in the service and care process. The feeling of compassion makes the patient seen as a 'person'. Compassion may be defined as sadness and pity felt for a person who is in a poor condition. It is quite natural that healthcare professionals, who assume the most important role in the field of health where human life is concerned, have compassion on their patients. Compassionate care in health services is a topic that has recently begun to draw attention both in our country and in the world in recent times. Emotional labour and compassion are a component of healthcare professionals. People who work in health care can be exposed to the fatigue of care.

Aim: This study was planned to evaluate the emotional labor and compassion fatigue levels of doctors, nurses, health technicians working with cancer patients in a university hospital.

Method: This study is a cross-sectional and relational study. The sample of this descriptive type of study consisted of and healthcare professionals (doctor, nurse, health technician/technicians) who work in a university hospital. Permissions for the study were obtained from the ethics committee and the university hospitals. The data was collected by "an

information gathering form", *"Emotional Labor Scale"(ELS)* and *"Compassion Fatigue-Short Scale"*. The data were analyzed by using quantitative analysis methods in SPSS program. It was used frekans, percentage, mean, standard deviation, Kruskal Wallis test, Mann Whitney U test and Spearman Correlation analysis for the analysis of the data. The difference between the variables was interpreted based on the significance level of p<0.05. Cronbach Alpha coefficient was used for scale reliability. Correlation analysis was applied to examine the relationship between scales and their dimensions.

Results: The average age of participating was found to be 34.17±9.16. 26.5% of the participants doctor, 56.1% of the participants nurse, 17.3% of the participants health technician, 72.4% of the participants are women, 39.8% of the participants are single. Considering their educational status, it is seen that 43.9% of the participants are undergraduate graduates. Emotional Labor Scale mean score is 35.31±9.25; surface acting average score (min:6, max:30); deep acting (min:4, max:20) 10.92±4.56; natural behaviors (min:3, max:15) 12.05±3.16. The mean score of the *"Compassion Scale"* of the healthcare professionals was (min:13, max:130) 49.14±28.26. Second trauma dimension mean score is (min:5, max:50) 19.15±12.40; burnout dimension mean score is (min:8, max:80) 29.98±17.25. There is a positive relationship between emotional labor score and compassion fatigue scores.

Conclusion: Institution managers should provide support and create an appropriate clinical environment for of healthcare professionals to manage the process of emotional labor better.

Keywords: *Emotional Labor, Compassion, Compassion Fatique*

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CANCER NEUROSCIENCE: CROSSTALK BETWEEN THE NERVOUS SYSTEM AND CANCER

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Abstract

Cancer neuroscience focuses on the interactions between cancer and the nervous system. This new discipline aims to recognize the participation of the nervous system in cancer and how the nervous system communicates with cancer [1]. This interaction is bidirectional (Figure 1); the nervous system could influence tumor growth and development by regulating the immune response, angiogenesis, and the secretion of hormones and neurotransmitters, while the effects of tumors on the nervous system mainly include the invasion, destruction of the brain structures and the treatment-associated neurotoxicity [2]. Glutamatergic neuronal activity in the brain supports glial precursor cell proliferation; at the same time, the activity of glutamatergic neurons has been shown to direct also the growth of malignant gliomas in experimental model systems [3]. On the other hand, neurotransmitter and growth factor signals derived from the peripheral nerve regulate the progression of various cancers, including pancreas, stomach, colon, prostate, breast, oral, and skin cancers [4-5]. Cancers also tend to invade neuronal sheath surrounding nerves, a process known as perineural invasion, causing chronic pain syndromes. In addition, the long-term harmful effects of traditional cancer treatments such as radiation and chemotherapy on nervous system functions are well known. Recent studies have revealed new mechanisms of neuron–tumor interactions and provided a candidate list of potential antitumor therapeutic targets, of which many are synaptic proteins [6]. Although our understanding of cancer neuroscience is still in its infancy, advances in cancer-neuron interaction will bring new perspectives to cancer treatment.
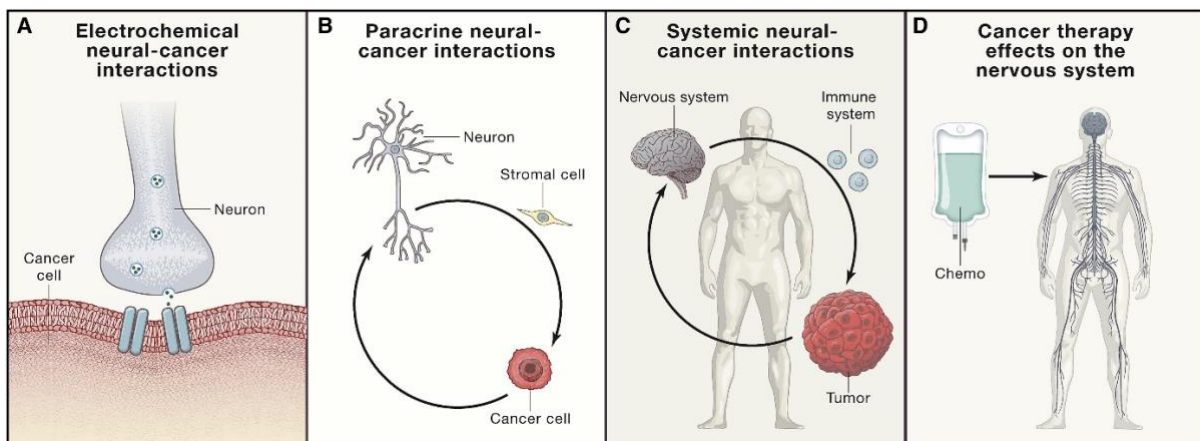
Figure 1. Interactions between the Nervous System and Cancer [7].

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THE EFFECTS OF HEMOGLOBIN-ALBUMIN-LYMPHOCYTE-PLATELET (HALP) SCORE ON OVERALL SURVIVAL AND DISEASE-FREE SURVIVAL IN STAGE 1-3 PANCREATIC CANCER

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Abstract

   Introduction: The mortality of pancreatic cancer is very high. It is the 4th most common cause of cancer-related deaths (1). Our study investigated the prognostic importance of hemoglobin-albumin-lymphocyte-platelet (HALP) score in pancreatic cancer.

   Results: There were 67 patients, 21 (31.3%) female, and 46 (68.7%) males, diagnosed with stage 1/2/3 pancreatic cancer at Karadeniz Technical University between 2008 and 2018. The median age was 65 (min. 59, max. 73). Of the patients, 32 (47.8%) were operated on, and 35 (52.2%) were not. Six of the patients (9%) were T1, 18 (26.9%) T2, 9 (13.4%) T3, 21 (31.3%) T4, 13 (19.4%) T-staging could not be done. Twenty-three (34.3%) patients were N0, 11 (16.4%) N1, 9 (13.4%) N2, 24 (35.8%) N staging could not be done. 2 (3%) patients were stage 1A, 6 (9%) stage 1B, 4 (6%) stage 2A, 30 (44.7%) stage 3, 25 (37.3%) patients' phase is unknown. The median overall survival (OS) was 12 months (95% CI, 8.9-15.0), and the median disease-free survival (DFS) was 7 months (95% CI, 5.6-8.3). There was no difference between men and women in terms of OS and DFS (11 months vs. 13 months, p:0.81 and 6 months vs. 8 months, p:0.72). The cut-off value for the HALP score at the time of diagnosis was 44.56. There was no statistically significant difference in OS and DFS in those below and above the cut-off value (median OS 11 months vs 14 months p:0.72 and median DFS 6 months vs 8 months p:0.25). Delta HALP score was obtained by subtracting the HALP score at the time of metastasis from the diagnosis. The median OS was 16 months in patients with delta HALP <0 and 11 months in patients with >0 (p:0.074). The median DFS was 8 months (95% CI, 5.6-10.4) in patients with delta HALP <0 and 6 (95% CI, 4-7.9) months in patients with >0 (p:0.32).

   Conclusion: The importance of the HALP score and delta HALP score in predicting OS and PFS in pancreatic cancer has not been demonstrated. There is a need for more extensive and comprehensive studies on this subject.

**Keywords:** *Pancreatic Cancer, HALP Score, Delta HALP Score, Overall Survival, Disease Free Survival*

1. Introduction

Pancreatic cancer is cancer with very high mortality. It is the fourth most common cause of cancer-related deaths and the second most common cause of gastrointestinal cancer-related deaths (1). Usually, the diagnosis is made in the late stages and therefore they have passed the operable stage at the time of diagnosis. The prognosis is not very good in operable pancreatic cancers. In R0 resections after pancreatoduodenectomy, 5-year survival is 30% for node-negative patients and 10% for nod-positive patients (2).

The most important factor determining the prognosis of pancreatic cancer is the stage of the tumor. In addition, the presence of the tumor in the surgical margins, the degree of differentiation of the tumor, the presence of lymph vascular invasion, Ca 19-9 levels, and whether the patient smokes are also important in determining the prognosis (3,4,5,6).

In recent years, the effect of host factors in determining the prognosis of many cancers has been investigated. It has been shown that inflammation of the host significantly affects the prognosis (7,8). At the same time, it has been shown that the nutritional status of the host is important in determining the course of the disease, especially in gastrointestinal system malignancies (9,10).

The hemoglobin-albumin-lymphocyte-platelet (HALP) score consists of 4 laboratory parameters that can evaluate both the inflammatory and nutritional status of the host. Studies are showing its prognostic importance in many cancers (11). Based on these studies in the literature, we investigated whether the HALP score at the time of diagnosis has an effect on overall survival and disease-free survival in pancreatic cancer, which is usually diagnosed at late stages if it is diagnosed in the non-metastatic stage.

2. Method

The records of 67 patients diagnosed with stage 1, stage 2, and 3 pancreatic cancers at Karadeniz Technical University Medical Faculty Hospital between 2008 and 2018 were retrospectively analyzed. Hemoglobin(g/L) *albumin(g/L) *lymphocyte(/L): platelet/L formula was used for HALP score. The delta HALP score was calculated by subtracting the HALP score at the time of diagnosis from the HALP score at the time of metastasis. It was investigated whether this score affected overall survival and disease-free survival.

SPSS 22.0 statistical program was used in the analysis of the data. Descriptive statistics of evaluation results; numbers and percentages for categorical variables, mean, standard deviation, and median for numerical variables were given. Kaplan-Meier method was used for survival analysis. The cut-off value for the HALP score was determined using the literature. The cut-off value for the Delta-HALP score was accepted as zero. The statistical alpha significance level was accepted as $p < 0.05$.

3. Results and Discussion

3.1. Part 1

There were 67 patients, 21 (31.3%) female, and 46 (68.7%) males, diagnosed with stage 1, 2, and 3 pancreatic cancer in Karadeniz Technical University Faculty of Medicine between 2008 and 2018. The median age was 65 (min. 59, max. 73). Of the patients, 32 (47.8%) were operated on, and 35 (52.2%) were not. Six of the patients (9%) were T1, 18 (26.9%) T2, 9

(13.4%) T3, 21 (31.3%) T4, 13 (19.4%) T-staging could not be done. Twenty-three (34.3%) patients were N0, 11 (16.4%) N1, 9 (13.4%) N2, 24 (35.8%) N staging could not be done. 2 (3%) patients were stage 1A, 6 (9%) stage 1B, 4 (6%) stage 2A, 30 (44.7%) stage 3, 25 (37.3%) patients' stage is unknown. There were liver metastases in 43 (64.2%) patients, extra-hepatic metastases in 16 (23.9%), and liver and other organ metastases in 8 (11.9%) patients.

The median overall survival (OS) was 12 months (95% CI, 8.9-15.0), and the median disease-free survival (DFS) was 7 months (95% CI, 5.6-8.3). There was no difference in OS and DFS between males and females. The median OS was 11 months (95% CI, 8.0-13.9%) in females and 13 months (95% CI, 9.6-16.3) in males (p:0.81). The median DFS was 6 months (95% CI, 3.3-8.6) in females and 8 months (95% CI, 6.3-9.6) in males (p:0.72).

The cut-off value for the HALP score at the time of diagnosis was 44.56. There was no statistically significant difference in terms of OS and DFS in those below and above the cut-off value. Median OS was 11 months (95% CI, 7.9-14.0) in patients <44.56 and 14 months (95% CI, 9.4-18.5) in patients >44.56 (p:0.72). The median DFS was 6 months (95% CI, 4.9-7.0) in patients with <44.56 and 8 months (95% CI, 4.9-11.0) in patients with >44.56 (p:0.25).

Delta HALP score was obtained by subtracting the HALP score at the time of metastasis from the diagnosis. The median OS was 16 months (95% CI, 12.7-19.2) in patients with delta HALP <0 and 11 (95% CI, 8.7-13.2) months in patients with >0 (p:0.074). The median DFS was 8 months (95% CI, 5.6-10.4) in patients with delta HALP <0 and 6 (95% CI, 4-7.9) months in patients with >0 (p:0.32) (Figure 1). The median PFS was 6 months (95% CI, 4.3-7.6) in patients with delta HALP <0 and 3 (95% CI, 1.3-4.6) months in patients with >0 (p:0.059) (Figure 2).

3.2.Part 2

Recent studies have shown that systemic inflammation and malnutrition are very important components that affect the course of cancer. The HALP score, which is a scoring system consisting of a combination of hemoglobin, albumin, lymphocyte, and platelet values, evaluates both systemic inflammation and the nutritional status of the host. Knowing its prognostic importance in many cancers makes the clinician's work easier, since it is a scoring system that can be calculated by routine hemogram and biochemistry tests in every diagnosed patient, and therefore easily accessible.

In a study conducted on 582 radically resected pancreatic cancer patients published in 2020, it was shown that there is a relationship between HALP score and lymph node metastasis, tumor differentiation, and stage. Earlier recurrence and shorter survival were observed in resected pancreatic cancer patients with low HALP scores, irrespective of gender and tumor localization (12). Based on similar studies in the literature, we wanted to investigate whether there is a relationship between HALP score, recurrence time, and overall survival in early-stage pancreatic cancer patients in our center. We took the HALP score cut-off value from the reference study. Although we found the median OS and DFS to be shorter in the numerically lower HALP score group, this difference was not statistically significant (median OS: 11 months vs 14 months, p:0.72 and median DFS: 6 months vs 8 months, p:0.25).

In some studies, in the literature, the lack of a standardized cut-off value for the ratios we used to evaluate the systemic inflammatory response and nutritional status was considered a limitation of the studies. For this reason, it has been recommended to find the delta values by calculating the change in scores in each patient and to perform a survival analysis based on these values (13,14). Based on this information, we obtained the delta HALP scores by subtracting the HALP scores at the time of diagnosis from the HALP scores at the time of metastasis of our patients, and we investigated whether these scores affected OS, DFS, and PFS. Although the OS, DFS, and PFS were longer numerically in those with delta HALP <0, our results were not statistically significant (median OS: 16 months vs 11 months, p:0.074 and median DFS: 8 months vs 6 months, p:0.32 and median PFS: 6 months vs 3 months, p:0.059).

In our study, although numerical differences were shown between the HALP score and delta HALP score and OS, DFS, and PFS in pancreatic cancer, no statistically significant difference could be shown. It should be noted that these results may also be due to the limitations of our study. One of the limitations of our study is the fact that pancreatic cancer is usually diagnosed at the metastatic stage, although our center is the Eastern Karadeniz region hospital, having 67 patients in 10 years. The other limitation of our study is that the laboratory values of each patient could not be reached and the HALP score could not be calculated. In addition, the fact that not all of our patients could be operated on and the pathology reports of the patients who could be operated on were not standardized, and accordingly, the inability to evaluate the effect of the pathological features of the tumor on the prognosis are among the limitations of our study.

4. Conclusion

In our study, the importance of gender, HALP score and delta HALP score in predicting OS and DFS in early-stage pancreatic cancer could not be demonstrated. There is a need for more extensive and comprehensive studies on this subject.
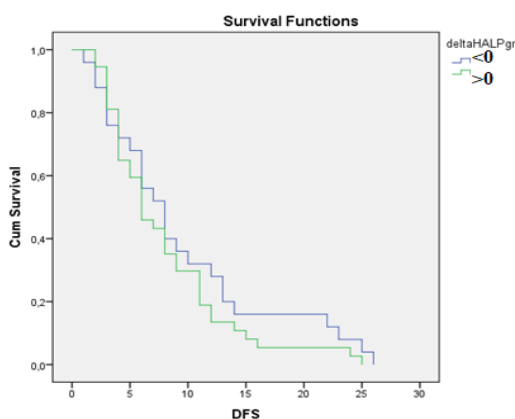
Figure 1. Relationship between Delta HALP score and disease-free survival (DFS).
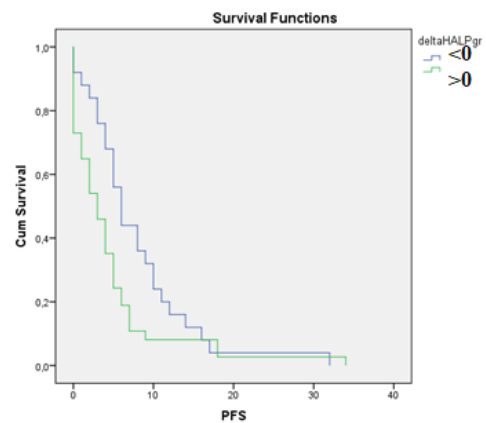
Figure 2. Relationship between Delta HALP score and progression-free survival (PFS)

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EVALUATION OF PATIENTS WITH THE INITIAL DIAGNOSIS OF BONE METASTASES

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Abstract

Bone is a location where many tumors prefer to metastasize. In the case of bone metastasis, the patient's quality of life is affected. This situation, which is difficult to treat, requires multidisciplinary teamwork. In our study, it was aimed to present the patients who presented with bone metastasis for the first time and their treatment management.

Keywords: *Bone metastasis, Breast cancer, Fracture*

Introduction

Bone location, next to the lung and liver, is one of the most common sites of metastasis [1]. Lung, breast, prostate, thyroid, and kidney are among the most common tumors that metastasize to bone. Between 10 and 30% of all these bone metastases present with pathological fractures [2]. Surgical treatment is required for these patients to improve their quality of life and control pain [3]. Despite the treatment methods developed in recent years, the management of bone metastasis is difficult. Teamwork, which requires the cooperation of different doctors from many branches, is important. In our present study, it was aimed to present our cases diagnosed with bone metastasis for the first time and their treatment management.

Method

Eleven patients with first diagnosis of bone metastasis between 2019-2021 were included in our study. Sociodemographic information of the patients was collected retrospectively. The diagnoses, age and gender of the patients were recorded. Bone localizations were noted by examining radiological images. Bone metastasis pattern and lesion characteristics were examined. The treatment methods applied to the patients were recorded.

The data were analyzed by entering the SPSS (ver.23 IBM) program. Figure 1 shows a metastatic bone lesion in the humerus.

Figure 1. AP radiograph of the proximal humerus. An osteolytic lesion is observed in the bone.

Results and Discussion

Early diagnosis of the tumor is important. It is necessary to perform certain tumor screening tests, especially in advanced age. The mean age of our patients was 67.6 years. Age and gender should be considered in the differential diagnosis of tumors. Two of our cases were male and nine were female. Bone metastasis is now an indication of distant metastasis of the tumor. In our study, 11 patients were first diagnosed with bone metastases. Many tumors like to metastasize to the bone. These include the breast and lung. This is followed by kidney, thyroid and prostate cancers [4]. In our series, three patients were breast, two patients were thyroid, three patients were lung, one patient was kidney, one patient was multiple myeloma, and the last patient was a malignant tumor of unknown origin.

The main complaints of the patients were pain and pathological fracture. Doctor examination is important in risky age groups for long-term pain. In case of bone metastasis, the patient should be protected from pathological fracture. Pain, localization, and lesion size should be evaluated on patient radiographs. A clinical decision can be made by evaluating these according to the Mirel scoring system [5].
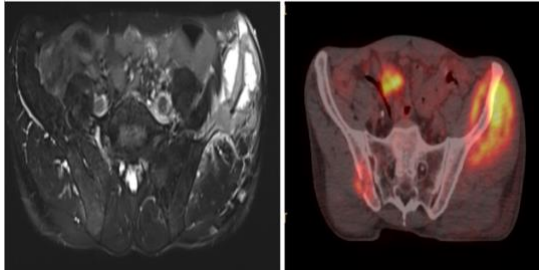
Figure 2. The left: MRI image shows metastasis in the iliac wing. Right, In the PET image of the same patient, metastases are observed in both iliac wings.

One of patient with metastasis due to thyroid cancer died on the day of operation. In some bone metastasis surgeries, attention should be paid to bleeding. Renal thyroid and multiple myeloma are among them [6].

If the bone metastasis was located in the shaft, intramedullary nail was preferred for the treatment. Prosthesis surgery was preferred for joint involvement such as proximal femur. Radiotherapy option was preferred in patients with lesions in inoperable areas or small lesions. Multidisciplinary approach to bone metastasis is important for local and systemic treatment [7].

Metastases occur mostly to the vertebrae in the skeletal system. In addition, the femur, upper extremity, and pelvis are the most common sites of metastasis. In our series, three patients presented with upper extremity, two patients with pelvis and multiple metastases, and six patients with femoral involvement (Figure 2). It was observed that the most common involvement was in the femur (Figure 3).

Figure 3. AP image of the proximal femur. In this graphy, an osteolytic lesion is observed in the proximal femur. The lesion starts from the trochanter minor medially and extends downward.

Conclusion

Amputation treatment can be considered in cases that do not benefit from radiotherapy and chemotherapy. In addition, amputation was considered a viable option for wound control and pain palliation in the remaining days of the patient.

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A FOREQUARTER AMPUTATION and NEGLECTED BONE METASTASIS

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Abstract

Many types of cancer metastasis to bone. Metastasis to the bone is common among breast cancers. Our study is a case of neglected breast cancer-related bone metastasis. There was a diagnosis of humeral bone metastasis and squamous cell carcinoma in the same region. The patient underwent forequarter amputation. Our article aims to present the management of such a patient and the forequarter amputation technique.

Keywords: *Bone Metastasis, Breast Cancer, Forequarter Amputation*

Introduction

Breast cancer is the most common type of cancer among women. Metastases after primary treatment often occur to the bone. Bone metastases are frequently seen in the vertebrae and long bones. [1]. In case of metastasis, pain is the most complained symptom. In addition, osteolytic lesions can be observed on direct radiography. Amputation options can be considered in tumors with metastases to the shoulder region. Forequarter amputation is one of these treatment methods. It can be done to cure the patient or for palliative purposes. In our present study, palliative forequarter amputation and patient management in a neglected case of bone metastasis are presented.

Figure 1. Preoperative image of the patient's right upper extremity. Soft tissue lesion starting from the distal 1/3 of the humerus and extending to the proximal. It is observed that the bone protrudes from this wound. There is swelling of the forearm and cyanosis. The circulation problem is monitored. Lesions are also observed in the anterior region of the shoulder.

Method

57 years old female patient. A prophylactic intramedullary nail operation was performed due to humeral bone metastasis. Then radiotherapy was applied to this area. In the follow-up, discharge started in the field of radiotherapy in the 2nd year postoperatively. In the biopsy taken, a diagnosis of squamous cell carcinoma of the soft tissue was made. The patient remained unfollowed for a while by not accepting the recommended treatments. The image of the upper extremity before the operation is shown in the figure (Figure 1). Tumor metastasis in the humerus is observed in the direct X-ray of the patient (Figure 2).

Figure 2. Humerus anterior-posterior direct radiograph. A humeral intramedullary nail from the previous surgery is observed in the humerus. An osteolytic lesion extending from the proximal to the distal humerus draws attention**.**

The patient was prepared in the lateral position under general anesthesia. An incision was planned to start from the anterior and extending to the axillary region and joining from the posterior. The clavicle was cut from the 1/3 medial. The vascular nerve bundles under the clavicle were carefully ligated. Posteriorly, the scapula was separated from its medial surface. Muscle connections were cut, and the entire upper extremity was separated from the trunk starting from the scapula. Muscle and skin cover were closed by considering nutrition. The postoperative image of the patient and the amputate are shown in Figure 3.

Figure 3. Postoperative view of the patient. The wound site of the patient is observed in the anterior, posterior, and lateral views. Showing the amputee in the figure on the right.

Results and Discussion

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Breast cancer is the most common type of cancer among women. There is an increase in the incidence in the community. Survival rates are increasing with treatment methods and early diagnosis [2]. Skeletal metastases are a common cause of severe morbidity, reduced quality of life, and early mortality [3].

Forequarter amputation is the separation of the upper extremity, including the scapula, from the trunk. The first oncological amputation was performed in 1834 [4]. This treatment can be applied for curative or palliative purposes. In our presented case, this amputation was performed for wound control and pain control. In the literature, it has been stated that forequarter amputation can be used safely in lymphedema, pain control, wound control and metastatic disease control [4]. On the other hand, there are some difficulties with this amputation. The first of these is the psychosocial effect. In addition, as with any amputation, patients may experience phantom pain [5].

Conclusion

Amputation treatment can be considered in cases that do not benefit from radiotherapy and chemotherapy. In addition, amputation for wound control and pain palliation in the remaining days of the patient was seen as a suitable option in our study.

Acknowledgments

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III. INTERNATIONAL CANCER DAYS

ASSOCIATION OF ASBESTOS EXPOSURE WITH LUNG CANCER

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Abstract

Asbestos is a well-known mineral to cause lung cancer. The causal relationship between asbestos and lung cancer was considered in the 1930s and proved in 1955 [1]. The use of asbestos began to be restricted and prohibited in the 1960s, with the detection of conditions such as mesothelioma and lung cancer in workers. After the first quarter of the 20th century, asbestos was determined as a Group 1A carcinogen in the "Carcinogenic Substances" list by the World Health Organization and the International Cancer Research Center [2]. Most of the asbestos enterprises in the world have ceased their activities since the end of the nineties due to the negative effects of asbestos on human health. Today, the operation and trade of asbestos are banned all over the world [3].

Although industrial use is not very high in Turkey, exposure to environmental asbestos is an important health problem. It is very difficult to completely clean the asbestos fibers mixed with the room air. Asbestos material was used in all buildings and facilities built between the 1930s and 1980s [3]. Demolition of these buildings containing asbestos poses a risk to people around the building, especially to workers [4].

Asbestos, a speck of invisible fibrous dust, accumulates in the lungs when inhaled. It causes tissue damage in the lung due to its rough and hooked structure. Epidemiological studies have unequivocally revealed that asbestos exposure is the cause of diseases that can have fatal consequences such as lung cancer, mesothelioma (lung membrane cancer), larynx (larynx) and ovarian cancer, and asbestosis (dust accumulation in the lungs and damage to the lung tissue) [5]. Contact points of asbestos are environmental contact and occupational (industrial) exposure and asbestos exposure is an important public health problem in Turkey [6].

Generally, an average of 30 years of asbestos exposure is required for mesothelioma to occur, but death occurs within about 1 year after diagnosis [7]. To prevent serious lung diseases such as mesothelioma, lung cancer, and asbestosis, asbestos removal should be done by authorized persons and natural environments should be rehabilitated [4]. In addition, the planning and implementation of educational activities aimed at raising public awareness about the harms of asbestos in rural areas are necessary.

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SKIN TUMORS IN SIVAS CUMHURIYET UNIVERSITY, FACULTY OF MEDICINE, DEPARTMENT OF PATHOLOGY DURING PRE-PANDEMIC AND POST-PANDEMIC PERIODS

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Abstract

Melanoma and nonmelanoma skin cancer (NMSC) is now the most common types of cancer in white-skin individuals. The most common cancers in NMSC are basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). We aimed to reveal our data on skin tumors in Sivas Cumhuriyet University (SCU), Faculty of Medicine, Department of Pathology for pre-COVID19 and post-COVID19 over two periods of 14 months according to tumor location, age distribution, and gender ratio. At the same time, we also aimed to compare the findings of our study with previous studies. Our findings were evaluated from SCU archives retrospectively, referring only to the sample from the SCU, Faculty of Medicine, Department of Pathology. In addition to these, we also evaluated tumor diameters for squamous cell carcinoma and Clark's level of invasion, and Breslow's thickness for melanoma.

Taking into consideration all the data in our study revealed that there has been a slight increase in skin cancer cases after the pandemic started in the studied sample from Sivas Cumhuriyet University, Faculty of Medicine, Department of Pathology. 219 patients who had incisional or excisional biopsies between January 2019 and May 2021 were diagnosed with skin tumors. Out of these, 103 (47,03%) cases were found before the pandemic, and 116 (52,97%) cases after the pandemic started. The most common skin cancer patients presented with was basal cell carcinoma (69,8%), followed by squamous cell carcinoma (20,5%) and a few cases of melanoma (9,7%). A greater percentage was registered among male patients, melanoma being an exception, with the most cases in the 71+ years old age range for both melanoma and basal cell carcinoma and the 50-70 years old age range for squamous cell carcinoma. When tumor localizations were observed in BCC, the most common area was the auricular area before the pandemic, and the most common localization after the pandemic was the dorsal part of the nose. SCC localizations were the same in both periods. In melanoma, a specific localization was not determined because we analyzed only 21 patients' pathological reports.

Keywords: *Skin Tumors, Basal Cell Carcinoma, Squamous Cell Carcinoma, Melano*

Introduction

Traditionally skin tumors are classified as non-melanoma skin cancer (NMSC) and melanoma skin cancer (MSC). Non-melanoma skin cancer (NMSC) has been classified as Keratinocyte tumors, Appendageal tumors, Tumors of hematopoietic and lymphoid origin, soft tissue tumors, and Inherited tumor syndromes associated with skin malignancies by WHO [1]. And, keratinocyte tumors have been classified as basal cell carcinoma (BCC), squamous cell carcinoma (SCC), Bowen disease, actinic keratosis, verrucas, and acanthomas [1].

Melanoma and nonmelanoma skin cancer (NMSC) is now the most common types of cancer in white-skin individuals. The most common cancers in NMSC are BCC and SCC. Basal cell carcinoma (BCC) is the most common cancer in white-skinned individuals with increasing incidence rates worldwide [2]. Moreover, melanoma is included in the classification of melanocytic tumors, and it is a very aggressive type of cancer [1,2,3].

Basal cell carcinoma is the most common skin cancer occurring four to five times as frequent as squamous cell carcinoma [4]. It often presents as a pink, pearly macule, papule, nodule, or plaque with rolled borders and accompanying telangiectasias on sun-exposed skin of older adults, particularly involving the head, neck, trunk or less frequently the proximal extremities. Although fair skinned individuals are most commonly affected, it can occur in darker skin types [1-4].

Squamous cell carcinoma is the second most common skin tumor in White European Ethnicity [1,5]. The classic clinical and pathological features of this neoplasm are an ulcerated papule located in sun-exposed areas and an infiltrating neoplasm consisting of keratinized epithelioid cells seen on histopathological sections [6].

Melanoma is less common but much more aggressive than basal or squamous cell carcinoma. As with other cutaneous malignancies, melanoma is strongly linked to acquired mutations caused by exposure to UV radiation in sunlight [7]. Melanoma is a type of skin cancer that originates in melanocytes- the cells that produce melanin, a pigment that gives skin its color. The most common warning sign for melanoma is a new or changing mole, variation in color and increase in diameter, asymmetry of borders and may be accompanied by bleeding, itching, ulceration, and pain [8,9].

In this study, we aimed to reveal our data on skin tumors in Sivas Cumhuriyet University (SCU), Faculty of Medicine, Department of Pathology for pre-COVID19 and post-COVID19 over two periods of 14 months according to tumor location, age distribution, and gender ratio.

Method

219 patients who had incisional or excisional biopsies between January 2019 and May 2021 were diagnosed with skin tumors. Out of these, 103 cases were found before the pandemic, and 116 cases after the pandemic started. From a statistical point of view, our findings were evaluated from SCU archives retrospectively, referring only to the sample from the SCU, Faculty of Medicine, Department of Pathology.

Patients were retrospectively evaluated before and after the pandemic regarding their age, gender, and tumor location. In addition to these, we also evaluated tumor diameters for squamous cell carcinoma and Clark's level of invasion, and Breslow's thickness for melanoma.

Results and Discussion

Basal Cell Carcinoma (BCC)

Following the analysis of the sample of patients from the SCU, Faculty of Medicine, Pathology Department, several results were found as follows.

The number of cases before and after the pandemic did not register a significant change, the esantion being very close, respectively 78 were diagnosed before the pandemic and 75 received the diagnosis of basal cell carcinoma after the pandemic (Figure.1.1.).
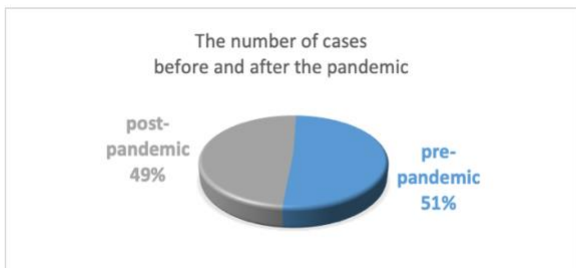
Figure.1.1. The number of cases before and after the pandemic

From the point of view of gender distribution, a marked presence of the diagnosis can be observed in the case of male persons with a percentage of 59% and 62%, both before and after the pandemic. Regarding women, we notice a decrease in the percentage from 41% before the pandemic to 37% after the pandemic. The situation does not change in the case of men, the number of cases being very close to the value before the pandemic. (Figure.1.2.).
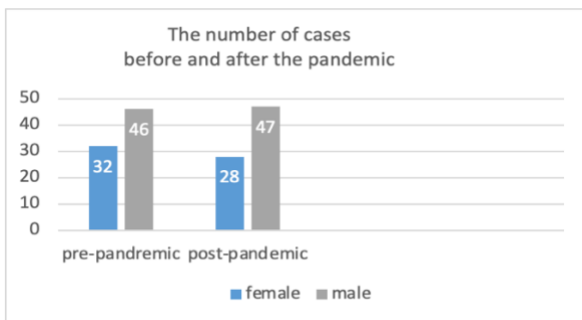
Figure.1.2. The number of cases before and after the pandemic

A more detailed analysis of the cases from the point of view of the gender related to age intervals is observed as follows (Figure.1.3 and 1.4).
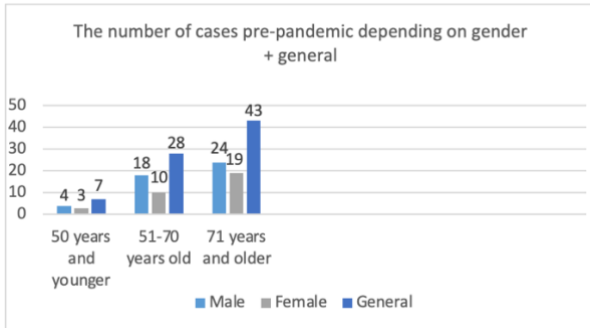
Figure.1.3. The number of cases pre-pandemic depending on gender and general

Before the pandemic, from the gender perspective, it is observed that there is a predilection for male patients comparing to female. At the same time, the diagnosis was most common for both women and men in the 70-79 age range, with an increasing trend for the age range of 51-70 years old. (Figure.1.3. and 1.4). We note that the most common age in this interval is 76 years old.
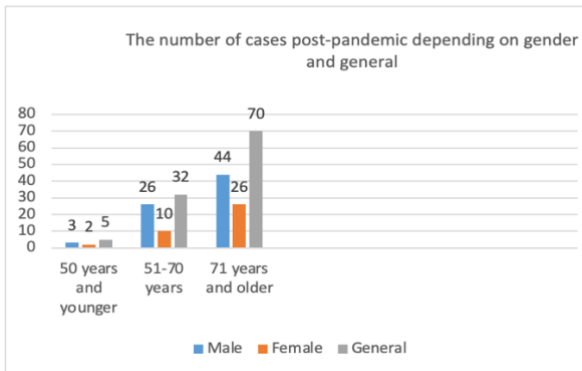
Figure.1.4. The number of cases post-pandemic depending on gender and general

The situation does not change even after the pandemic, we observe this both from the perspective of gender and age. The diagnosis is again with a predilection for men and in the same age ranges, the highest incidence being between 70-79, again with an increasing trend in 50-70 years. In this case, most of the diagnosed patients were 71 years old.

Regarding the location of tumors, certain locations are evident both before and after the pandemic, including: the dorsal part of the nose, the alar nose, the auricular area, and the canthus area.
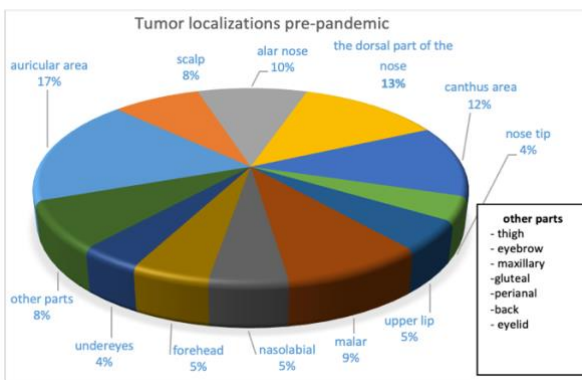
Figure.1.5. Pre-pandemic BCC tumor localizations

Furthermore, the reports of patients who applied to SCU Hospital and were diagnosed with BCC by the Department of Pathology were evaluated for tumor localization. Tumor localization distribution of BCC cases before and after the pandemic has been shown in Figure1.5. and 1.6.
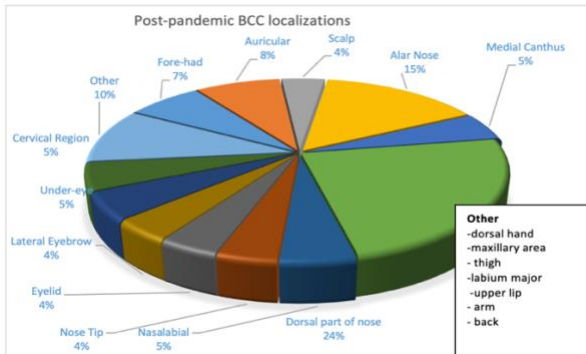
Figure.1.6. Post-pandemic BCC tumor localizations

Histopathologic features of Basal cell carcinoma were shown in pictures 1, 2.
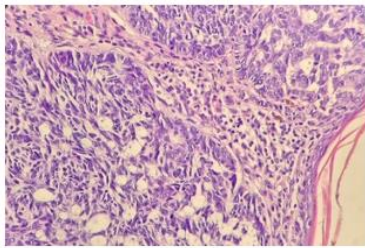
Picture 1. (Basal cell carcinoma H&E, 50X).   **Picture 2.** Basal cell carcinoma (H&E, 25X)
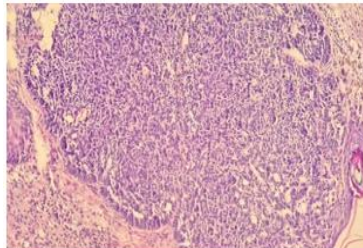
Squamous Cell Carcinoma (SCC)

The distributions of 45 SCC cases, which are the subject of our study, before and after the pandemic was shown in Figure 2.1.
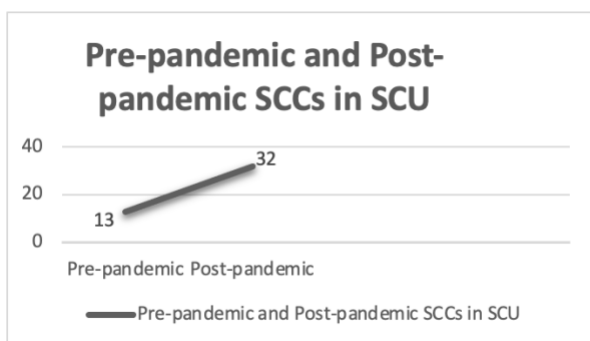
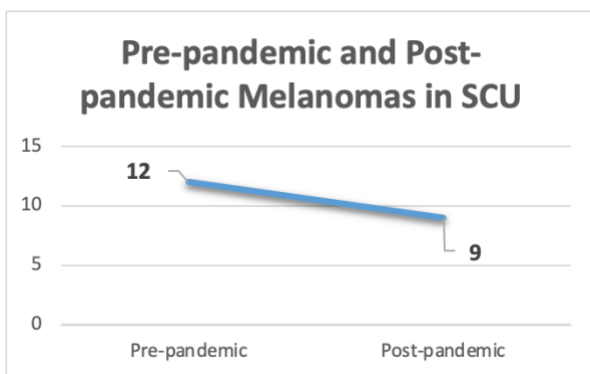**Figure 2.1**. Pre-pandemic and post-pandemic SCCs

Therefore, 32 of these 45 patients (71,1%) who applied to SCU were registered after the pandemic, and 13 patients (29,9%) registered before the pandemic.

Considering the gender distribution of the cases, it was concluded that 15 (33,3%) of these 45 patients were females and 30 (66,7%) were males. Gender distribution of SCC cases before and after the pandemic has been shown in Figure 2.2.
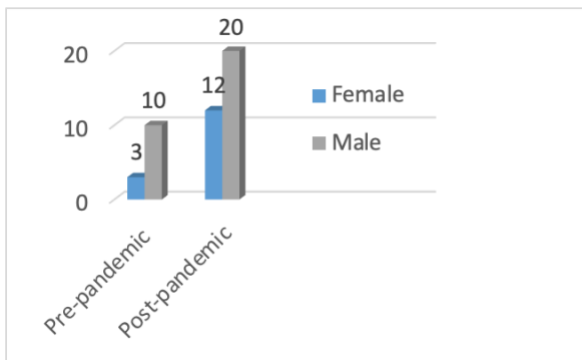
Figure 2.2. The distribution of gender

The distribution of cases by age was shown in Figure 2.3. It was observed that 9 of 13 patients (69,2%) were between the ages of 51-70 between January 2019 and March 2020, and 15 of 32 patients (46,8%) were between 51-70 years old between March 2020 and May 2021.
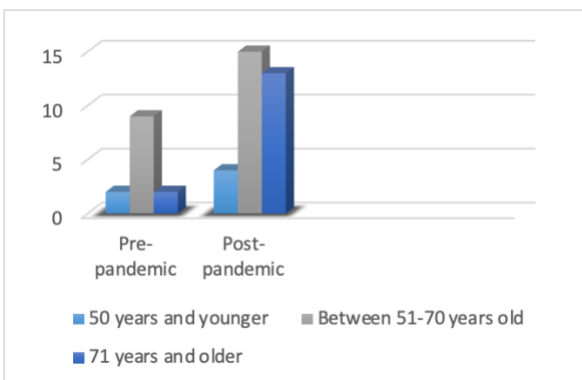
Figure 2.3. The distribution of age

Considering the tumor localizations in the detected cases before the pandemic, the most common localization is lower lip (5), dorsal hand (2) and oral mucosa (2) were shown in Figure 2.4.
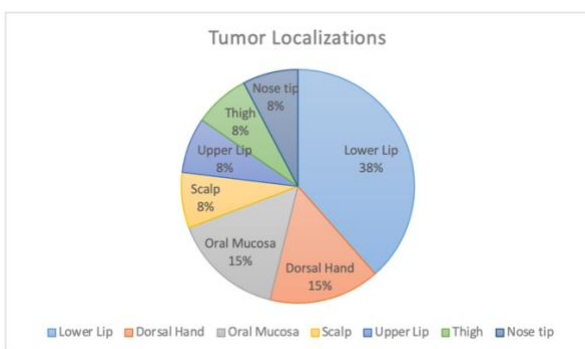
Figure 2.4. Pre-pandemic SCC tumor localizations

Accordingly, the most common localization after the pandemic is lower lip (8), auricular region (5), malar region (5) and oral mucosa (5) were shown in Figure 2.5.
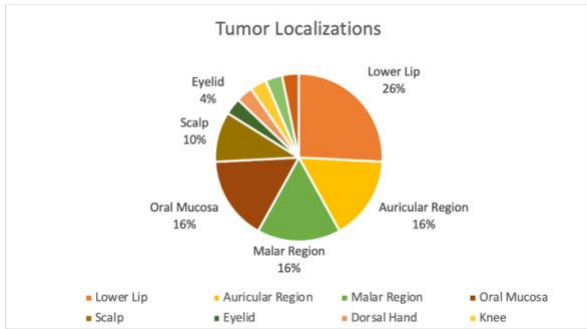
Figure 2.5. Post-pandemic SCC tumor localizations
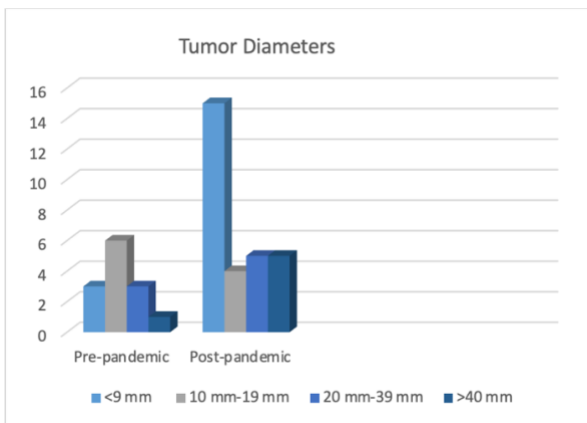
Figure 2.6. Tumor diameters

Tumor diameters recorded in the pathology reports of patients admitted to SCU, Department of Pathology and diagnosed with SCC were examined retrospectively. There was only one case of 40 mm or above in patients diagnosed before the pandemic. However, this number increased to five cases after the pandemic. Tumor diameters among our cases were shown in Figure 2.6.

Histopathologic features of squamous cell carcinoma were shown in pictures 3,4.
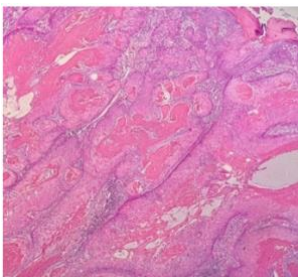
Picture 3. Squamous cell carcinoma (H&E, 25X)
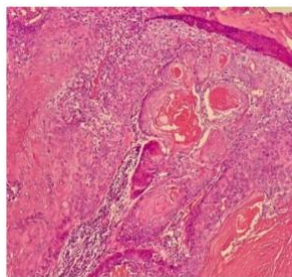
Picture 4. Squamous cell carcinoma (H&E,50X)

Melanoma

Continuing, our study also involved patients with malignant melanoma, with a total of 21 cases for the time frame January 2019- April 2021. 12 (57,14%) of these patients were diagnosed before the pandemic (January 2019-February 2020) and 9 (43,86%) patients were diagnosed after the beginning of the pandemic (March 2020-April 2021). Patients were retrospectively evaluated regarding their age, gender, tumor locations, Clark's level, and Breslow's thickness. The distribution of 21 MM cases, which are the subject of our study, before and after the pandemic was shown in Figure 3.1.

Figure 3.1. Pre-pandemic and Post-pandemic Melanomas

Considering the gender distribution of the cases, it was concluded that melanoma was higher among females. 14 (66,6%) of the 21 patients were females and 7 (33,3%) were males, graphically represented by the Figure 3.2.
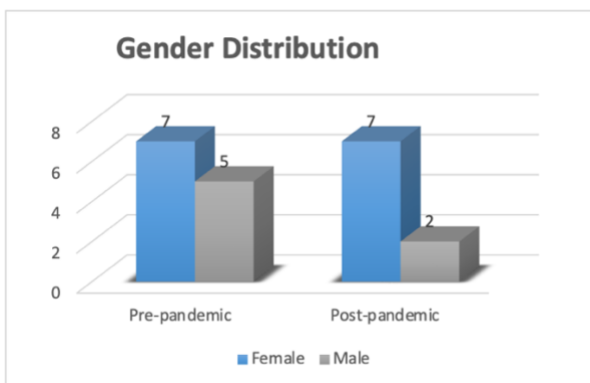
Figure 3.2. The gender distribution

Figure 3.3. shows the distribution of cases according to patients' age. Following the data, it was observed that during the pre-pandemic period the highest number of cases was found in the 71+ years old category 5 cases out of 12, which stands for 41,6%. Similarly, in the post-pandemic period the most cases were found in the 71+ years old category 4 cases out of 9, which represents 44,4% out of total cases.
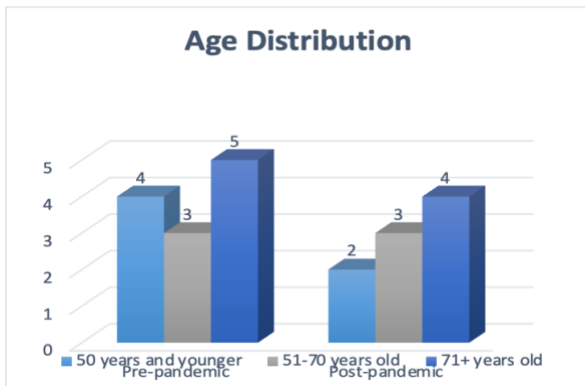
Figure 3.3. Age distribution

Further, the localization of tumors detected in the pre-pandemic period was shown in Figure 3.4.

Figure 3.4. Pre-pandemic Melanoma tumor localizations

According to the data the lower case was in sun-exposed regions (pre-auricular, neck, dorsal nose and, scalp) a total of 5 cases, whereas in the non-exposed areas (anal, thigh), heel, dorsum pedis, hallux and oral mucosa) there were a total of 7 cases, but with no significant difference.

In the post-pandemic period, there was no specific localization of melanoma, because of the number of patients. The tumor localizations were shown in Figure 3.5.
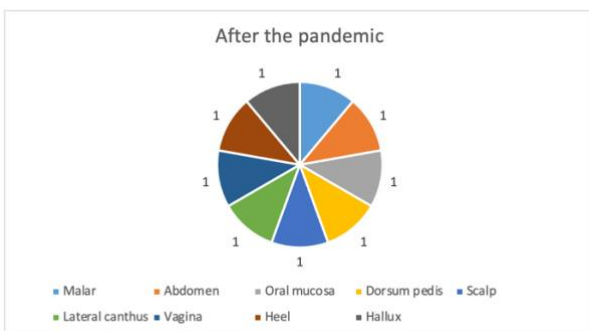
Figure 3.5. Post-pandemic Melanoma tumor localizations

Regarding the size of the melanoma, out of the 12 pre-pandemic patients, 10 had excisional biopsies and only 5 out of the 9 post-pandemic patients had excisional biopsies which gives the possibility to study Breslow thickness and Clark's level. Breslow thickness measures the depth of melanoma from the top of the granular layer to the deepest point of the tumor, while Clark's level indicates invasion. Clark's level 1 indicates a melanoma limited to the epidermis (melanoma in situ), level 2: invasion of papillary dermis, level 3: invasion of the junction of papillary and reticular dermis, level 4: invasion of reticular dermis and level 5: invasion of subcutaneous tissue [10,11].

In our study, it was noticed that in both pre-pandemic and post-pandemic period, the most cases had a Breslow's thickness of less than 2 mm, 8 cases out of 15 (53,3%). (Figure 3.6.).
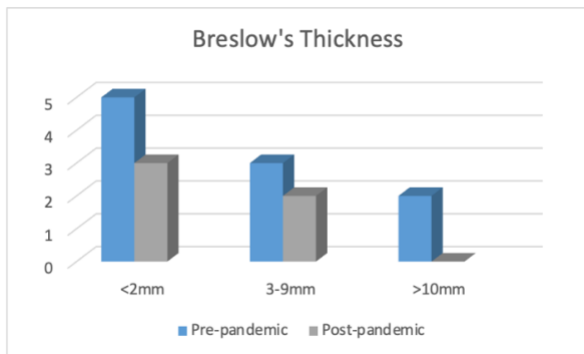
Figure 3.6. Breslow's thickness

The other size index, Clark's level of invasion, reveals that most cases in the pre-pandemic period were found with a level of 5 (invasion of subcutaneous tissue) 4 cases out of 10 (40%), while in the post-pandemic period, most cases had a level of 2 and 3- 2 cases each (40% each). (Figure 3.7.).
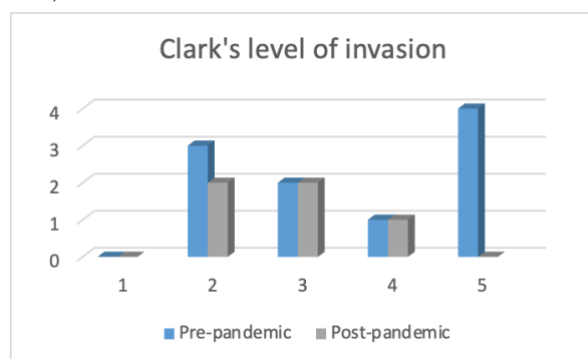
Figure 3.7. Clark's level of invasion

Histopathologic features of melanoma were shown in pictures 5-7. (H&E, X 25)
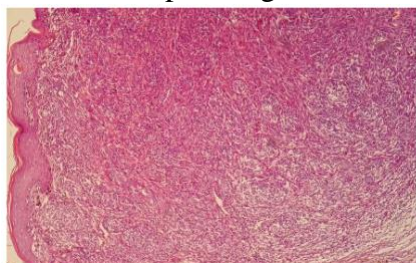
Picture 5. Melanoma (H&E, 25X)
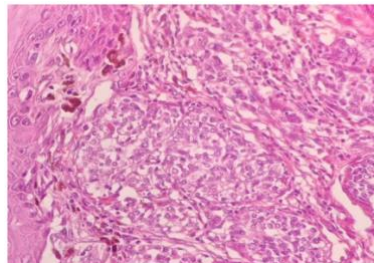
Picture 6. Melanoma (H&E, 50X)
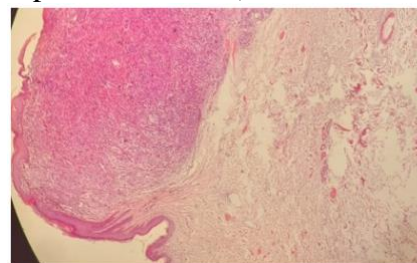
Picture 7. Melanoma (H&E,10X)

Discussion

The evaluation of the whole work with this complex topic has resulted in the following ideas. The data reveals a significant difference in the number of cases between the three types of cancer studied.

Out of 219 total cases, the prevalent one was BCC, with 153 cases in total (69,8%), followed by SCC 45 cases (20,5%) and lastly, melanoma 21 cases (9,7%). There is a slight increase in the total number of cancer cases after the pandemic started, 116 cases comparing to 103. Out of the three, there is a significant increase in the number of squamous cell carcinoma, from 13 to 32, while the other two vary insignificantly. For both BCC and SCC there is a predilection for men (60,7% and 66,6% respectively) while melanoma was more common in women (66%). The common age range was 71+years old for both BCC and melanoma while SCC occurred more in the 50-70 years old range.

Ruben et all's article said that the high prevalence of BCC among other skin cancers has been supported by that the overall incidence of BCC is rising across the globe by about 3 to 10% annually [12]. Squamous cell carcinomas represent about 20%, and BCCs represent 80% of non-melanoma skin cancers. The development of BCC is strongly linked to exposure to ultraviolet radiation, with the UV exposure resulting in cumulative DNA damage and gene mutations. The rising incidence of BCCs has also been attributed to increased longevity [13].

The American Cancer society estimates that in 2012, 5.4 million cases of nonmelanoma skin cancers (NMSCs) were diagnosed in 3.3 million people, of which approximately 8 in 10 cases would have been BCC [14].

At the same time, following an investigation from Nurses' Health Study and Health Professionals Follow-up Study carried out for 20 years (1986 to 2006), highlights a rate of 519 cases of BCC for 100,000 females and 606 cases per 100,000 males in 1986, with an important change for incidence in 2006: 1019 cases for 100,000 females and 1488 cases for 100,000 males. The studies strengthen the idea of rapid increase in basal carcinoma cases [15].

Basal cell carcinoma has been referred to as "epitheliomas" because of their low metastatic potential. However, the term carcinoma is appropriate since they are locally invasive, aggressive, and destructive of skin and the surrounding structures, including bone [16].

Incidence and trends of basal cell carcinoma and cutaneous squamous cell carcinoma: a population-based study in Olmsted County, Minnesota, 2000–2010 says that: For men and women, the most common location of cutaneous SCC was the head and neck. The second most common location was the extremities, with women (38.1%) having a greater tendency than men (24.4%) to have tumors on the upper and lower extremities. The torso was the least likely cutaneous SCC location. The overall incidence of cutaneous SCC increased by 263% between 1976–1984 and 2000–2010, which was disproportionately higher than the increase in BCC. Among men, cutaneous SCC incidence decreased between the 1985–1992 and 2000–2010 periods, but among women, incidences increased in many age groups. Women ages 50–59 had the greatest increase in incidence the next greatest increases were in the 70–79 and 40–49 age groups [17].

Further, talking about SCC and our research results, there was a significant increase in SCC patients admitted to the hospital after the pandemic. The distribution was higher in males both before and after the pandemic. When we examine the age distribution, the most common age range of SCC is 51-70 years. Considering all SCC cases, the most common localization was the lower lip, both before and after the pandemic. Other common localizations before the pandemic were the dorsal hand and oral mucosa. After the pandemic, though, other common localizations were the auricular region, malar region, and oral mucosa. Finally, when we looked at the tumor sizes, we observed that 9 mm and below tumors increased significantly after the pandemic.

On the other hand, melanomas had the lowest incidence in our study and time frame. Overall, melanoma is the fifth most common malignancy in men and the seventh most common malignancy in women, accounting for 5% and 4% of all new cancer cases respectively. Melanomas commonly occur in male patients younger than 55 years and account for the third-highest number of lives lost across all cancers [18]. However, the result of our study shows a higher prevalence in women (66%), aged 71+ years old (42,85%), probably due to the small sample.

Melanomas most commonly arise on sun-exposed surfaces and lightly pigmented individuals are at higher risk than darkly pigmented individuals [19]. However, in our study there was no significant difference between cancer incidence on sun-exposed or non-exposed areas (5 versus 7 cases), most patients having scalp, oral mucosa, thigh, hallux, and dorsum pedis melanoma.

Taking into account the two specifications of the article and the book, solar damage is observed in both cases, BCC, and melanoma, but the aggressiveness being much higher, and prognosis more reserved in the case of melanoma.

Speaking about melanoma tumor size, it was noticed that in both pre-pandemic and post-pandemic period, the most cases had a Breslow's thickness (tumor depth) of less than 2 mm, 8 cases out of 15 (53,3%). Clark's level of invasion indicates that most cases in the pre-pandemic period had a level of 5 (invasion of subcutaneous tissue)- 4 cases out of 10 (40%), while in the post-pandemic period, most cases had a level of 2 and 3- 2 cases each (40% each), suggesting the cases have been detected earlier.

Conclusions

Taking into consideration all the data presented above, our study revealed that there has been a slight increase in skin cancer cases after the pandemic started in the studied sample from Sivas Cumhuriyet University, Faculty of Medicine, Department of Pathology. Out of the total 219 skin cancer registered in the time frame January 2019- May 2021, 103 (47,03%) were registered before and 116 (52,97%) after the beginning of the pandemic. When we combined all the cases, we found that basal cell carcinoma, squamous cell carcinoma and melanoma were the most common ones, respectively, as in previous studies. The most common skin cancer patients presented with was basal cell carcinoma (69,8%), followed by squamous cell carcinoma (20,5%) and a few cases of melanoma (9,7%). A greater percentage was registered among male patients, melanoma being an exception, with the most cases in the 71+ years old age range for both melanoma and basal cell carcinoma and the 50-70 years old age range for squamous cell carcinoma.

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III. INTERNATIONAL CANCER DAYS

A RARE TYPE OF GYNECOLOGICAL CYST: PARATUBAL SEROUS CYST ADENOFIBROMA

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Abstract

Introduction: Paratubal cysts, which mostly appear as asymptomatic embryological remnants (paramesonephric, mesonephric), are usually diagnosed in reproductive age. They are usually small in size. It is detected incidentally during routine examination, mostly asymptomatically. Very rarely, it reaches large sizes and is symptomatic and may require surgery. Differential diagnosis from other pelvic masses is difficult. It is important that it is clinically evaluated and symptomatic. The treatment is cyst excision.

Case: A 38-year-old married female patient had no complaints until 3 months ago. He was referred to our clinic with the preliminary diagnosis of pelvic mass from an external center with abdominal swelling and right inguinal pain. The patient was evaluated by pelvic ultrasonography. A simple cystic lesion with a diameter of approximately 25x 28cm was observed in the right adnexal area. The intraoperative material was sent for frozen examination and the frozen result was reported as no malignancy. The final pathology was reported as adenofibroma, a serous cyst originating from the right tube.

Discussion: Cystic pelvic masses are usually of ovarian origin. Serous cyst adenofibromas constitute approximately 20 percent of benign ovarian tumors [1]. Paratubal cysts constitute approximately 10% of adnexal masses. Para tubal cysts can rarely reach large sizes. The differential diagnosis of Para tubal cysts growing into the ligament of broad and ovarian neoplasms is not always possible. In our case, although the cystic mass filling the entire abdomen was benign, it could not be differentiated from ovarian lesions. In the laparotomy performed with a midline incision, the mass filling the entire abdomen and not related to other pelvic organs was excised. The pathology of the mass was reported as paratubal serous cyst adenofibroma. In conclusion, although the cyst size is very large in simple-looking pelvic cysts on ultrasound, paratubal cysts should also be considered in the differential diagnosis. Treatment should be decided according to the patient's age, desire for fertility and the malignancy status of the neoplasm [2].

Keywords: *Paratubal Serous Cyst Adenofibroma, CA-125, Malignancy*

Introduction

Paratubal cysts, which mostly appear as asymptomatic embryological remnants (paramesonephric, mesonephric), are usually diagnosed in reproductive age [3]. They are usually

small in size. It is detected incidentally during routine examination, mostly asymptomatically. Very rarely, it reaches large sizes and is symptomatic and may require surgery. Differential diagnosis from other pelvic masses is difficult. It is important that it is clinically evaluated and symptomatic. The treatment is cyst excision [4].

Ultrasonography, CT, or MRI can be performed in the preoperative evaluation; however, none of these imaging techniques have specific criteria for diagnosis. Therefore, misdiagnosis as an ovarian mass remains a problem in most cases. Paratubal cysts can become extremely large before they cause symptoms. Torsion is another pressing problem with PTCs that requires immediate surgery to preserve the ovary and tube. Although malignancy is rare, borderline paratubal tumors have been reported in the literature [5].

Case

A 38-year-old married female patient had no complaints until 3 months ago. She was referred to our clinic with the preliminary diagnosis of pelvic mass from an external center with abdominal swelling and right inguinal pain. A hard semi-mobile mass filling the entire abdomen was palpable during the examination. The patient was evaluated by pelvic ultrasonography. A simple cystic lesion with a diameter of approximately 25x 28cm was observed in the right adnexal area. Tumor markers: CEA: 0.853 ng/ml CA-19-9:11.1 U/ml CA-125:14.2 U/ml CA-15-3:10.6 U/ml. The patient underwent laparotomy with a median incision below the umbilicus, and on inspection, a simple fluid-filled cystic mass of approximately 25x30 cm originating from the right paratubal was observed densely adherent to the right ovary. The cyst content was aspirated about 5 liters and the cyst wall was removed. The intraoperative material was sent for frozen examination and the frozen result was reported as no malignancy. The final pathology was reported as adenofibroma, a serous cyst originating from the right tube.

Discussion

A paratubal cyst is a closed, fluid-filled sac that grows unilaterally in the broad ligament between the uterus and the ovary [6]. Since the tubes and broad ligaments are not usually visualized on ultrasound examination, the source of these tumors may be erroneously attributed to the ovaries, which are more common sites for neoplasms. Characteristic ultrasound findings such as unilateral cystic mass coated with non-stroma may help in the differentiation of paratubal cyst [7]. Similarly, the mass in this patient had a thin wall and septations without any solid noduler areas. Paratubal cysts are presumed to be originated from the remnants of paramesonephric (mullerian) or mesonephric (wolffian) ducts that are present during urogenital embryologic development [1].

Cystic pelvic masses are usually of ovarian origin. Serous cyst adenofibromas constitute approximately 20 percent of benign ovarian tumors. Paratubal cysts constitute approximately 10% of adnexal masses. Paratubal cysts can rarely reach large sizes [8]. The differential diagnosis of paratubal cysts growing into the ligament of Broad and ovarian neoplasms is not always possible. In our case, although the cystic mass filling the entire abdomen was benign, it could not be differentiated from ovarian lesions. In the laparotomy performed with a midline incision, the mass filling the entire

abdomen and not related to other pelvic organs was excised. The pathology of the mass was reported as paratubal serous cyst adenofibroma.

Pelvic masses reaching large sizes may present with pelvic pain in the form of acute abdomen as torsion cyst rupture. The patient who had no complaints until 3 months ago was admitted to our hospital with pelvic pain. Treatment options for paratubal cysts vary according to the patient's age, desire for fertility, and the neoplastic status of the lesion [9]. While surgical treatment is not required for simple-looking asymptomatic lesions smaller than 10 cm, surgical treatment should be considered for symptomatic lesions larger than 10 cm. In this case, we performed a laparotomy with a midline incision because the cyst was large and symptomatic. Partial oophorectomy was performed due to the excision of the paratubal cyst wall and tubal adhesions of the right ovary due to the patient's IVF treatment and desire for fertility. We terminated the surgery after the frozen examination result was reported as benign.

In conclusion, although the cyst size is very large in simple-looking pelvic cysts on ultrasound, paratubal cysts should also be considered in the differential diagnosis. Treatment should be decided according to the patient's age, desire for fertility and the malignancy status of the neoplasm.

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THE CYTOTOXIC EFFECTIVENESS OF PROPOLIS SAMPLES FROM SIVAS PROVINCE ON SK-OV-3 CELL LINE

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Abstract

Honey, pollen, propolis and other bee products are consumed as food from ancient times and are also natural products that are used as a traditional medicine in the treatment of many diseases [1-5]. The widespread use of all bee products to strengthen the immune system is a very popular topic in recent times. Today, the use of bee products in medical applications, as a food supplement, beverage substances, as a source of antioxidant, and antiaging in the cosmetic industries are becoming extremely common. Studies in the literature have shown that there are significant differences between the contents and biological activities of bee propolis from different botanical origins and different regions [6]. Within the scope of this study, propolis samples were obtained from various localities of Sivas, where beekeeping is intense. Propolis samples were obtained from beekeepers in the 2021 harvest period, and extractions were carried out in the laboratory using ethyl alcohol and water solvents. The scientific studies on bee products of Sivas province are very limited. In this study, it was aimed to determine and compare the cytotoxic activity of propolis samples collected different area of Sivas province in SK-OV-3 (Human ovarian cancer) cell line using MTT cell proliferation kit. MTT results were determined spectrophotometrically and IC50 values were calculated with the help of numerical data obtained by GraphPad Prism Version 8.4.1 software program. It was observed that ethyl alcohol isolates of propolis samples showed good antiproliferative activity in SK-OV-3 cell line (IC50 < 100 μg/mL). It is the first time to test the efficacy of propolis samples from Sivas region on the SKOV-3 cell line. It is thought that this study will be a beginning in terms of the therapeutic use of bee propolis samples from Sivas province and the preparation of new effective supplements.

Keywords: *Cytotoxic activity, bee products, SK-OV-3, propolis, Sivas*

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A BENIGN TUMOR THAT CAN BE CONFUSED WITH MALIGNANCY: LEIOMYOMA

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Abstract

Introduction: Leiomyomas are the most common indication for hysterectomy. Although the ligamentum latum is the most common site of extrauterine myomas, its incidence is <1%. Fibroids in the ligamentum latum can reach large sizes, but they are often asymptomatic [1]. In our case, we are discussing a 56-year-old patient with myoma in the ligamentum latum. Laparotomy was performed with the preliminary diagnosis of pelvic mass and ovarian malignancy in the patient who applied with the complaints of abdominal pain, vomiting and fever. The excised specimen was compatible with subserosal leiomyoma and weighed 5080 g with dimensions of 30 x 30 x 19 cm. This case report is important in terms of showing how large myomas can grow when controls are neglected.

Case Report: A 56-year-old multigravid patient presents to the emergency department with complaints of abdominal pain, vomiting and fever. On CT, a heterogeneous lesion of 25x14 cm in the widest part of the axial plane filling the intra-abdominal distance and the pelvis was observed. Histopathological verification of the mass lesion identified in the abdominopelvic area in PET CT in terms of possible malignancies (ovary/uterus) was recommended. Laparotomy was planned for the patient. A mass lesion originating from the left ligamentum latum filling the entire abdomen was observed intraoperatively. Intraoperative material was sent for frozen analysis. In the foreground, myoma was evaluated as uteri.

Discussion: Large uterine leiomyomas in the ligamentum latum uteri are difficult to diagnose and surgically excise. There is a high risk of mortality and morbidity during surgery. Such masses can be confused with malignancy of uterus and ovary. The possibility of malignancy should be considered before a planned surgery. Imaging methods should be used to prepare an appropriate preop. Such masses can cause adhesions and significantly alter the anatomy. We conclude that such cases require a comprehensive preoperative evaluation, good intraoperative management with an experienced surgeon, and careful postoperative care in order to achieve a successful outcome.

Introduction

Leiomyomas are the most common indication for hysterectomy. They present clinically in up to 25% of women and cause significant morbidity, including menometrorrhagia, pelvic pressure, pain, and in rare cases, infertility [2]. The ligamentum latum uteri is the most common extrauterine site for leiomyoma formation; however, the incidence is <1%. This benign tumor usually originates in the smooth muscle of the uterus. These benign tumors within the ligamentum latum are usually asymptomatic, but if they reach large sizes, they can cause chronic pelvic pain and dysfunction in

adjacent structures such as the bladder and bowel. They can also cause menstrual irregularities, especially with an accompanying intrauterine myoma [1]. They can be confused with uterine and ovarian malignancies because they can reach very large sizes asymptomatically. Here, we present a case of a 56-year-old female patient who presented with abdominal pain.

Case Report

A 56-year-old multigravid patient applied to the emergency department of an external center with complaints of abdominal pain, vomiting and fever. In the CT report of the patient, 25x14 cm intra-abdominal distance in the widest part of the axial plane and heterogeneous lesion filling the pelvis was reported. The patient was referred to the 3rd step hospital. The patient with elevated CRP was followed up in the General Surgery service. The patient has continued abdominal pain and on PET CT, is the mass in the abdomen a malignancy of the uterus or ovary? We were consulted by the General Surgery. In the ultrasound, a heterogeneous mass formation was observed 7-8 cm above the umbilicus, but filling the pelvis and abdomen, whose origin could not be determined clearly. Uterus and ovaries could not be observed clearly. Free fluid was not observed in the abdomen. The patient had pain in the physical examination findings, but there was no acute abdomen. There was a palpable mass in the entire abdomen extending to the xiphoid. The patient's vital signs were normal. Laboratory tests revealed C-reactive protein (CRP) and white blood cell (WBC) elevations. Hemoglobin was 12.6 g/dl. There was no abnormality in other parameters. CEA, CA-125, CA15-3, CA19-9 values were within the normal range. PET CT taken to the patient: "Heterogeneous increased FGF uptake was observed in the mass lesion, which filled the entire abdominopelvic area from the upper quadrant of the abdomen, containing cystic necrotic areas, and the metabolic size of which was approximately 30 cm in the sagittal plane, and the borders of the bowel loops and bladder could not be distinguished. Increased FGF uptake was observed in the bilateral paraaortic, right retrocrural, and left common iliac lymph nodes, the largest of which was approximately 14x14 mm in size. Histopathological verification of the mass lesion defined in the abdominopelvic area in terms of possible malignancies (ovarian? /Uterine?) was recommended. Lymph nodes defined in the abdominal area were evaluated in favor of metastasis in the foreground." reported as.

The patient was taken over from General Surgery. He planned laparotomy for the patient. Preoperative care was provided. Preoperative prophylactic antibiotics, low molecular weight heparin and anti-embolic compression stockings were applied. Blood product preparation and bowel preparation were done. A mass lesion originating from the left ligamentum latum filling the entire abdomen was observed intraoperatively. The uterus was observed to be displaced to the right. The mass lesion was adhered to the sigmoid colon posteriorly. After the adhesions were dissected, the patient underwent hysterectomy and bilateral salpingoopherectomy. The approximate dimensions of the excised sample were 30 x 30 x 19 cm and a weight of 5080 g. During the hysterectomy, the retroperitoneum was dissected bilaterally. The course of the bilateral ureters was evaluated. No dilatation was observed in the ureters. Intraoperative material was sent for frozen analysis. No malignancy was observed. In the foreground, myoma was evaluated as Uteri. The patient, who had no problems in the postoperative period, was discharged on the 6th postoperative day after being

prescribed amoxicillin + clavunate and analgesic medication. The final pathology was also reported as compatible with myoma uteri.

Discussion

Fibroids are benign tumors arising from the uterine smooth muscle tissue (myometrium) whose growth is dependent on estrogen and progesterone. Symptoms and treatment options are affected by the size, number, and location of tumors [3]. They can be asymptomatic or cause a range of severe and chronic symptoms. The most common symptom is heavy menstrual bleeding, which can lead to anemia, fatigue, and painful periods. Other symptoms include non-cyclical pain, abdominal protrusion, painful intercourse or pelvic pressure, and bladder or bowel dysfunction resulting in urinary incontinence or retention, pain, or constipation. It may also be associated with reproductive problems, including impaired fertility, pregnancy complications and loss, and adverse obstetric outcomes [4]. The FIGO classification system preserves the original submucosal association of types 0-2 but expands the staging to an additional six categories. Type 3 fibroids are adjacent to the endometrium but completely intramural. Type 4 defines a purely intramural fibroid; types 5 and 6 are defined by their relationship to the serosal layer; type 7 defines pedunculated fibroids on the sub-serosal surface; and type 8 refers to fibroids located in ectopic locations such as the cervix [5]. Ligamentum latum uteri is the most common extrauterine site for leiomyoma formation; however, the incidence is <1% [1]. Leiomyomas in the ligamentum latum uteri can reach large sizes because they can be asymptomatic. Surgical excision of large uterine leiomyoma has high morbidity. Therefore, careful perioperative preparation must be ensured to ensure the best surgical outcome. A detailed history should be taken. If the patient has additional diseases, necessary consultations should be made, and other systems should be evaluated. Considering the blood loss, perioperative anemia should be corrected, and blood preparation should be made for the patient to be used if necessary. The risk of bowel injury should be reduced by perioperative bowel preparation. Thromboprophylactic precautions should be taken. If necessary, anti-embolic stockings and low molecular weight heparin should be used. Uterine leiomyoma can change the anatomy of many organs, especially the ureter. It may require evaluation of the retroperitoneum and ureter during surgery. Therefore, the operation should be performed by an experienced surgeon who can perform retroperitoneal dissection. During retroperitoneal dissection, attention should be paid to the ureter and other vascular structures. Due to the risk of bleeding, intraoperative hemostasis should be ensured. If necessary, Intraoperative General Surgery and Urology consultations should be requested when necessary. Intraoperative hemodynamics should be evaluated, and fluid losses should be replaced quickly. Blood products should be given in case of excessive blood loss. In the postoperative follow-up of the patient, vital follow-up, intake, and extraction should be done, and if used, drain follow-up should be done closely. Fluid loss must be quickly replaced. The patient should be mobilized as early as possible for thromboprophylaxis. Anti-embolic stockings and low molecular weight heparin should be used if necessary.

Result

Large uterine leiomyomas in the ligamentum latum uteri are difficult to diagnose and surgically excise. There is a high risk of mortality and morbidity during surgery. Such masses can be confused with malignancy of uterus and ovary. The possibility of malignancy should be considered before a planned surgery. Imaging methods should be used to prepare an appropriate preop. Such masses can cause adhesions and significantly alter the anatomy. We conclude that such cases require a comprehensive preoperative evaluation, good intraoperative management with an experienced surgeon, and careful postoperative care in order to achieve a successful outcome.

Figure 1. Mr Image Of the Mass **Figure 2.** PET CT Image Of the Mass **Figure 3.** Intraoperative Image of The Mass **Figure 4.** Image of The Mass After Hysterectomy

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5-YEAR ANALYSIS OF GYNECOLOGICAL ONCOLOGY CASES IN A UNIVERSITY HOSPITAL

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Abstract

Introduction: Cancer is the second leading cause of death in our age. Gynecological cancers constitute an important part of morbidity and mortality in women after breast cancer. The incidence of gynecological cancers varies from country to country. In this study, the incidence of gynecological cancers in our clinic was tried to be evaluated in the light of the relevant literature.

Aim: The study was planned to determine the type and distribution of our gynecological cancer cases between 2016-2021 at our university. This study is important in terms of contributing to the literature by revealing the similarities or differences of its results with the statistics of our country and the world and guiding the planned education and research on the subject.

Method: The study was planned retrospectively between 2016-2021. Permission was obtained from the Sivas Cumhuriyet University Non-Invasive Clinical Research Ethics Committee for the study. patients; endometrial hyperplasia, endometrial cancer, uterine sarcoma, borderline ovarian tumor, ovarian cancer, cervical intraepithelial neoplasia, cervical cancer, and vulva-vaginal cancer.

Results: Between 2016-2021, a total of 268 patients were operated on in our gynecological oncology clinic.

Tanı	n	%
Endometrial cancer	110	41.1
Endometrial hyperplasia	20	7.4
uterine sarcoma	11	4.1
Ovarian cancer	78	29.1
Borderline ovarian tumor	7	2.6
cervical cancer	13	4.8
Cervical intraepithelial neoplasia	25	9.3
Vulva-vaginal cancer	3	1.1

Accordingly, in order of frequency in our cases, cancers were 41.1% endometrial cancer, 29% ovarian cancer, 4.8% cervical cancer.

Some of the patients diagnosed with cancer and precancerous lesions in our province prefer metropolitan cities for surgery. It is thought that the inconsistency of the 5-year total number of cases and especially cervical cancer with the statistics of Turkey is due to this. This result may also affect the case rates in metropolitan areas.

Discussion: The geographical distribution of gynecological cancers varies according to the continents. Gynecological cancers are more common in countries with poor economic development index, such as African countries and South American countries (1). According to Turkish statistics, gynecological cancers constitute 11.2% of all female cancers, and corpus uteri, ovarian and cervical uteri cancers are included in the top 10 cancers in all age groups, with rates of 5%, 3.7% and 2.5%, respectively (2). Only corpus uteri cancer is among the top 10 most common cancers in the United States 2018 Cancer statistics. Cervical uteri cancers have decreased a lot of thanks to screening programs and they are not even in the top 10 in cancer mortality rate (3). This once again shows us the importance of early diagnosis and treatment.

The most frequently diagnosed cancer and the leading cause of cancer deaths vary greatly between and within countries, depending on the degree of economic development and associated social and lifestyle factors. It is important to make statistics both on a country basis and by a city, as it guides screening and treatment programs

However, as seen in our study, oncology patients may prefer to be treated in larger centers, which may affect city-based statistics.

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DETERMINATION OF THE CYTOTOXIC EFFECT OF BEE BREAD (PERGA) IN HT-29 AND DLD-1 CELL LINES, AND ANTICYTOTOXIC EFFECT IN CCD-18Co CELL LINE

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Abstract

Bee bread (perga); it is a superior food material that worker bees collect pollen, mix with nectar and special enzymes they secrete, and package them in honeycombs and preserve them [1]. Although the contents of bee pollen and bee bread are similar, there are some differences. The main reason for these differences is bee bread is fermented with the special enzymes of the bee and the minerals in it become useful. The use of bee bread as a food supplement has become widespread in the world and is preferred more than bee pollen [2]. The aim of this study was to investigate cytotoxic and anticytotoxic effects of perga using MTT (3-(4,5-dimethylthiazol-2-YL)-2,5-diphenyltetrazolium bromide) assay on human colon cancer cells (DLD-1 and HT-29) and normal colon epithelium (CCD-18Co) cell. For this purpose, cells were grown in RPMI-1640 (Roswell Park Memorial Institute) (DLD-1), McCOY 5A Medium (HT-29) and EMEM (Eagle's Minimum Essential Medium) (CCD-18Co) medium containing 10% fetal bovine serum (FBS). It was cultured at 37°C containing 5% CO_2. Cells that reached the required density were treated with perga at different concentrations (100-50-25-12.5-6.25-3.125-1.56 µg/mL) for 24 hours. Cell viability: viability (%) = mean experimental (optical density) OD value / mean control OD value) x 100%. measured using the formula. The results showed that perga has a concentration-dependent ability to induce cytotoxicity in the cancer cell lines used. The percent viability for the HT-29 cell line is between 80.9 and 70.4%; The percent viability values for the DLD-1 cell line ranged from 83.4 to 56.4%. The IC_{50} values of Perga were measured as 264.4 µg/mL for the HT-29 cell line and 93.6 µg/mL for the DLD-1 cell line. The data obtained showed that bee bread exhibited cytotoxic effect in HT-29, DLD-1 cancer cell lines and anticytotoxic effect in CCD-18Co cell line. However, these results need to be supported by other cell lines and advanced techniques.

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DETERMINATION OF THE CYTOTOXIC EFFECT OF ROYAL JELLY IN HT-29 AND DLD-1 CELL LINES, AND ANTICYTOTOXIC EFFECT IN CCD-18Co CELL LINE

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Abstract

"Royal Jelly" which means perfect food, is secreted from the upper jaw and throat glands of 5-15 days old worker bees [1]. Royal jelly is the only nutrient for the first period development of the larvae. Although there is no genetic difference between worker bees and queen bees, some of the larvae turn into worker bees and some turn into queen bees. All larvae are fed with royal jelly for the first 3 days, then larvae fed with honey and pollen become worker bees, and those who continue to be fed with royal jelly become queen bees. The queen bee, fed with royal jelly for life, lives for 3 years, while worker bees fed with honey and pollen can live for 5-6 weeks. Since the formation, development and functions of the queen bee are associated with royal jelly, the use of this product in human nutrition has increased [2]. The aim of this study was to investigate using MTT (3-(4,5-dimethylthiazol-2-YL)-2,5-diphenyltetrazolium bromide) test on human colon cancer cells (DLD-1 and HT-29) and normal colon epithelium (CCD-18Co) cell. For this purpose, cells containing RPMI-1640 (Roswell Park Memorial Institute) (DLD-1), McCOY 5A Medium (HT-29) and EMEM (Eagle's Minimum Essential Medium) (CCD-18Co) supplemented with 10% fetal bovine serum (FBS) grown in flasks at 37°C with 5% CO_2. Cells were treated with royal jelly at different concentrations (100-50-25-12.5-6.25-3.125-1.56 µg/mL) for 24 hours. The results showed that royal jelly has the ability to induce cytotoxicity in cancer cell lines used in a concentration-dependent manner. Accordingly, the percent viability value for the HT-29 cell line is between 72.3-54.1%; the percent viability values for the DLD-1 cell line ranged from 93.5-79.4%. The IC_{50} values were determined as 12.3 µg/mL for the HT-29 cell line and 97.1 µg/mL for the DLD-1 cell line. Royal jelly showed cytotoxic effect on HT-29, DLD-1 cell lines, and anticytotoxic effect on CCD-18Co cell line. The results obtained need to be supported by different techniques.

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INCIDENTAL DIAGNOSIS OF RARE MUCINOUS CYSTADENOFIBROMA AND GASTROINTESTINAL SYSTEM METASTASIS IN A POSTMENOPAUSAL PATIENT WHO OPERATED DUE TO GIANT MASS

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Abstract

Ovarian mucinous cyst adenofibroma is one of the rare benign cysts of the ovary. Although it is generally seen in middle age, it is rarely seen in the postmenopausal period. Magnetic resonance (MR) is useful in diagnosis. However, due to its rarity, it can be missed in diagnosis. Especially in advanced age and large sizes, Frozen section examination will be useful to exclude malignancy during the operation. Treatment depends on age and size of the tumor but is surgical. Generally, oophorectomy and cystectomy are sufficient. In this case report, we detected mucinous cyst adenofibroma in a patient with a giant mass that we operated with torsion findings in the postmenopausal period. We performed bilateral salpingo-oophorectomy (BSO) and total abdominal hysterectomy (TAH). Although the frozen section examination was called benign findings, the final pathology report showed signs of gis malignancy metastasis in the uterus. When treating giant mucinous cyst adenofibroma, which is rare in the postmenopausal period, we detected the patient's gis malignancy metastasis incidentally.

Keywords: *Mucinous Cystadenofibroma, Malignancy, Ovarian Mass, Post Menopause*

Introduction

Ovarian cyst adenofibroma is a very rare, benign, epithelial ovarian tumor. It contains various cystic areas and solid fibrotic tissues. According to the type of epithelium from which it originates; It is classified as serous, endometrioid, mucinous, clear cell and mix type. It is difficult to distinguish it from preop malignant masses due to the solid areas and cysts it has [1]. It constitutes 15-20% of all ovarian tumors. It is often observed in middle-aged women, rarely detected in the postmenopausal period. While it is detected by incidental in small sizes, it usually gives findings when it reaches large sizes. It is usually seen in unilateral ovary [2]. Their diameter can reach up to 30 cm and they can recur after excision despite benign [3]. The most common complications include torsion, rupture, and intra-abdominal bleeding. If they rupture, they can lead to pseudomyxoma peritonei due to their mucinous content. If they grow excessively, they can compress the bladder, rectum and veins [4]. Ultrasound imaging and magnetic resonance are used in the diagnosis. Intraoperative frozen section examination is recommended for the exclusion of malignancy. In patients whose diagnosis and treatment are delayed, when the cyst covers the entire abdominal cavity, abdominal pain, premature saturation, weight gain, feeling of bloating are presented with shortness of breath due to diaphragmatic compression [5,6].

In this case presentation, we wanted to evaluate a postmenopausal patient who was operated because of a rarely seen giant mucinous cystadenofibrome reported as GIS metastasis (stomach? Pancreas?). We wanted to evaluate the patient reported by pathology in the light of the literature.

Case Report

A 72-year-old patient with gravida 4, parity 4 was referred to our clinic with the preliminary diagnosis of pelvic mass from the external center where he applied upon the increase in complaints of shortness of breath, abdominal pain and low back pain that had existed for ten to 3 years. The patient, who has been admitted to many hospitals for 3 years, has been told that they may have pain due to gas compression, old age or weight gain, and a clear diagnosis has not been made. On examination, the hard semi-mobile mass filling the midline of the abdomen was handled. Contrast-enhanced abdominal tomography showed a lesion in cystic density measuring 25x22x23 cm in size, which is thought to be of probable fundus origin starting from the renal level in the abdomen and extending to the pelvis, with thick hyperdense septations and lobule appearances in places. Free scare and hyperdense soft tissue structures were observed on the right inferolateral of the lesion (tm?). Tumor markers: CA125; 17.2 U/ml, CA15-3; 10.6 U/ml, CA19-9 ;3.82 U/ml, CEA; It was 1.31 U/ml and AFP; 2.63 U/ml. The patient underwent laparotomy with a median incision below and above the navel. The observation showed a mass large enough to lift the diaphragm upwards, extending from the groin to the stomach (Figure 1). This mass of the patient originating from the ovary was excised and sent to the frozen section examination and BSO and TAH were performed. When the frozen section examination result was mucinous cyst adenofibroma with torsion findings, the operation was terminated. As a result of the final pathology of the patient, atypical glandular structures with irregular distribution and lymph vascular invasion were observed in uterine serosa and myometrium, and it was thought that there may be metastases of the pancreaticobiliary system and gastrointestinal system (stomach?) first. While the patient was operated on the cause of giant torsion benign mass (mucinous cyst adenofibroma), gis malignancy was noticed incidentally. The patient was referred to surgery and medical oncology for further research and treatment.

Figure 1. Intraop image of the cyst

Discussion

Approximately 20% of benign ovarian tumors are mucinous cystadenomas. Mucinous cyst adenofibromas are benign masses that are rarer than mucinous cystadenomas. The exact incidence is not known [1]. While it is mostly seen in the second and third decade, it is less common in the postmenopausal period [7]. In our case, mucinous cyst adenofibroma was discovered by chance in

the postmenopausal period at the age of 72 years. In this respect, it is among the rare cases. Mucinous cyst adenofibroma of the ovary is a tumor that can reach very large volumes. They can usually be 15-30 centimeters in size, but cystadenomas that have grown up to 60 centimeters are also present [3,8]. Cystadenomas ranging from 2,400g to 9,000 g have been detected in the literature [7,9]. Kamel detected 7,250 g of mucinous cystadenoma in a 29-year-old patient [4]. In our case, 10,000 g mucinous cyst adenofibroma was detected in the postmenopausal period. Treatment is surgical and follow-up is usually simple. Pathological manifestations of giant ovarian masses are caused by the effect of masses, which causes compression of intra-abdominal organs and structures, including blood vessels. Giant ovarian cyst excision may be associated with severe mortality. In the vast majority of patients with large abdominal masses, severe clinical hypotension due to aspiration of high volume or resection of the mass during operation and IVC syndrome due to inferior vena cava (IVC) compression may develop. This can lead to serious cardiovascular and respiratory disorders and even life-threatening problems in patients [5,6]. In our patient, although a mass weighing approximately 10 kilograms and a diameter of 50 * 55 cm was removed, the case was terminated without any complications. No problems were encountered in the patient's postoperative follow-up. However, because of the final pathology of the patient, it was thought that the patient may have metastases in uterine serosa and myometrium, primarily pancreaticobiliary system and gastrointestinal tract (stomach?).

Conclusion

In conclusion, in this case, we determined that while operating on giant mucinous cyst adenofibroma, which is rare in the postmenopausal period, we used frozen section examination against the possibility of malignancy and that there was an incidental malignancy metastasis metastasis in the uterus even if there was no malignancy in the cyst. Considering the rarity of ovarian mucinous cyst adenofibromas, there may be difficulties in making a diagnosis. Such cysts usually come with severe abdominal pain due to torsion, rupture, and pressure. Even if MRI is used in the diagnosis, it should be made in the definitive diagnosis, in giant masses, even if there is benign, frozen section examination against the possibility of malignancy. As a result, it should be noted that giant mucinous cyst adenofibromas may appear in the postmenopausal period and may be accompanied by GIS metastases.

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INVESTIGATE OF ATTIDUES TOWARDS BIOTECHNOGLY OF SPORTS TRAINERS: SİVAS PROVINCE EXAMPLE

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Abstract

This study has been done by purposing to determine toward biotechnology attitude (Trainer and Physical Education Teacher) of sports trainers on duty in Sivas province center. To know attitude toward biotechnology of sports trainers located in core center of sports has great importance. Our study has been joined 157 sports trainers that chosen random and voluntarily. Biotechnology attitude scale that is Likert 16 questions and demographic inform form developed by Öcal (2012) has been application to participants. SPSS 21.0 package has used in evaluation of datas. Descriptive statistics method has been used in research, T test that in determine difference among groups for independents groups has been used. At the end of study, in favor women participants have been found significant differences according to item 1-3-5-6 because of testing dual comparison biotechnology attitudes according to gender state of sports trainers (p<0,05). In result test dual comparison made according to state "would you like take education about biotechnology" of participants haven't been found significant differences (p>0,05). It has been found significant differences according to item 1-2-5-6 and 16 as a result of testing dual comparison according to "Have you inform about biotechnology" state of sports trainers (p<0,05). As a result, with the positive effect on attitude toward biotechnology of sports trainers' İt will lead the way to scientists worked in this field that is in treat and diagnosis a lot of disease such as cancer to be find out of doping practices used with often in sports. To practices in different fields of studies towards biotechnology and genetic engineering also has to great important in terms of lead the way to studies to do about this field.

VASCULAR ACCESS IN CANCER PATIENTS FOR CHEMOTHERAPY

Vural POLAT

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Abstract

Vascular access is an important part of treatment in cancer patients. Easy and useful vascular access is important in ensuring the patient's compliance with the treatment and the continuation of the treatment without interruption [1].

Drugs used for chemotherapy and cancer itself cause a predisposition for venous thrombosis. For this reason, chemotherapeutic agents should be administered through central veins to avoid the negative effects of drugs and repetitive interventions. Vein accesses used for chemotherapy can be classified into three groups. Peripherally advanced central catheters, short or long-term catheters placed percutaneously through central veins, and port catheters placed under the skin can be considered under these three main headings [2]. Port catheters are the most preferred type of them due to patient comfort, ease of use, and long-term use without complications [1,2]. Port catheter placement under ultrasound guidance is one of the frequently preferred intervention due to its ease and safety [3].

We evaluated cancer patients which needed a port catheter for chemotherapy in Sivas Cumhuriyet University Hospital between August 2020 and September 2022 and the possible risks and complications of the intervention. During this period, port catheters were inserted in 161 patients. The patients were operated in the operating room and in a sterile environment. The procedure was performed under the guidance of ultrasonography. The functionality of the port catheter was tested in the operating room. The port catheter was washed with heparinized fluid before closing the wound. After the procedure, chest X-ray was taken from all patients. The situation of the catheter and pneumothorax were evaluated.

The most common complication was wound dehiscence in 6 patients. Pneumothorax was seen in 5 patients. Three of these patients required tube thoracostomy. In 3 patients, the procedure had to be repeated under angiography due to catheter malposition. In 8 patients, port exchange was performed due to late obstruction.

Small pocket for the port and weight loss of the patient are the most important reasons for wound opening. Although ultrasonography is useful in evaluating the patency of the vein and placing it into the vein, it may be insufficient in showing the course of the guide wire.[4] A small number of patients may require reintervention under angiography because of malpositioning. Catheter occlusions can occur due to inappropriate heparinization during treatment and/or after the use of the port catheters for other treatments of patients.[5] It is important to flush the port catheter with

heparinized fluid after each use. The experience of the practitioner and the use of ultrasonography are important for patency of the port catheters and for preventing from pneumothorax.

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AUTONOMOUS DYSFUNCTION IN PATIENTS DIAGNOSED WITH CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY

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Abstract

Introduction: Chemotherapy-induced peripheral neuropathy (CIPN) is a toxic neuropathy that causes sensory, motor, and autonomic nervous system symptoms. CIPN occurs in 30-40% of patients after chemotherapy, although it varies according to the chemotherapeutic agents used [1-2]. Although predominantly sensory and motor neuropathy is observed in patients with CIPN, symptoms related to autonomic nervous system involvement may also rarely occur [3-6]. Sympathetic skin response is an electrophysiological method that evaluates the autonomic nervous system by measuring changes in skin potential [7]. The aim of this study is to investigate the presence of autonomic neuropathy evaluated with clinical and sympathetic skin response in patients with CIPN.

Method: Eleven patients diagnosed with CIPN were included in this cross-sectional study. Sociodemographic data including age, gender, and body mass index, clinical data including cancer type, chemotherapeutic agents, periods elapsed after chemotherapy, neuropathic pain scores and symptoms related to autonomic dysfunction and electrophysiological data including nerve conduction study findings of median, ulnar, sural, tibial, and peroneal nerves and sympathetic skin response findings were recorded. Neuropathic pain scores of the participants were evaluated with The Leeds assessment of neuropathic symptoms and signs (LANSS) pain scale. Sympathetic skin responses recorded with Ag/AgCl disc electrodes placed on the palms and soles by stimulation of the median and tibial nerves [7].

Results: Participants received paclitaxel and cisplatin treatment because of lung cancer (n=3), breast cancer (n=6), and ovarian cancer (n=2). The mean LANSS Pain score was 16.7 ± 2.1. Three participants had complaints related to autonomic dysfunction that developed after chemotherapy, including decreased sweating in 2 participants, bladder dysfunction in 1 participant, erectile dysfunction in 1 participant, and constipation in 2 participants. Sensory nerve conduction abnormality was detected in all of the participants. Abnormal motor conduction study findings were observed in 4 (36.3%) participants. Sympathetic skin response could not be obtained in 2 (22%) participants.

Conclusion: The autonomic nervous system is less affected than the somatic nervous system in CIPN patients. Evaluation of the sympathetic skin response, although less sensitive than the clinical complaints, can be used to evaluate the presence of autonomic neuropathy.

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METASTATIC BRAIN TUMORS

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Abstract

We aim to describe from a clinicopathological and immunohistochemical point of view, primary brain tumors and brain metastases, secondary to primary tumors located in different tissues of the body. This study was done in the Cumhuriyet University of Sivas, Faculty of Medicine, Department of Pathology to determine the percentage of brain metastasis. All the cases were taken over from the archives of the Pathology Department, during the years 2017 – 2022.

As a result, there were identified 272 cases of which 232 belonged to primary brain tumors and 40 cases to brain metastasis secondary of other tumors. Moreover, out of the 40 cases, 26 were classified as males and 14 cases as females, 21 of all of these cases were older than 61 years old, 18 cases had their age between 41 years old and 60 years old and only one case was younger than 40 years old. According to these cases, 14.7 % cases were cerebral metastasis appeared secondary to the following locations of primary tumors: lungs, kidneys and prostate, breast, gastrointestinal tract and pancreaticobiliary system, skin, endometrium, and thyroid.

To sum up, after taking into consideration all the findings from above, it was confirmed that the most common brain metastasis resulted from lung tumors was related to male patients, and from breast tumors for female patients.

Keywords: *Brain Metastasis*

Introduction

Metastases to the brain are tumors originating outside the CNS and spreading into the brain via a hematogenous route or (less frequently) directly from adjacent anatomical structures [1,2]. Brain metastases are the most common intracranial tumors in adults, accounting for significantly more than one-half of brain tumors. In patients with systemic malignancies, brain metastases occur in 10 to 30 percent of adults and 6 to 10 percent of children [1].

The incidence of brain metastases may be increasing, due to both improved detection of small metastases by magnetic resonance imaging (MRI) and better control of extracerebral disease resulting from improved systemic therapy [2].

Approximately 80% of all brain metastases are located in the cerebral hemispheres, particularly in arterial border zones and at the junction of the cerebral cortex and white matter: 15%

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occur in the cerebellum and 5% occur in the brainstem. Fewer than 50% occur as a single brain metastasis and very few as the Only (solitary) metastasis in the body. Occasionally, CNS metastases seed along ventricular walls or are in the pituitary gland or choroid plexus [1].

Neurological symptoms of intracranial metastases are generally caused by increased intracranial pressure and local tumor effects on the adjacent brain tissue. The symptoms may progress gradually and include headache, altered mental status, paresis, ataxia, visual changes, nausea, and sensory disturbances. Some patients present with seizure, infarct, or hemorrhage. The interval between diagnosis of the primary tumor and the CNS metastasis is frequently < 1 year for lung carcinoma, but it can be many years for breast cancer and melanoma [1,2].

The most common source of brain metastasis in adults is lung cancer, especially adenocarcinoma and small cell carcinoma, followed by breast cancer, melanoma, renal cell carcinoma and colorectal cancer [1].

In this study, our aim is to prove that the most common brain metastasis was originated from primary breast tumors for females, and from primary lung tumors for males, everything being described from a clinicopathological and immunohistochemical point of view.

Methods

For this study, a sample of 272 cases has been taken from the archives of Cumhuriyet University of Sivas, Faculty of Medicine, Department of Pathology. Forty patients who had biopsies done between 2017-2022 were diagnosed with brain metastases. Another 232 patients were diagnosed with primary brain tumors.

From 40 cases of metastatic brain tumors, 36 cases were selected for immunohistochemistry. As it was previously mentioned, the most common metastases in the brain, for males were originated from lungs, and for females from the breast. In order to discover which primary tumor caused the metastasis, the following immunohistochemical marker were used: GATA3, ER and PR for the diagnosis of breast adenocarcinoma, ER, PR and ERBB2 were also dosed for prognosis, for non-small cell lung carcinoma were used TTF1 and napsin A and for small cell lung carcinoma TTF1 and chromogranin A. Also, p63 and p40 markers were utilized for squamous cell carcinoma of the lungs.

Results and Discussion

Part 1: All things considered, after examining all the data, it can be noticed in Figure 1, that from a total of 272 cases, 40 cases (15%) belonged to the metastatic brain tumors and that 232 cases (85%) were primary brain tumors.
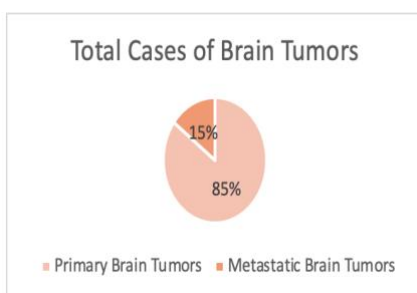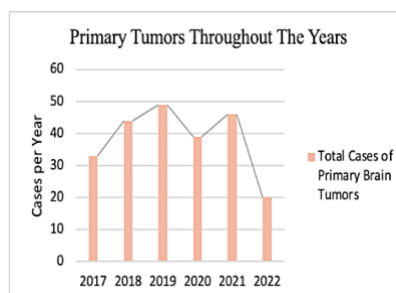

Figure 1. Total cases of brain tumors

Figure 2. Primary tumors throughout the years

Considering what Figure 2 shows, it can be noticed that primary brain tumors were most frequent in 2019, followed by 2021, 2018, 2020, 2017 and 2022.
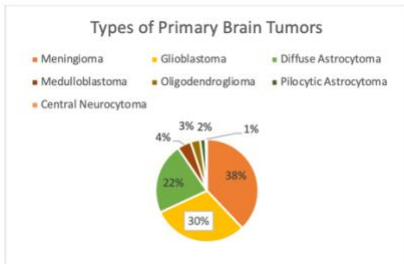

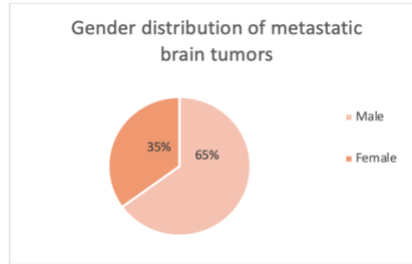**Figure 3.** Types of primary brain tumors

Figure 4. Gender distribution of metastatic brain tumors

According to Figure 3, the most common type of primary brain tumors is meningioma. Glioblastoma and diffuse astrocytoma have also a high incidence. On the other side, tumors such as central neurocytoma, pilocytic astrocytoma and oligodendroglioma are quite rare.

Taking into consideration the gender distribution in Figure 4, it can be concluded that 26 (65%) out of 40 patients were males and 14 (35%) were females.
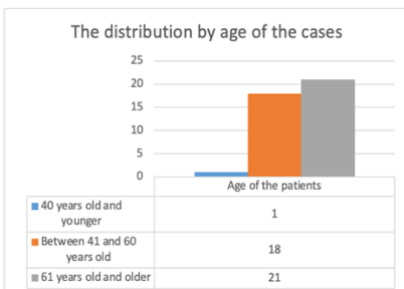
Figure 5. The distribution by age of the cases.
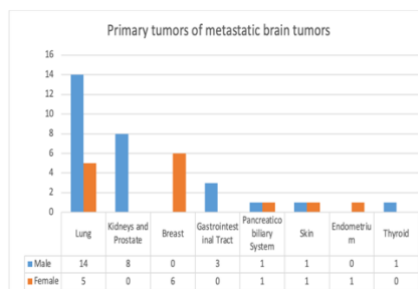

Figure 6. Primary tumors of metastatic brain tumors

In addition, the distribution by age of the patients was also examined, in Figure 5, and it concluded that during 2017 – 2022, there has been just one patient younger than 40 years old (2,5%). Whereas 18 patients had between 41 and 60 years old (45%), and 21 patients were 61 years old and older (52,5%).

Reflecting on the results from Figure 6, it is clearly seen that the most common tumors that cause brain metastasis come from lungs for males, 14 cases out of 26 (53%), and from breast for women 6 cases out of 14 (42%). Tumors that originated from kidneys and prostate have as well a high incidence in males, 8 cases (30%). However, tumors from GIT, PBS, skin, endometrium, and thyroid do not disseminate as often in both males and females.
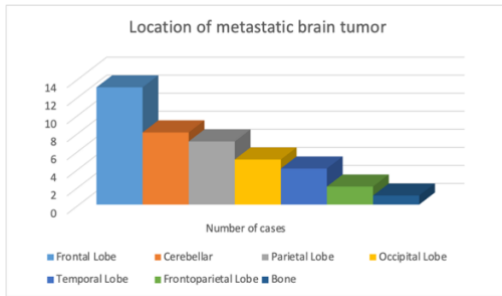
Figure 7. Location of metastatic brain tumor

Furthermore, in compliance with Figure 7, it can be affirmed that metastatic brain tumors most often appeared in the frontal lobe, 13 cases (32,5%). The next locations belong to cerebellar with 8 cases (20%), parietal lobe with 7 cases (17,5%), occipital lobe with 5 cases (12,5%). The remaining locations had a lower occurrence.

Part 2: One of these cases, has been reported as malignant phyllodes tumor of the breast with an angiosarcoma metastasis in the left frontal lobe and in the infraorbital location of the left eye.
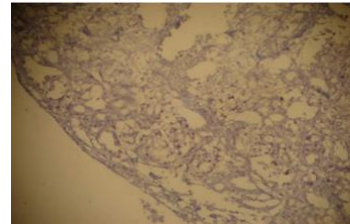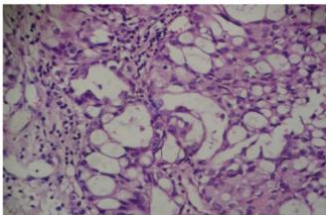
Picture 1a. Adenocarcinoma – Metastatic Brain Tumor from Lungs – (H&Ex10) / **Picture 1b.** Adenocarcinoma -Metastatic Brain Tumor from Lungs-Immunohistochemistry with Positive Ttf1 (IHCX25)

Firstly, as it is shown in the Pictures 1A and 1B, it has been used H&E staining to diagnose the brain mass as a metastatic brain tumor, as an adenocarcinoma metastasis. For the purpose to find a precise diagnose, IHC was used on this mass. After the examination, the marker TTF1 was positive. Furthermore, the better diagnose was adenocarcinoma that was spread from the lungs.
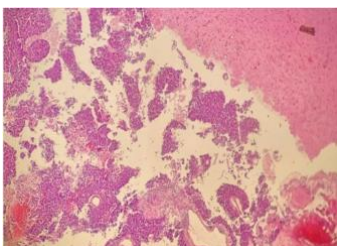
Picture 2a. Breast Carcinoma – Metastatic Brain Tumor from Breasts –(H&E.X10) / **Picture 2b.** Breast Carcinoma- Metastatic Brain Tumor from Breasts – Immunohistochemistry with Positive Gata3 (IHC'X10)

Secondly, another brain mass was diagnosed as a metastatic brain tumor. As it is shown in Pictures 2A and 2B, H&E staining was used to diagnose it as a carcinoma. Due to IHC examination, GATA3 was positive, so the metastatic brain tumor was diagnosed as breast carcinoma.

Part 3: Metastatic brain cancer (also called secondary brain tumors) is caused by cancer cells spreading (metastasizing) to the brain from a different part of the body. Cancer cells can break away from the primary tumor and travel to the brain, usually through the bloodstream. They commonly go to the part of the brain called the cerebral hemispheres or to the cerebellum, where they form a mass. Some metastatic brain tumors appear many years after the primary cancer. Others metastasize so quickly that they are identified before the primary cancer [3].

On MRI intraparenchymal metastases are generally circumscribed and show mild T1 hypo intensity, T2 hyperintensity, and diffuse or ring-like contrast enhancement with a surrounding zone of parenchymal oedema. Hemorrhagic metastases and metastatic melanomas containing melanin pigment may demonstrate hyperintensity on non-contrast MRI or CT [1].

The incidence rates reported in the literature probably underestimate the true incidence of brain metastases because of underdiagnosis and inaccurate reporting [1].

CNS metastases are the most common CNS neoplasms in adults. As many as 30% of adults with cancer develop brain metastases. The relative proportions of various primary tumors are different between the two sexes, but for most tumor types, sex has no significant independent effect on the occurrence of CNS metastasis [1].

Biopsy or sub/total excision should be performed when the diagnosis of brain metastases is in doubt. This is particularly important in patients with a single lesion [2].

The basic staining used was H&E for all the slides prepared from biopsies, but for a clear diagnosis, it has been used immunohistochemistry for 36 out of 40 patients. Among the most frequent markers that were used, not only there were those mentioned above for lung and breast tumors, but also CD10 and RCCm for kidney tumors and PSA for prostate cancer. For gastrointestinal tumors, it was mainly used CK20 and CK7 markers for diagnosis and C-ERB2 (HER2) for prognosis.

Out of 40 cases which have been studied, it has been identified a special one: a 51 year old female with a brain metastasis and an intraocular one, as a result of a primary malignant phyllodes tumor. Malignant Phyllodes Tumors have a higher risk of metastatic disease, whereas benign and borderline tumors demonstrate a proclivity for local recurrence and rarely metastasize. Approximately 10% to 15% of Phyllodes Tumors are malignant, and in patients with malignant Phyllodes Tumors, 1.7% to 27% develop metastatic disease with a mean survival of 2.8 months [4].

According to majority of studies, the most common types of cancer that can spread to the brain are tumors of the lung, breast, skin, colon, kidney, and thyroid gland [3]. In conformity to our study, the most frequent types of primary tumors that give brain metastases are firstly tumors of the lungs, followed by kidneys and prostate, breast, gastrointestinal tract, pancreaticobiliary system, skin, endometrium, and thyroid.

In addition, other studies have shown that the risk for metastatic brain tumors begin to increase after age 45 and is highest in those over 65 [3]. In agreement with our study, it can be affirmed that the majority of the patients, 21 cases out of 40, were 61 years and older. The incidence between 41 and 60 years old is also high, with 18 cases. Just a single patient has been reported as younger than 40 years old.

In conclusion, taking into account all above, the frequent metastatic brain tumor that was spread from lungs, was correlated to male patients, and from breast for female patients.

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III. INTERNATIONAL CANCER DAYS

INVESTIGATION OF THE EFFECT OF THE NEW SYNTHESIS MOLECULE CONTAINING THE AZOMETHINE GROUP ON SOME LIPID GENES

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Abstract

It is known that lipid metabolism (LM) has an important role in the growth of tumor cells. Recently, over expression of apolipoproteins related to metabolic syndrome in lipid metabolism genes and *ACSL* involved in fatty acid activation has been reported to be used as a prognostic marker in some types of cancer. In addition, activation of this lipid gene has been found to be important in tumor progression. Some lipid profile genes need to be investigated in order to elucidate the effect of genetic changes in these lipid genes on basal expression levels and the resulting susceptibility to tumor recurrence [1]. In our study, firstly, the molecule containing the azomethine group was synthesized. Secondly, anticancer activity was detected in this newly synthesized molecule lung cancer (A-549) cell line. Then, the expression levels of these genes were determined using the RT-PCR method. In addition to experimental studies, theoretical studies were also carried out with the String v11 program to determine the interaction of proteins with other proteins. As a result, it was determined that the molecule applied to the A-549 cell line showed the highest activity after 72 hours of incubation. It was determined that the *ACSL1* gene expression of the molecule was higher than the control group. In addition, *ABCA1* gene expression was found to be decreased compared to the control group.

Keywords: *Lipid Genes, Lung Cancer, Bioinformatics*

Reference

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III. INTERNATIONAL CANCER DAYS

EVALUATION OF APOPTOTIC EFFECT OF PLK1 INHIBITOR RO3280 ON COLON CELLS

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Abstract

Polo-like kinase 1 (PLK1), a serine/threonine protein kinase member, is a key player in mitosis and participates in DNA damage response and repair. PLK1 is expressed at extremely low levels in healthy cells, while it is highly expressed in a variety of cancerous cell types. The growth of cancer cells and a poor prognosis are closely related to increased PLK1 expression. Therefore, targeting PLK1 specifically in cancer cells is a promising approach for the treatment of a variety of cancers. The present study aimed to assess the apoptotic effect of PLK1 inhibitor RO3280 on human colon cancer HT29 cells. The cancer cells were treated with RO3280 at 1, 5, 10, 25, 50, and 100 µM concentrations for 24 h. By using the XTT assay, the impact of the agent on cell viability was evaluated. Additionally, using flow cytometry, the apoptotic effect of RO3280 on HT29 cells has been studied. According to our research, RO3280 significantly increased the cytotoxicity of HT29 cells when compared to control cells. The IC_{50} value of RO3280 was calculated as 13.60 µM for 24 h. According to the flow cytometry results, the early apoptotic, late apoptotic, and dead cell population % in control group cells (8,64±2.14%, 9.13±0.98%, and 1.35±1.45%, respectively) significantly increased to 13.45± 1.45%, 26.65± 2.45%, and 5.57± 2.12%, respectively, in RO3280 treated group (p < 0.01). In conclusion, the findings indicate that RO3280 induces cytotoxicity and apoptosis in HT29 cells, and this agent may be a candidate anticancer molecule.

Keywords: *PLK1 Inhibition, Apoptosis, RO3280, HT29 Cells.*

1.Introduction

Worldwide, the incidence and mortality rate of cancer have been rising quickly in recent years. According to American Cancer Society, cancer is the second leading cause of death in the US and more than 1.5 million cancer patients are expected in 2018 [1]. Even though there are many different cancer treatment options, such as chemotherapy, radiotherapy, and surgery, the treatments are frequently linked to unfavorable side effects such as immune system suppression or the development of drug resistance in the cancer cells [2]. As a result, new anticancer agents must be developed in order to improve therapy effectiveness and reduce adverse effects.

Polo-like kinases (PLKs), members of serine/threonine family of kinases and the human PLK family consist of five members (PLK 1-5). The most well-known and highly preserved member of

the PLK family is PLK1 [3]. The G2/M checkpoint, mitotic entry, centrosome disjunction and migration, cytokinesis, and mitotic exit are all largely regulated by PLK1[4]. PLK1 is commonly overexpressed in a wide spectrum of human tumors, including colon, prostate, breast, neuroblastoma, hepatocellular cancer, cervical carcinomas, and acute leukemia [5, 6]. The growth of cancer cells and a poor prognosis are closely related to increased PLK1 expression. [7]. PLK1 is thought to be a very potential cancer treatment target because of its important function in the cell cycle process as well as in the growth and development of carcinomas. Several studies have revealed in recent years that PLK1 inhibition prevents the proliferation of cancer cells [8]. PLK1 inhibitors have been studied in different cancer cell lines over the past 20 years, and the results indicated that PLK1 expression inhibition had a substantial anticancer effect [9, 10]. RO3280 is one of the potent and highly selective PLK1 inhibitors. Despite several research suggesting that it has cytotoxic effects [7], the anticancer potential of the compound in many cancer cell lines including HT29 is still undetermined.

Taking into consideration the value of PLK1 in cancer development, progression, and therapy, this study was achieved to examine the cytotoxic activity of RO3280 against HT29 cells. The apoptotic effect of RO3280 on HT29 cells was also investigated.

2. Method

2.1. Cell Culture and Treatment

HT29 cell line (HTB-38) was purchased from American Type Culture Collection and grown in DMEM medium (Gibco Thermo Fisher Scientific) containing 10% Fetal Bovine Serum (FBS) (Sigma-Aldrich), 1% L-glutamine (Sigma-Aldrich) and 1% penicillin/streptomycin (Sigma-Aldrich). The cells were incubated at 37°C within 5% CO_2 humidified atmosphere. RO3280 (Sigma) was dissolved in DMSO, and the stock solution was diluted with DMEM as the final concentration of DMSO did not exceed 0.5%.

2.2. Cell Viability Assay

Cell viability was evaluated using the XTT (2,3-bis-(2-methoxy-4-nitro-5-sulfophenyl)-2H-tetrazolium-5-carboxanilide) colorimetric assay (Roche Diagnostic). The cells were seeded in 96-well plates at a density of 1×10^4 cells per well in 100-µL DMEM culture media and later incubated overnight before treatment. Then, the cells were treated with RO3280 at 1, 5, 10, 25, 50, and 100 µM final concentrations for 24 h. Following incubation, a mixture of 50 µL XTT labeling solution and 100 µL DMEM without phenol red were added to all the wells and then the plates were maintained at 37ºC for 4 h. The plates were shaken, and the absorbance was recorded using an ELISA microplate reader (Thermo) at 450 nm. All experiments were performed three times and the cell viability was measured as viable cell amount percent compared to control, as untreated cells. The IC_{50} values of RO3280 in the HT29 cell line were calculated by Graph Prism 7 software (GraphPad).

2.3. Annexin V Binding Assay

HT29 cells were exposed to RO3280 at IC_{50} concentration which is determined in XTT analysis, and the extent apoptosis was performed using the Muse Annexin V/Dead Cell (Merck Millipore) assay. Shortly, the cells were seeded onto six-well plates and were allowed to attach overnight before treatment. Next day, the cells were treated with RO3280 at determined IC_{50}

concentration and incubated for 24 h. After incubation, the cells were collected, diluted with PBS containing 1% FBS and incubated with Annexin V & Dead Cell reagent for 20 min at room temperature in dark. Live, dead, early, and late apoptotic cells were analyzed by Muse Cell Analyzer (Millipore).

2.4. Statistical Analysis

The statistical significance for the assays was determined using GraphPad Prism 7.0 (GraphPad). Data obtained from experiments were expressed as the mean ± Standard Deviation (SD) and ANOVA test with post hoc Dunnett's test was applied for versus control comparisons.

3.Results and Discussion

This study evaluated the antiproliferative effects of the PLK1 inhibitor, RO3280, on HT29 cells in vitro. Figure 1 shows the XTT assay result, which demonstrated that RO3280 dramatically reduced cell viability in HT29 cells in a dose-dependent manner. (p<0.01). The IC_{50} value of RO3280 was calculated as 13.60 µM for 24 h.
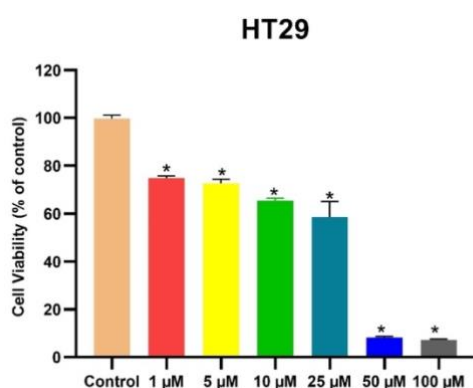

Figure 1. The antiproliferative activity of RO3280 on HT29 cells. HT29 cells were treated with RO3280 at different concentrations (1-100 µM) for 24 h and the cell viability was determined by XTT assay. All data are expressed as mean ± SD in triplicate. Statistically significant differences are *p < 0.01 compared to control.

The evaluation of apoptotic effect of RO3280 on HT29 cells was performed by the annexin V binding analyses via flow cytometry. The results of flow analysis were demonstrated in Figure 2, and it indicated that RO3280 showed significant apoptotic effect against HT29 cells at IC_{50} concentration for 24 h when compared to control. According to the results, the early apoptotic, late apoptotic, and dead cell population % in control group cells (8,64±2.14%, 9.13±0.98%, and 1.35±1.45%, respectively) significantly increased to 13.45± 1.45%, 26.65± 2.45%, and 5.57± 2.12%, respectively, in RO3280 treated group (p < 0.01). These findings imply that the suppression of PLK1 by RO3280 induced apoptosis in HT29 cells.
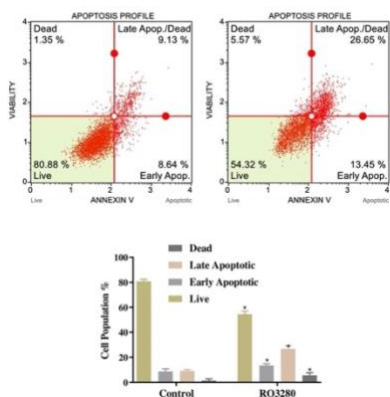
Figure 2. Effects of RO3280 on HT29 cells apoptosis. The cells were treated with the IC_{50} concentration of RO3280 and incubated for 24 h, and the apoptosis was detected by Muse cell analyzer (Millipore). Late apoptotic and dead cell percentage increase significantly ($p < 0.01$) following RO3280 treatment. All experiments were carried out in triplicate and obtained similar results. Statistically significant differences are *$p < 0.01$ compared to control.

RO3280 was discovered by Chen et al. [11] and they reported that this PLK1 inhibitor showed strong antiproliferative activities on lung, breast, prostate, and skin cancer cell lines. There are several evidence in the relevant literature about RO3280's anticancer and apoptotic effects on various types of cancer cells. Inhibiting PLK1 by RO3280 caused cell death and apoptosis in human bladder cancer cell lines 5637 and T24, as demonstrated by Zhang et al. [12]. Another study found that RO3280 strongly inhibits the proliferation of the acute leukemia cell lines HL-60 and NB4 via inducing apoptosis. [5]. Other researchers have also demonstrated that the drug RO3280 significantly inhibits the growth of the non-small cell lung cancer cell lines PC9, H358, HCC827, and H197 [6].

Overall, taking into account the above research, RO3280 substantially lowers cell viability and triggers apoptosis in a variety of cancer cell types. According to the findings of prior studies, the present study has shown that RO3280 caused HT29 cells to go into apoptosis as a result of its detrimental impact on cell growth.

4. Conclusion

The anticancer effectiveness of PLK1 in HT29 cells was assessed in our investigation, and the findings revealed that RO3280 had potent cytotoxic activity in HT29 cells. Additionally, RO3280 has been demonstrated to cause apoptosis in HT29 cells by enhancing annexin V binding. Together, these results imply that RO3280 is a potential candidate for the treatment of colon cancer, especially if it is combined with additional in vivo research.

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RARE TYPE OF OVARIAN MALIGNANCIES: ADULT TYPE GRANULOSA CELL TUMOR

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Abstract

Introduction: Granulosa cell tumor of the ovary (GCT) is a low-grade malignant tumor that accounts for 2-5% of all ovarian cancers and 90% of sex cord-stromal tumors [1,2]. There are two histopathological types of GCTs, adult and juvenile, with different clinical and biological features [3].

Case: A 48-year-old virgo mentally retarded patient applied to our clinic with the complaints of pain and vaginal bleeding accompanied by his relatives. Abdominal ultrasound revealed a "heterogeneous cystic lesion with a diameter of 74x71mm in the right adnexal area". The patient whose tumor markers were within normal limits was taken to laparotomy with the preliminary diagnosis of a right paraovarian mass. Frozen result was granulosa cell tumor. Complementary surgery was performed. The patient was referred to medical oncology.

Discussion: Because of slow growth and distinguishable hormonal symptoms, adult GHTs are usually diagnosed at an early stage[1]. Abnormal vaginal bleeding associated with a unilateral ovarian mass is the most common clinical manifestation in postmenopausal patients. The majority (50-80%) are diagnosed in stage Ia, where the tumor is completely within the ovarian capsule and no tumor cells are found outside the ovary. The second most common (~30%) is stage Ic, in which tumor cells infiltrate through the ovarian capsule or the capsule ruptures spontaneously or for iatrogenic causes[2]. In our case, although the size of the mass was not very large, there was capsular invasion. Fluid was minimal in the abdomen. This case presented with postmenopausal bleeding. Although endometrial cancer is the primary concern in malignancy rates in postmenopausal bleeding, this patient was reported as GHT. Our case differs from other cases with negative tumor markers, small size but capsule invasion, and benign endometrial pathology despite the complaint of postmenopausal bleeding.

Keywords: *Adult Type Granulosa Cell Tumor, Sex Cord Stromal Tumor, Ovarian Neoplasm*

Introduction

Granulosa cell tumor of the ovary (GCT) is a low-grade malignant tumor that accounts for 2-5% of all ovarian cancers and 90% of sex cord-stromal tumors [1,2]. There are two histopathological types of GCT, adult and juvenile, which have different clinical and biological features[3]. Adult type GCT is a clinically and molecularly unique subtype of ovarian neoplasms [4]. Most adult type GCTs

are diagnosed at an early stage because of their slow course. Almost all adult GCTs are composed of cells with soft nuclear features, and the nuclear features are almost always low grade, even when these tumors recur or metastasize [5]. While surgical treatment is primarily applied in the treatment of both primary and recurrent tumors1, chemotherapy is applied only in advanced or unresectable cases. Tumor stage is the only factor consistently associated with prognosis [4]. 5-year survival rate of 97-98% has a favorable prognosis, but adult GHT is characterized by late recurrence; The recurrence period may be more than 20 years after diagnosis [3,6,7]. However, every third of patients relapse, typically 4-7 years after diagnosis [1], leading to death in 50% of these patients [4]. Anti-Müllerian Hormone and inhibin B are currently the most accurate circulating biomarkers [4]. In conclusion, the scenario is early emphasizes the need for diagnosis, standard treatment protocols, and long-term follow-up [3,7].

Case

Virgo, 48 years old, was admitted to our clinic with the complaints of pain and vaginal bleeding accompanied by the relatives of a mentally retarded patient. After the patient stated that he had not had a menstrual period for the last 1 year (postmenopausal bleeding?) and was told that he had fibroids before, no pathological appearance of the uterus and left ovary was detected in the ultrasound. heterogeneous cystic lesion with a diameter of 74x71mm was seen in the right adnexal area. In contrast-enhanced abdominal MRI, the size of the liver has increased. Its contour and parenchyma intensity are natural. There were no pathological lymph nodes in the paraaortocaval area and free fluid in the abdomen. No gross pathology was detected in the stomach and intestinal loops.' reported as. Tumor markers CEA: 6.71; Ca 15-3: 22.6; CA19-9: 40.6; Ca 125: 13.3 was detected. As a result of the examinations, frozen hysterectomy was planned for the patient with the preliminary diagnosis of a right paraovarian mass. The patient who had high blood sugar during preoperative preparations was consulted with Endocrinology and blood sugar regulation was ensured. When the abdomen was entered with a median incision above and below the umbilicus, diffuse intra-abdominal fluid and a right paraovarian mass of approximately 5 cm were observed. The mass was excised and sent to frozen (Figure). Frozen result was granulosa cell tumor. Abdominal hysterectomy, bilateral salpingo-oophorectomy, bilateral external iliac, bilateral obturatory lymph node dissection and partial omentectomy were performed. Paraaortic areas were palpated. Since there was no palpable lymph node, paraortic lymph node dissection was not performed. Final pathology result; 'Adult type Granulosa cell tumor. On the outer surface of the ovary, the tissue integrity was impaired in a 4 cm long area. Ovarian capsule invasion was observed. No lymphovascular invasion was observed. Tumor spread was not observed. It resulted as 'intramural leiomyoma in the uterus'. Left ovary, lymph node, omentum, cytology results were benign. The patient was referred to medical oncology. AMH was requested. The result was determined as <0.01.

Figure. Macroscopic appearance of ovarian mass

Discussion

Although there is no consensus on the pathogenesis of GHTs, first reported by Rokitansky in 1855, most researchers believe they result from early ovarian mesenchyme as they are composed of varying degrees of granulosa cells, theca cells, and fibroblasts[2].

Hypoestrogenism reported in patients with GHT is associated with tumor production of estrogens, anti-Müllerian hormone, and inhibin B[1]. The most common presenting symptoms are abnormal vaginal bleeding (45%) and abdominal pain or bloating (10-20%). In premenopausal patients, adult GHT typically causes irregular bleeding, amenorrhea, and less commonly infertility[4]. Abnormal vaginal bleeding associated with a unilateral ovarian mass is the most common clinical manifestation in postmenopausal patients. Ascites is rarely found in the primary diagnosis. In 8-15% of cases, the tumor presents with spontaneous rupture manifested by acute abdominal pain and hemoperitoneum[2,7]. On ultrasonography, adult GHT characteristically presents with a highly vasculatured cystic and solid ovarian mass. Typically, these patients also have an abnormally thick endometrium, endometrial hyperplasia may occur in 26-38% on pathological examination, and synchronous endometrial cancer is diagnosed in 6-7% of patients[6].

Because of slow growth and distinguishable hormonal symptoms, adult GHTs are usually diagnosed at an early stage. The majority (50-80%) are diagnosed in stage Ia, where the tumor is completely within the ovarian capsule and no tumor cells are found outside the ovary. The second most common (~30%) is stage Ic, in which tumor cells infiltrate through the ovarian capsule or the capsule ruptures spontaneously or for iatrogenic causes[4].

In our case, although the size of the mass was not very large, there was capsular invasion. Fluid was minimal in the abdomen. This case presented with postmenopausal bleeding. Although endometrial cancer is the primary concern in malignancy rates in postmenopausal bleeding, this patient was reported as GHT.

Our case differs from other cases with negative tumor markers, small size but capsule invasion, and benign endometrial pathology despite the complaint of postmenopausal bleeding.

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ANTICANCER ACTIVITY OF LAPATINIB IN GASTRIC CANCER IS INCREASED IN COMBINATION WITH NNC 55-0396 DIHYDROCHLORIDE

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Abstract

In the treatment of cancer, which continues to be one of the most important health problems, targeted therapies come to the fore in addition to conventional therapies. Among these treatments, lapatinib, a tyrosine kinase inhibitor, come to the fore. However, due to the heterogeneous nature of gastric cancer, resistance to these drugs may occur [1]. It is thought that drug combinations can offer a more effective treatment in order to overcome this serious problem [2]. T-type calcium channels, one of the different calcium channels found in cancer cells, have been associated with tumor initiation and progression [3]. Therefore, in this study, the possible effects of T-type calcium channel blocker *NNC 55-0396 dihydrochloride* with *lapatinib* combination on gastric cancer cell lines (*SNU-1, AGS*) were investigated.

In the first stage of the experiment, all both drugs were administered to *AGS,* and *SNU-1* cell lines at different doses and IC^{50} values were found. As a result of the data obtained, it was observed that Lapatinib was effective at lower concentrations in the *AGS* cell line. In the second phase of the study, the possible effects of the combination of *Lapatinib* and *NNC 55-0396 dihydrochloride* on the *AGS* cell line were investigated. It was observed that the antiproliferative activity of this drug combination was significantly higher than the single drug administration. In the next step, flow cytometric analysis and Annexin V-FITC staining experiment were performed. Combination drug administration was found to greatly increase the percentage of early and late apoptotic cells (P < 0.01).

In the light of all these data, it was observed that *Lapatinib*, which could not show the desired level of anticancer activity in *AGS* gastric cancer cells, increased apoptosis and showed a serious antiproliferative activity as a result of its combination with *NNC 55-0396 dihydrochloride*. However, this study needs to be supported by other in vitro and clinical studies.

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III. INTERNATIONAL CANCER DAYS

COMPARISON OF THE ACTIVITIES OF BROMINE-CONTAINING DIPHENYL METHANE DERIVATIVE COMPOUNDS AGAINST BREAST CANCER

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Abstract

Marine life contains large amounts of bromophenols that occur naturally. They are a highly big and diverse collection of eukaryotic organisms that are primarily isolated from the marine algae. Given that both natural and synthetic bromophenols exhibit a range of biological functions, recent interest from the synthetic community has also been drawn to the complete synthesis of these molecules [1,2]. Three molecules studied, namely 3,4-dibromo-5-(4-bromo-2,5-dihydroxybenzyl) benzene-1,2-diol, 4,6-bis(2,3-dibromo-4,5-dihydroxybenzyl).

A comparison of the chemical and biological activities of) benzene-1,2,3,5-tetraol, and 5,5'-methylenebis(3,4-dibromobenzene-1,2-diol) was made. Gaussian software program was used for chemical activity calculations and Maestro Molecular modelling platform (version 12.8) by Schrödinger was used for biological activity calculations. Breast cancer proteins were used for biological activity calculations.

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IN VITRO ANTIOXIDANT AND ANTICANCER ACTIVITY OF GREEN AND BROWN MACROALGAE: *Ulva rigida* and *Rugulopterix okamurea*

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Abstract

Macroalgae, commonly known as seaweeds, have received important attention, due to their ability to synthesize a variety of secondary metabolites that could be useful to prevent human diseases. Many studies have indicated that brown, red, and green seaweeds contain a variety of natural compounds such as terpenes, polyphenols, phlorotannins, and polysaccharides [1] which have shown anti-inflammatory[2], [3] , antioxidative[4], antimicrobial [5]and anticancer activity[6]. Scientific studies on these macroalgae from Morocco are very limited; thereby the aim of our study was to evaluate in vitro antioxidant and anticancer activity of the extract from the seaweeds *Ulva rigida* and *Rugulopterix okamurea*. Within the scope of this study, these macroalgae samples were obtained from various localities of Belyounech, M'diq and Azla, Morocco in 2020. The powder of each algae sample was extracted in the laboratory using methyl alcohol solvent. Different concentrations of methanolic extracts were used to estimate antioxidant activity and was measured using 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging test. *In vitro* anticancer activity against rat glial cell line (C6) was evaluated by 3-(4,5-Dimethylthiazol-2-cyl)-2,5-Diphenyltetrazolium Bromide (MTT) assay. MTT results were determined spectrophotometrically and IC50 values were calculated with the help of numerical data obtained by Graphpad analysis program. The antioxidant assay indicated that the methanolic extract of *Rugulopterix okamurea* an IC50 with 10.31 mg/ml. Some isolates showed moderate cytotoxic activity in high concentration of isolates on C6 rat glioblastoma cell line (IC50 < 100 μg/mL). It is the first time to test the efficacy of macroalgae extracts on this kind of cell line. It is thought that this study will be a beginning in terms of the therapeutic use of macroalgae samples from Morocco and the preparation of new effective supplements. We got preliminary results, and we expect further to repeat the experiment many times with different concentrations.

Keywords: *Seaweeds; Antioxidant; Anticancer; Secondary Metabolites; Cell Viability*

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INVESTIGATION OF THE EFFECT OF COMPOUND B-47/2 CONTAINING AZOMETHINE GROUP ON ANGIOGENESIS

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Abstract

Lung cancer is one of the most common cancers in the world [1]. New drug designs are needed because of the low probability of treatment in lung cancer patients [2]. In this study, the compound B-47/2 was synthesized for the first time. Lung cancer (A-549) cell line was grown and passage into 96-well plates, B-47/2 compound was applied to the cells at varying concentrations of 1-100 µg/mL, and cytotoxicity determination was made using the 3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolium bromide (MTT) method, and absorbance measurements were made at 570 nm. The determined IC_{50} concentration value was given to the cells and after 48 hours of incubation, RNA isolation and then cDNA synthesis were performed. Then, the expression levels of *VEGFB* gene related to angiogenesis gene were determined by RT-PCR method. As a result, it was determined that the B-47/2 compound applied to the A-549 cell line showed the highest cytotoxic activity after 72 hours of incubation. In addition, it was determined that the B-47/2 compound decreased the expression of the VEGFB gene.

Keywords: *Angiogenesis, Lung Cancer, Cytotoxicity, Gene Expression, Azomethine Derivatives*

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INVESTIGATION OF EXPRESSION PROFILES ON THE *PD-L1* GENE AND APOPTOSIS, CELL CYCLE GENES OF HETEROCYCIC COMPOUND IN STOMACH CANCER

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Abstract

Although gastric cancer incidence and mortality rates have decreased, it still maintains its importance as a health problem due to its high aggressiveness and heterogeneity. In recent years, scientists have accelerated their research on new molecules with anticancer activity. Heterocyclic compounds are known to have antibacterial, anti-tumor and anticarcinogenic effects and are thought to be promising in cancer treatment [1]. In our study, the first heterocyclic compound was synthesized. Then, the cytotoxic activity of this new synthesis molecule in gastric cancer cell line (AGS) was determined and expression profiles of some apoptosis, cell cycle genes and *PD-L1 (CD274)* gene were investigated on this cell line. The compounds synthesized in our study were characterized by 1H and 13C NMR spectroscopy methods. The new synthesized compound was applied to the AGS cell line at eight different concentrations (0.01-50µg/ml) and its anticancer activities were determined using the MTT method. Expression levels of *Tp53, MDM2, MYC* and *CD274* genes were determined by RT-PCR method. The interaction of proteins with other proteins was investigated with the String v11 program. As a result, the compound applied to the AGS cell line showed the highest activity after 72 hours of incubation. It was determined that the expression levels of this molecule in *Tp53* and *CD274* genes were higher than the control group.

Keywords: *Gastric Cancer, Heterocyclic Compound, PD-L1, Apoptosis, Cell Cycle, Gene Expression*

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THE EFFECT OF COMPOUND B-106 CONTAINING AZOMETHINE GROUP ON *MDM2* GENE

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Abstract

Lung cancer is the most common type of cancer in the world [1] and is the leading cause of cancer-related deaths in the world [2]. Treatment modalities for lung cancer include surgery, radiation therapy, chemotherapy, and targeted therapy [3]. In this study, firstly, compound B-106 was synthesized, then compound B-106 was applied to lung cancer (A549) cell line at eight different concentrations and 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) The IC_{50} value was determined by measuring the absorbance at 570 nm wavelength with the method. B-106 compound at the determined concentration was applied to the A549 cell line and cDNA was synthesized by RNA isolation. Then, the expression level of the gene involved in apoptosis (*MDM2*) was determined by RT-PCR method. As a result, it was determined that the B-106 compound applied to the A549 cell line showed the highest activity at the end of 72 hours. It was determined that the expression of the *MDM2* gene was decreased compared to the control group.

Keywords: *Azomethine, Cancer, Gene Expression*

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EFFECT OF SCHIFF BASE CONTAINING MOLECULE ON *FOX* GENES FAMILY

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Abstract

FOX proteins are transcriptional regulators that control various biological processes. Dysregulation of FOX proteins have been generally associated with tumorigenesis and cancer progression. Drugs containing Schiff base attract more attention due to their anti-cancer activity [1]. In this study, firstly, the synthesis of the compound containing Schiff base was carried out. Then, the anticancer activity of the newly synthesized T-134 compound was applied to the lung cancer cell line and the effect of this cytotoxic dose on the expression levels of *FOXP1, FOXP2, FOXO1, FOXO3* genes were investigated. The anticancer activity of this newly synthesized molecule was determined in the lung cancer cell line using the MTT method. Compound T-134 applied to the lung cancer cell line showed the highest activity after 72 hours of incubation. Expression levels of *FOXP1, FOXP2, FOXO1, FOXO3* genes were analyzed by RT-PCR method. In addition to experimental studies, string analysis was also performed. As a result, it was determined that the T-134 compound decreased the expression level of *FOXP1, FOXP2* and *FOXO1* genes and increased this level in *FOXO3* genes compared to the control group.

Keywords: *Lung Cancer, Schiff Base, Gene Expression*

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USE OF BORON COMPOUNDS IN CANCER TREATMENT

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Abstract

72% of the world's boron mineral reserves are located in Turkey. With the increasing interest in boron element, boron has been used in various fields. Among them, there is also the field of health, and boron shows great promise in increasing cancer treatment studies. Boron, which has a high affinity for oxygen, is a stable nonmetal found in mineral compounds as borate salts or boric acid. Boron, which is reported to be a beneficial element for humans, has been reported to significantly reduce the risk of developing various types of cancer such as prostate, breast, liver, pancreas, lymphoma in diets rich in boron.

One of the most important effects of boron is that it reduces the risks of brain tumor, lung, breast, and prostate cancer. With the use of boron compounds in the treatment of glioblastomas, the number of studies focusing on the synthesis of boron compounds with Boron Neutron Capture Therapy (BNCT) has increased. Borphenylalanine and sodium borcaptate, which are drugs containing low molecular weight boron, have started to be used in the treatment of brain tumors. The BNCT method is currently being used in cancer treatments. The most important advantage of this treatment is that it is a hope for cancer patients where surgery is risky.

In future studies, it is predicted that boron and its derivatives will play a major role in the diagnosis and treatment of cancer.

EVALUATION OF THE EFFECT OF COMPOUND B-108 CONTAINING AZOMETHINE GROUP ON DNA REPAIR GENE

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Abstract

Cancer arises as a result of the failure of the mechanisms controlling normal division in a group of cells [1]. It is known that some newly synthesized compounds intended for use in cancer treatment have anti-fungal, anti-bacterial and anti-carcinogenic effects [2]. In our study, the B-108 molecule was synthesized for the first time. Then, this synthesized molecule was applied in eight different concentrations (1-100 μg/ml) in A-549 cell line and its anticancer activities were determined using the 24-hour, 48 hour and 72 hour 3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolium bromid (MTT) method. RNA isolation and cDNA synthesis were performed by applying the molecule whose IC_{50} dose was determined. The expression level of DNA repair related gene *ERCC1* was determined using RT-PCR method. As a result, it was determined that the molecule applied to the A-549 cell line showed the highest activity after 72 hours of incubation. It was observed that the *ERCC1* gene expression of the molecule applied on lung cancer was lower than the control group.

Keywords: *A-549, RT-PCR, Azomethine Group, DNA Repair, Gene Expression*

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EFFECT OF CARBONITRILE-BASED COMPOUND ON OXIDATIVE STRESS RELATED GENES IN LUNG CANCER CELLS

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Abstract

Oxidative stress reactions are associated with oncogenesis and tumor recurrence [1,2]. It is known that lung cancer is more sensitive to oxidative stress gene expression fluctuations. Although the biological role of oxidative stress pathways has been extensively demonstrated, it is not known which oxidative stress genes predict poor prognosis [3,4]. Carbonitrile-derived compounds play a role in a variety of biological activities, including anticancer activities [5,6]. In this study, it was aimed to investigate the cytotoxicity of the newly synthesized compound containing carbonitrile group (T-320) on the lung cancer cell line (A-549) and to investigate the effect of this component on the expression of CAT, SOD1, GPX1 and PRDX1 oxidative stress related genes on the A-549 cell line. T-320 was synthesized for the first time. Different concentrations of T-320 (0.01-50 µM) were applied to the A-549 cell line and its cytotoxic activity was investigated at 24-, 48- and 72-hours incubation using the the MTT method. The determined IC_{50} concentration of T-320 was applied to this cell line and after 48 hours of incubation, RNA isolation was achieved, and cDNA synthesis was achieved. The effect of T-320 on the expression of relevant oxidative stress genes was determined by RT-PCR, calculations were made using the ΔΔCT method. The functional interactions of the proteins, which are the products of the related genes, with each other were analyzed using the STRING v11 database. The highest cytotoxic activity of T-320 was found in 72 hours of incubation. According to expression analysis, it was determined that T-320 decreased the expression level of *GPX1* and *CAT* gene in A549 cell line by 15.45- and 3.12-fold change, respectively. A 2.13-fold increase was observed in the expression level of the *PRDX1* gene. As a result, this carbonitrile-based compound can affect the pathways related to oxidative stress and its role in cancer needs to be further clarified.

Keywords: *Oxidative Stress, Lung Cancer, Gene Expression, Carbonitrile Group, Cytotoxicity*

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RARE BENING TUMOR OF THE LUNG: PERIVASCULAR EPITHELIOID TUMOR (PEComa)

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Abstract

Perivascular epithelioid tumors (PEComas) are a group of mesenchymal tumors that include angiomyolipoma, lymphangiomyomatoasis, and clear cell tumors of the lung. So far, only 50 cases have been reported. The 'frozen section' was studied intraoperatively (Figure 1). However, since benign-malignant distinction could not be made, thoracotomy with middle lobectomy and mediastinal lymph node dissection was performed. In our case, it is aimed to contribute to the literature with the diagnosis and treatment of a rare clear cell tumor of the lung by performing a middle lobectomy on a 66-year-old female patient.

In conclusion, since the future behavior of these tumors is not clearly known, we recommend anatomical resection for these patients in cases where there is uncertainty in the 'frozen section' (1).
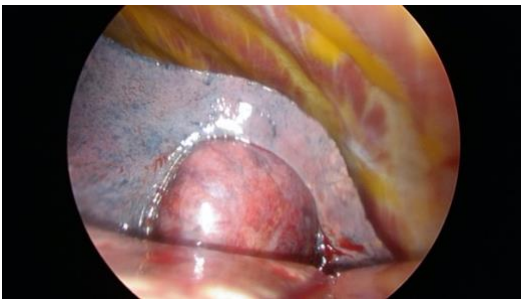
Figure 1. Intraoperative view of PEComa

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COMPARISON OF HIGH-RISK HISTOLOGICAL FEATURES WITH TUMOR-RELATED VARIABLES IN CUTANEOUS MALIGNANT MELANOMA

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Abstract

The aim of this study was to compare prognostic factors with some tumor-related variables in patients operated from cutaneous malignant melanoma (MM). Data of 41 patients who were operated from MM between 2012 and 2022 in our Plastic Reconstructive and Aesthetic Surgery clinic were retrospectively reviewed. Prognostic factors were compared with each other, MM tumor size, localization, subtype, and gender.

The median age was 66 (min-max: 11-95, IQR:29) years. Of patients, 53.7% were male and 95.12% applied to our clinic due to primary tumoral lesions. The most prevalent type of melanoma was nodular MM. A statistically significant difference was found between Clark level and Breslow thickness, tumor size, and lymphovascular invasion, but it was not revealed with ulceration. It was observed that the MM localized to the lower extremity were larger in size compared to other localizations. When compared according to gender, the tumor size at the time of first diagnosis was found to be smaller in women than in men.

Clark level was related with Breslow thickness, tumor size, and lymphovascular invasion. Tumor size was affected by gender and localization of lesion.

Keywords: *Breslow Thickness, Clark Level, Cutaneous Malignant Melanoma, Hıgh-Rısk Histological Features.*

Introduction

Malignant melanoma (MM) is relatively rare compared to the other skin cancers. Invasive melanoma accounts for only 1% of all skin cancers, but it rapidly progresses and is responsible 75% of skin-cancer-related deaths in a short time with metastases. A five-year survival rate in local disease is 90%; This value decreases to 60% in lymph node involvement and to 23% in the presence of distant metastases. The most important independent factor affecting survival in patients with malignant melanoma is Breslow thickness and ulceration [1-4].

As even relatively small melanomas may have metastatic potential, it is shown that accurate assessment of progression is critical, early diagnosis and large excision are associated with a 5-year survival rate of 98%. As for prognosis, Clark level, mitotic rate, lymphovascular invasion (LVI), and

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ulceration have been considered the others important prognostic indicators of histopathologic criteria [3,5].

The primary treatment of melanoma is surgery. The main criterion used to determine the surgical margins is the Breslow thickness [6].

There are lots of studies evaluating the prognostic factors of malignant melanoma and the relationship of these factors with survival. However, no study has been found in the literature investigating the relationship between the prognostic factors. In this study, we aimed to compare prognostic factors with some tumor-related variables in patients operated from cutaneous malignant melanoma.

Method

Patients who were operated from cutaneous MM between 2012 and 2022 in our Plastic Reconstructive and Aesthetic Surgery clinic were included in the study. The data were retrospectively reviewed from hospital records. The patients were examined in terms of age, gender, tumor localization and subtypes of MM. Localization was classified as head-neck, chest-back, upper, and lower extremities. In addition, tumor size, Breslow thickness, Clark stage, lymphovascular invasion (LVI), and ulceration, which are considered as prognostic factors, were evaluated. Lymphatic metastases and distant metastases of the patients at the time of initial diagnosis were obtained from the results of preoperative Ultrasonography and Positron Emulsion Tomography. Sentinel lymph node biopsy applied to the patients during the surgery and/or lymph node biopsy performed in the relevant area were recorded. Prognostic factors were compared with each other, MM tumor size, localization, subtype, and gender.

Data were evaluated with the SPSS program vers. 22.00. In addition to descriptive statistics, Chi-square test, Mann-Whitney U test and Kruskal Wallis tests were used in the analysis. $p < 0.05$ was considered statistically significant.

Results and Discussion

It was included in this study 41 patients operated from cutaneous MM with a mean age of 62 ± 20.3 (median: 66, IQR: 29, min-max: 11-95) years. Of patients, 53.66% (n:22) were male and 95.12% (n=39) applied to our clinic due to primary tumoral lesions, while 4.88% (n=2) were admitted for lymph node metastasis. Considering the subtypes of malignant melanoma, the most prevalent subtype of melanoma was nodular MM (53.66%, n=22). It was followed by 17.1% (n=7) Superficial Spreading MM, 12.2% (n=5) Acral Lentigenous MM, 7.3% (n=3) Lentigo MM and 2.4% (n=1) Dermaplastic MM. Subtyping was not achieved in three of our patients (7.3%).

The mean tumor size was 23 ± 21.4 (median:17, IQR:34, min-max: 2-100) mm. The mean Breslow thickness of the patients were 4.3 ± 3.9 (median:3, IQR:6, min-max:1-15) mm and the distribution of Breslow thicknesses was given in Table 1.

The majority of patients were in Clark level 3 and 4 (Table 2). LVI was positive in three patients (7.7%) and negative in 36 patients (92.3%). The contrary of 22 patients (56.4%), ulceration was observed in 17 patients (43.6%). Sentinal Lymph Node sampling had been performed in 15 (36.7%) patients. After sampling, lymph node involvement was detected in 33.3% (n=5) and was not

observed in 66.7% (n=10). In 19.5% (n=8) of our patients, lymph node dissection was performed with the relevant region and metastasis was detected in 62.5% (n=5) of them. When the preoperative examinations were evaluated, 36 (87.8%) of our patients had Positron Emulsion Tomography. As a result of this examination, pathological lymph nodes were detected in two of our patients, suspicious lymph nodes were not detected in 10 (27.8%) patients, and no pathological lymph nodes were detected in 24 (66.6%) patients. Distant metastases were present in four patients (11.1%) at the time of initial diagnosis.

The relationship of Clark stage with Breslow thickness, tumor size, LVI and ulceration were summarized in Table 2. The knowledge about Clark level, Breslow thickness and tumor size according to localization was given in Table 3. Comparision of tumor-related varıables according to gender were delivered in Table 4.

Important factors that negatively affect survival in malignant melanoma are Clark level of invasion, Breslow thickness, ulceration, advanced age patient age, trunk location, large tumor size, nodular histogenetic type, and male gender [7]. More thicker and ulcerated lesions were shown at the applying time in older MM patients [8]. Moreover, a lot of studies have reported that the age was an independent prognostic factor in MM [9-11]. It is reported that the influence of gender can be changed according to thickness, ulceration, and anatomic site of the melanoma, and women have thinner lesions with less frequent ulceration compared to men [8,12]. In contrast, in our study was not found these differences but only tumor size was smaller in women when compared to men.

A correlation between prognosis and anatomic location of MM lesions have been observed. The worse prognosis was reported to head-neck lesions than the extremities [13,14]. In our study, no relation between localization and clark stage Breslow thickness was detected. Only the tumor size was smaller in the head and neck region compared to the trunk and lower extremities.

Although LVI is not an independent predictor of overall survival, it is associated with a greater risk of SLN metastasis [15]. In addition, the possibility of systemic recurrence in regional lymph node involvement have been correlated with the size and number of tumor-associated lymph nodes [5]. In this study, due to only three patients with LVI, it could not analyze relationship between other prognostic factors.

In our study we found a statistically significant difference between Clark Stage and Breslow thickness, tumor size, lymphovascular invasion. Contrary, the similar significant difference was not revealed with ulceration. The Breslow thickness and Clark stages were not affected by localization of tumor. However, it was observed that the malignant melanomas localized to the lower extremity were larger in size compared to other localizations. The tumor size at the time of first diagnosis was found to be smaller in women.

Conclusion

Over the years, the incidence of cutaneous malignant melanoma has increased throughout the world. While current therapeutic regimens demonstrate clear efficacy in many patients with advanced melanoma, some patients either relapse or do not respond to these regimens and cutaneous malignant melanoma is a leading cause of cancer death.

In our series, it was observed that 71.8% of our patients were 1 mm above the Breslow thickness and 43.6% of them had Clark Level 4 and above. Breslow thickness, which is one of the independent risk factors, was not associated with localization and gender. Ulceration, which is another independent risk factor, was not associated with Clark level.

Table 1. Tumor (Breslow) thickness

Breslow Thickness (mm)	n (%)
≤1	11 (28.2)
1,1-4	15 (38.5)
>4	13 (33.3)

Table 2. Comparision of tumor-related variables with Clark Level

Clark Level	n (%)	Breslow(mm) Mean±SD median (min-maks) IQR	Tumor Size(mm) Mean±SD median (min-maks) IQR	LVI n (%)	Ulceration n (%)
I	1 (2.6)	1	5	-	-
II	9 (23.1)	1.82±1.13 1 (1-3) 2.05	14.33±15.8 5 (2-40) 28	1 (11.1)	1 (11.1)
III	12 (30.8)	2.81±2.11 2.5 (1-8) 2.75	31.75±27.15 22.50 (4-100)35.75	-	5 (41.7)
IV	12 (30.8)	5.38±3.43 4.5 (1-12) 5.37	18.08±14.88 9.5 (5-50) 13.25	-	8 (66.7)
V	5 (12.7)	10.20±5.02 9 (3-15) 9	36.40±19.42 45 (10-55) 36.5	2 (40)	3 (60)
p		**0.004**	**0.041**	**0.048**	0.099

Table 3. Clark level, Breslow thickness and tumor size according to localization

Localization	n (%)	Clark Level		Breslow(mm) Mean±SD median (min-maks) IQR	Tumor Size(mm) Mean±SD median (min-maks) IQR
		≤3	>4		
Head-neck	14 (35.9)	8 (57.1)	6 (42.9)	4.42±4.15 3 (1-15) 7	19.07±15.22 17 (2-50) 21.75
Chest-back	2 (5.1)	1 (50.0)	1 (50.0)	5.25±3.89 2.25(3, 8)	30.5±34.65 30.5(6, 55)
Upper extremity	6 (15.4)	3 (50.0)	3 (50.0)	3.17±2.04 3 (1-7) 2.25	5.83±2.32 5.50 (3-10) 2.5
Lower extremity	17 (43.6)	10 (58.8)	7 (41.2)	4.42±4.3 3 (1-15) 6.5	31.0±25.02 25 (4-100) 38
p		0.981		0.969	**0.04**

Table 4. Comparison of tumor-related variables according to gender

		Gender		p
		Male n(%)	Female n(%)	
Localization	Head-neck	9 (64.3)	5 (35.7)	0.326
	Other part of body	13 (48.1)	14 (51.9)	
Types of melanomas	Nodular	11 (50.0)	11 (50.0)	0.532
	Superficial spreading	3 (42.9)	4 (57.1)	
	The others	8 (66.7)	4 (33.3)	
Ulceration	Present n(%)	10 (58.8)	7 (41.2)	0.408
	None n(%)	10 (45.5)	12 (54.5)	
LVI	Present n(%)	2 (66.7)	1 (33.3)	0.579
	None n(%)	18 (50.0)	18 (50.0)	
Clark Level	≤3	12 (54.5)	10 (45.5)	0.643
	>4	8 (47.1)	9 (52.9)	
Breslow thickness (mm), *Mean±SD* *median (min-maks) IQR*		5.33±4.72 3 (1-15) 8	3.16±2.36 3 (1-8) 2	0.224
Tumor Size (mm), *Mean±SD* *median (min-maks) IQR*		29.10±17.94 23.5 (3-55) 33.25	16.21±23.23 7 (2-100)12	**0.008**

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INVESTIGATION OF ONCOLOGY PATIENTS' ATTITUDES AND PRACTICES REGARDING COMPLEMENTARY AND ALTERNATIVE TREATMENT PRACTICES

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Abstract

Introduction: Complementary and alternative therapy (CAM) use, which started in the 1990s in our country in parallel with the countries of the world, still continues. The World Health Organization (WHO) states that the use of CAM is 80% in Asia and Africa, 70% in Canada, 90% in Germany and 50% in Sweden (WHO 2008).

Aim: The aim of this study is to determine the use of complementary and alternative treatments and their attitudes towards this issue of oncology patients who are being treated at Cumhuriyet University Health Services Application and Research Hospital, Oncology Center.

Method: It is a cross-sectional descriptive study. Data were collected by survey method. Data were obtained from the patients by using the "Personal Information Form" consisting of 25 questions containing the socio-demographic characteristics of the volunteers and the "Attitude Scale towards Holistic Complementary and Alternative Medicine (SCA)". Number, percentile, and chi-square tests were used to evaluate the data.

Results: 50.7% of the individuals within the scope of the study were women, 82.5% were married, 46.0% were housewives, 17.5% were illiterate, 68.2% were primary school, 13.3% high school, 10.9% university. it was determined that 74.4% of them graduated from the nuclear family type, 63% lived in the province, and their average age was 57.17±13.05. 32.0% of the individuals had cancer disease duration between 3 months and 228 months, mean disease duration was 20.82±30.79 months, 36.0% had chronic disease additional to cancer, 43.4% had DM, 36.8% had HT, 19.7% had He has been found to have heart disease. 7.6% of individuals have drug allergy and 2.8% have food allergy.

In our study, the Cronbach's Alpha value of the Attitudes towards Holistic Complementary and Alternative Medicine Scale was 0.91. The mean score of the Attitudes towards Integrative Complementary and Alternative Medicine Scale (13-65) was determined to be 40.97±13.68. It can be said that their Attitudes towards Holistic Complementary and Alternative Medicine are at a moderate level.

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Conclusion: Cancer patients use CAM methods; nurses should determine the use of CAM in cancer patients. In addition, it can be recommended that nurses provide training and counseling on the use of CAM by determining the Attitudes of the patients towards Integrative and Alternative Medicine.

Keywords: *Cancer, Oncology, Complementary and Alternative Therapy*

THE ROLE AND IMPORTANCE OF PERICARDIAL EFFUSIONS IN THE DIAGNOSIS OF MALIGNANCY

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Abstract

Pericardial effusion (PE) is defined as fluid accumulation in the pericardial area due to systemic and cardiogenic causes. Cytological examination of this fluid primarily has diagnostic value in excluding malignancies. We reviewed the cytology results of the patients who underwent pericardiocentesis in this study.

Patients who applied to Sivas Cumhuriyet University cardiology clinic for different reasons and underwent pericardiocentesis between 01.01.2019-01.09.2022 were included in the study. The reasons for the admission of these patients and the pathology reports of the cytological material sent to pathology were examined. The information obtained was recorded. Results: There were 26 pericardial cytological materials sent to pathology. Nine of the cases were male and 17 were female. The mean age of the patients was 58.5 ± 13.9 (between 22 and 80 years). According to cytological findings, 13 cases (50%) were diagnosed as benign, 6 cases (23%), 6 cases (23%) malignant, and 6 cases (23%) suspected malignant cytology. The cytology material of one of the cases was not diagnostic. Pericardial effusion material is scarce in cytology routine. Cytological examination of this fluid guides the diagnosis and treatment of many diseases. In this study, the malignancy rate was found to be higher than other cytology materials, similar to the literature.

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IN VITRO ANTIPROLIFERATIVE ACTIVITIES OF ROYAL JELLY COLLECTED FROM SIVAS IN HUMAN OVARIAN CANCER (SK-OV-3) CELL LINE

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Abstract

Royal jelly has positive effects on human health. It is a bee product and functional food. Royal jelly is secreted from the glands of hypopharyngeal and mandibular secretion tissue of young worker bees. It is a viscous liquid with a sour taste and a white-yellowish color and has a special phenol smelling liquid. Royal jelly is health promoting food, and it is used in the production of cosmetic medical products. Most of the study in the literature, it has been shown that royal jelly has antibacterial, anti-inflammatory, vasodilator, hypotensive, antioxidant, antidiabetic, antihypercholesterolemic and antitumoral activities [1]. Within the aim of this study, royal jelly samples were obtained from various localities of Sivas province. Royal jelly samples were obtained from beekeepers in the 2020 harvest period. It was aimed to determine and compare the cytotoxic activity of royal jelly samples collected different area of Sivas province in SK-OV-3 (Human ovarian cancer) cell line using MTT test. MTT results were determined spectrophotometrically and IC50 values were calculated with GraphPad program. It was observed that some samples with a high concentration dosage and during 48-hour period showed good cytotoxic activity in this cell line. It is the first time to test the efficacy of royal jelly samples from Sivas region on the SKOV-3 cell line and this study will be a beginning in terms of the therapeutic use of bee royal jelly samples from Sivas province and the preparation of new effective supplements.

Keywords: *Cytotoxic, Bee Products, SK-OV-3, Royal Jelly, Sivas.*

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III. INTERNATIONAL CANCER DAYS

INVESTIGATION OF THE CYTOTOXIC ACTIVITIES OF ROYAL JELLY ISOLATES FROM SIVAS PROVINCE IN MCF-7 CELL LINE

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Abstract

Royal jelly is used such as dietetic, cosmetic, and medical commercial products in many countries. Royal jelly is secreted from mandibular and hypopharyngeal glands of young worker bees (*Apis mellifera* L.), which they use to feed their larvae. It is a bee product in the form of milk. In years 1960s with the development of apitherapy, royal jelly started to be used as a functional food. Many studies on biological activities and chemical composition of royal jelly have been carried out. The royal jelly generally is used in different fields from food to the pharmaceutical industry, from cosmetics to manufacturing sector with its important biological activities [1,2]. In this study, it was aimed to extract bee royal jelly samples collected from Sivas province by using different solvents and to compare their in vitro cytotoxic activities using the MCF-7 (Human breast cancer) cell line with using MTT protocol. In general, it will be possible to compare the effectiveness of Sivas samples with the studies in the literature. IC50 values from MTT analysis were calculated in the Graphpad analysis program. It was observed that royal jelly isolates showed good cytotoxic activity against MCF-7 cell line. We hope that this study data will be a guide for new studies about preparation of new and effective pharmacognostic supplements.

Keywords: *Bee Products, Cell Viability, MCF-7, Royal Jelly, Sivas.*

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III. INTERNATIONAL CANCER DAYS

DETERMINATION OF IN VITRO CYTOTOXIC ACTIVITY OF PROPOLIS SAMPLES FROM SİVAS PROVINCE ON HUMAN BREAST CANCER CELL LINE

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Abstract

Propolis is a resin-like product produced by bees by processing the substances they collect from trees, leaves, stems and secretions of plants with the enzymes they secrete from the glands in their heads. Bees use propolis, which has antioxidant and antimicrobial properties, to protect their hives against bacterial and fungal infections to ensure the hygiene of the honeycombs, and to prevent other insects and animals from entering the hive [1,2]. In this study, it was aimed to extract bee propolis samples collected from different regions of Sivas province by using 2 different solvents and to compare their in vitro cytotoxic activities using the MCF-7 (Human breast cancer) cell line with MTT assay. In general, it is possible to compare the effectiveness of Sivas propolis samples with the studies in the literature. Extraction of propolis samples obtained from Yıldızeli, Zara and center districts of Sivas in the 2021 harvest period was carried out using ethyl alcohol and water solvents. Using the MTT results, IC50 values were calculated in the GraphPad analysis program. It was observed that ethonolic propolis isolates showed good cytotoxic activity against MCF-7 cell line. It was determined that ethyl alcohol isolates of propolis samples showed IC50 values in the range of 25.0-96.4 μg/mL and water isolates 108.5-213.6 μg/mL.It is thought that the propolis samples of Sivas are promising in the preparation of new and effective pharmacognostic supplements.

Keywords: *Cytotoxicity, Bee Propolis, MCF-7, Sivas*

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PAZOPANIB MONOTHERAPY IN HIGH GRADE ENDOMETRIAL STROMAL SARCOMA, A CASE REPORT AND LIRATURE REVIEW

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Abstract

Soft tissue sarcomas of uterine origin are uncommon tumors of the uterus. High-grade endometrial stromal sarcoma (ESS) is a rare subtype of uterine soft tissue sarcoma [1]. High-grade ESS has aggressive clinical behavior and poor prognosis. Unfortunately, there are not many treatment options for high-grade ESS. Conventional chemotherapy has low cytotoxic effects against ESS [2]. Pazopanib is an orally administered drug. The mechanism of action is multi-target tyrosine kinase inhibitor (TKI), especially it inhibits vascular endothelial growth factor receptors (VEGFRs) [3]. There are very few case reports in the literature showing that pazopanib is effective in high-grade ESS. In this article we presented a demonstrative case with diagnosis of high-grade ESS and literature review about treatment options. Our case had eight months progression-free survival with pazopanib, and it was tolerable for her. We think it can be a treatment option for high-grade ESS patients.

Keywords: *Endometrium, Sarcoma, Soft Tissue, Pazopanib*

Introduction

Uterine sarcomas usually present with abnormal vaginal bleeding, pressure symptoms at lower abdomen (e.g., pressure, urinary frequency, constipation), uterine mass, or abdominal distension. Uterine sarcomas represent 8% of primary uterine malignancies, and ESS represent about 15% of uterine sarcomas [4]. Leiomyosarcoma (LMS) is the most common histological subtype (60%), followed by endometrial stromal sarcoma (ESS), undifferentiated sarcoma, and others. The World Health Organization (WHO) classifies endometrial stromal neoplasms and related tumors into five categories: endometrial stromal nodule (ESN), low-grade endometrial stromal sarcoma (LG-ESS), high-grade endometrial stromal sarcoma (HG-ESS), undifferentiated uterine sarcoma (UUS), and uterine tumor resembling ovarian sex cord tumor (UTROSCT) [5]. We discussed in this review and presented a case about HG-ESS. HG-ESS is associated with more frequent recurrences and higher mortality than LG-ESS. Overall, prognosis with HG-ESS is worse than with LG-ESS but better than with undifferentiated uterine sarcoma [6]. When look at molecular status of HG-ESS, they are generally express diffuse cyclin D1. They are frequently CD 10, estrogen, progesterone receptors negative tumors [7].

HG-ESS frequently has c-kit mutation, and it is associated with poor prognosis [8]. Rearrangements of t (10;17) resulting fusion to FAM22 (known as YWHAE-FAM22 or YWHAE-NUTM2) frequently occurs in HG-ESS [6].

If LG-ESS, HG-ESS, or UUS confined to the uterus, they should undergo staging surgery, including a total extra fascial hysterectomy with or without bilateral salpingo-oophorectomy (BSO). Lymph node metastases are uncommon in HG-ESS. It usually does metastasis with hematogenic way. Therefore, the subject of lymph node dissection is controversial. If extrauterine metastasis present, surgery decision must be individualized. There is insufficient data to suggest that optimal cytoreduction would be beneficial [9]. Only selected patients who present with a solitary metastasis should be considered for metastasectomy. There isn't consensus about adjuvant treatment for HG-ESS. Adjuvant chemotherapy is recommended for those with stage II and above, but not in Stage I. Adjuvant radiotherapy should be considered at stage II or more [10]. If surgery begins presuming benign histology but diagnosed HG-ESS after hysterectomy, secondary surgery for lymph node dissection not recommended. But metastasectomy recommended if resectable oligometastasis presents.

HG-ESS has a high risk of recurrence. Five years progression free survival (PFS) rate is 42.1% for HG-ESS [11]. Best treatment option for metastatic, non-operable HG-ESS is not clear. Clinical trial for these patients should be chosen. Endocrine treatment should be chosen for LG-ESS, hormone receptors (estrogen and progesterone receptors) positive tumors. In HG-ESS most of the tumors are hormone receptors negative. Drugs with activity in HG-ESS are gemcitabine plus docetaxel, ifosfamide, and doxorubicin, but there are only few data [9]. If there is YWHAE-rearrangement antracyclins are more effective in that tumors. There are few case reports and case series about targeted treatment especially about pazopanib. In a case series salvage therapy with pazopanib monotherapy demonstrated clinically effective and tolerable in unselected patients with uterine STS [12]. In a case report, it was reported that 9 months of PFS was achieved with pazopanib in HG-ESS [13].

Case Report

65 Years old woman, she applied to the gynecology outpatient clinic in May 2020 due to urinary incontinence. Total abdominal hysterectomy and bilateral salpingo oophorectomy performed with the preliminary diagnosis of uterine myoma. The pathology report was high grade endometrial stromal sarcoma at uterus corpus, 150x100 mm in size, tumor necrosis positive, lymph vascular invasion positive, no endocervical invasion, and microsatellite instability low. Thoracic and abdominal CT was performed after surgery. At the iliac bifurcation level, multiple lymphadenopathies were seen with a size of 51x49 mm. Since the lymph nodes invaded the aorta and surrounding tissue, a secondary surgery was not considered. Radiotherapy was not considered because lymph node metastases were common. In July 2020 docetaxel-gemcitabine chemotherapy started, 3 cycle received every 21 days. Paraaortic metastatic lymph nodes regressed. But her presacral lymph nodes have progressed. Radiotherapy was received to presacral lymph nodes. Meanwhile, next generation sequencing was performed in the first pathology preparateS. Pathogenic mutations were detected in the C-kit, MSH, PTEN, TP53, CDC27 genes. Pazopanib 1x800 mg/day per oral was started in December 2020. Regression was detected in all lymph nodes at 3 months after pazopanib treatment and it was evaluated as partial response. In August 2021, new metastatic lesions

were detected in the lung, progression was accepted and pazopanib was discontinued. Because the patient does not want to receive chemotherapy letrozole was started in August 2021, but a rapid progression was seen after 2 months. Since C-kit mutation was detected, imatinib was started in December 2021. However, the disease progressed within 3 months and the patient died in April 2022.

Discussion

In our case, we were faced with a patient who did not respond to chemotherapy and hormonal treatment. Surgical treatment including total abdominal hysterectomy, bilateral salpingo-oophorectomy, and metastasectomy, when feasible is the standard initial treatment for patients with HG-ESS. However, metastasectomy was unfortunately not possible in this case. Sarcoma-based chemotherapy is more commonly used for patients with advanced HG-ESS. In a small retrospective series of five patients with HG-ESS and the YWHAE rearrangement who received anthracycline-based chemotherapy for first-line treatment of metastatic disease, one patient had a complete response, three had partial responses, and the remaining patient had stable disease, suggesting that cytotoxic chemotherapy can be effective for HG-ESS [14]. In our case, a very good PFS (eight months) was obtained with pazopanib. There is no case in the literature showing such a good response with pazopanib in HG-ESS. In a gene expression profiling study, HG-ESS tumors demonstrated increased expression of NTRK3, FGFR3, RET, BCOR, GLI1, and PTCH1 but low expression of ESR1 [15]. Pan-tyrosine receptor kinase expression by immunohistochemistry was commonly observed in HG-ESS. Increased expression of neurotrophic tyrosine receptor kinase-3, fibroblast growth factor receptor-3, and RET may implicate a role for tyrosine kinase inhibitor therapy for HG-ESS. A few case reports have reported responses to various tyrosine kinase inhibitors, including pazopanib and imatinib in patients with HG-ESS [13, 16].

Since overexpression of GLI1 and PTCH1, targeting Sonic hedgehog pathway may be sensible. Resistance to hormonal treatment may be explained by the decreased expression of ESR1 in HG-ESS. The oncogenic role of YWHAE–NUT2M fusions has recently been explored [17]. These fusions were found to induce the RAF/mitogen-activated protein kinase and Hippo pathways, with downstream induction of cyclin D1. Activation of CDK4 by cyclin D1 promotes progression through the G1-S phase cell-cycle checkpoint and offers a potential targeted therapy for HG-ESS. In preclinical models, the CDK4/6 inhibitor Palbociclib and the mitogen-activated protein kinase inhibitor PD325901 achieved 55% and 65% inhibition of cell viability, respectively, in an HG-ESS model, and the combination suppressed viability by 90%. COR-rearranged uterine sarcomas, including BCOR ZC3H7B or BCOR internal tandem duplication, are best classified as HG-ESS according to DNA methylation analysis [18]. HG-ESS has low mutational burden and absence of microsatellite instability [19]. Therefore, it is thought that immunotherapy will not be effective in HG-ESS. Amplifications of MDM2, CDK4, and FRS2 were found in 45%, 38%, and 40% of cases, respectively, with a median copy number of approximately 16. Furthermore, cyclin D1 expression by immunohistochemistry is a common feature of BCOR-altered uterine sarcomas. Overall, a genomic alteration affecting the cyclin D-CDK4/6-Rb pathway was found in 65% of BCOR-rearranged uterine sarcomas. Although the predictive value of CDK4 amplification and CDKN2A/B loss for sensitivity

to CDK4/6 inhibitors remains poorly understood, these findings implicate a potential therapeutic role for CDK4/6 inhibition for patients with HG-ESS. In a study, MDM2 amplification was found in all five patients with BCOR rearrangements but not in patients with LG-ESS, LMS, or HG-ESS associated with the YWHAE–NUTM2 fusion [20]. MDM2 functions as a proto-oncogene by negatively regulating TP53 transcriptional activity; various MDM2 inhibitors are in clinical trials. Less common alterations in BCOR-rearranged sarcomas included amplifications in platelet-derived growth factor receptor-A, vascular endothelial growth factor receptor-2, ERBB3, and KIT (each less than 10% of cases) and NF1 mutations.

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ONLINE ORAL PRESENTATIONS

FREQUENCY OF ANEMIA IN CANCER PATIENTS APPLYING TO A CHEMOTHERAPY UNIT

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Abstract

Cancer is an important problem of our age because it causes morbidity and mortality and causes many biochemical and clinical problems. It is aimed to obtain information about the anemia status of cancer patients receiving service in the chemotherapy unit in Yozgat region.1200 cancer patients admitted to Yozgat City Hospital chemotherapy unit between January 2021 and July 2022 were included.

Results: Of the patients, 612 (51%) were male, 588 (49%) were female, with a mean age of 62. The 5 most common cancer types seen in all patients included in the study were as follows; lung cancer 294 (24.5%), breast cancer 228 (19%), colorectal cancer 206 (17.2%), stomach cancer 115 (9.6%), 66 (5.5%) ovarian cancer. The 5 most common types of cancer in women; breast 246 (42%), colorectal 79 (13.6%), lung 44 (7.6%), stomach 38 (6.6%), ovarian 36 (6.2%). The 5 most common cancer types in men are lung cancers were 233 (38.2%), colorectal 140 (23%), stomach 64 (10.5%), prostate 32 (5.3%), pancreatic 23 (3.8%).

The average Hb value of patients in lung cancer is 11.6 in men, 10.5 in women, and Hgb in breast cancer: 12.2. In colorectal cancers, hgb:9.8 in women, hgb:9.8 in women, hgb in men: 10.6 in women, 8.8 in women in ovarian cancer, hgb:8.5 was found. The mean hgb in endometrial cancers in women was significantly lower (hgb: 7.4) The cancer types and frequency of patients admitted to the oncology unit are similar to the data of our country and the world. Anemia is an important clinical problem and outcome in cancer patients. Although the factor is multifactorial, many patients need anemia control and treatment.

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COMPARISON OF THE EFFICACY OF FIRST-LINE TREATMENTS IN CASTRATION-RESISTANT PROSTATE CANCER PATIENTS WITH VISCERAL METASTASIS

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Abstract

The optimal treatment option for castration-resistant prostate cancer (CRPC) patients with visceral metastases is unknown. We evaluated the efficacy and tolerability of first-line treatment options for CRPC patients with visceral metastases. Forty patients diagnosed with CRPC with visceral metastases were included in the study. Median OS was 14.5 months for CRPC with visceral metastases, 15.7 months for docetaxel patients, 15.4 months for enzalutamide patients, 5.06 months for abiraterone patients, and the values were not statistically significant. The median PFS for CRPC with visceral metastasis was 6.17 months, 6.80 months for docetaxel patients, 5.06 months for enzalutamide patients, and 3.28 months for abiraterone patients. The values were not statistically significant. In our study, we found that the use of docetaxel or enzalutamide in first line in CRPC patients with visceral metastases was similar in terms of survival, and shorter survival times with abiraterone.

Keywords: *Abiraterone, Castration-Resistant, Docetaxel, Enzalutamide, Prostate Cancer, Visceral Metastasis*

Introduction

Visceral metastatic disease occurs in 16-18% of patients with castration-resistant prostate cancer and is associated with a poor prognosis [1-3]. It is believed that by incorporating new therapeutic options into the treatment algorithm for prostate cancer, patient survival is prolonged, resulting in a higher incidence of visceral metastases. The optimal therapeutic option for castration-resistant prostate cancer (CRPC) patients with visceral metastases is unknown.

In prostate cancer, as in many other types of cancer, there is a tendency to treat patients with visceral metastases more aggressively with chemotherapy. In the TAX-327 study, in which the efficacy of docetaxel was investigated, the median overall survival (mOS) was 13.1 months in patients with visceral metastases and 18.3 months in patients with bone and/or lymph node involvement [4]. In the PREVAIL study, which enrolled asymptomatic and minimally symptomatic patients naïve to docetaxel, enzalutamide resulted in a significant improvement in radiological progression free survival (PFS) in visceral disease compared to placebo, again with a mOS of 27.8 months [5]. In a study presenting real-life data on abiraterone in the post-docetaxel and pre-docetaxel

periods, among chemo-naive patients, those with visceral metastases had shorter OS and PFS (mOS: 2.8 vs 18.0 months, mPFS: 2, 8 vs 6.8 months) have been reported [6].

In this study, we aimed to evaluate the efficacy of docetaxel, abiraterone and enzalutamide treatments in terms of OS and PFS used in the first-line treatment for CRPC patients with visceral metastases.

Method

Forty CRPC patients with visceral metastases, whose data were obtained from the records in our center, were included in the study.

The age of the patients at diagnosis, PSA value, Gleason scores, time to castration resistant, the treatment used in the first line in the castration resistant stage and the duration of application of this treatment, overall survival and progression-free survival were examined.

Results and Discussion

The age at diagnosis of the patients was 68.7 ± 9.2, the PSA value at the time of diagnosis was 467 ± 947 ng/ml, and the time to castration resistance was 24.4 ± 26.6 months. When categorized according to the Gleason score, 4 (10%) patients with grade group 1, 2 (5%) patients with grade group 2, 1 (2.5%) patients with grade group 3, 6 (15%) patients with grade group 4, There were 27 (67.5%) patients in group 5. Twenty-nine of the patients had metastases at the time of diagnosis, 11 patients had no metastases at the time of diagnosis. Lungs were sites of metastasis in 12 patients, distant lymph nodes (mediastinal) in 4 patients, liver in 12 patients, adrenal glands in 8 patients, and brain and bone marrow in two patients each. The first-line treatments that patients received after the development of castration resistance were docetaxel in 21, abiraterone in 10, and enzalutamide in 9 of them (Table-1). Patients who received docetaxel in the first line received an average of 5 cycles. Patients receiving abiraterone received an average of 6 months of treatment, and patients receiving enzalutamide received an average of 10 months of treatment. The mOS was found to be 6.80 months in those with liver metastases and 14.81 months in those with non-hepatic visceral metastases. mPFS was 5.48 months in patients with liver metastases and 6.17 months in patients with non-hepatic visceral metastases. With the first-line treatment of CRPC with visceral metastases, the median OS was 14.5 months, 15.7 months for docetaxel patients, 15.4 months for enzalutamide patients, 5.06 months for abiraterone patients, and the values were not statistically significant (Figure-1). With the first-line treatment of CRPC with visceral metastases, the median PFS was 6.17 months, 6.80 months for docetaxel patients, 5.06 months for enzalutamide patients, and 3.28 months for abiraterone patients. The values were not statistically significant (Figure-2).

Conclusion

In our study, we found that survival was similar with the use of docetaxel or enzalutamide in first line in castration-resistant prostate cancer patients with visceral metastases, and shorter survival with abiraterone.

In clinical studies and real-life data in the literature, it has been reported that dosataxel and enzalutamide have longer survival times compared to abiraterone in this patient group.

Due to the limited number of patients in our study, it is necessary to evaluate treatment options with studies involving a larger number of patients.
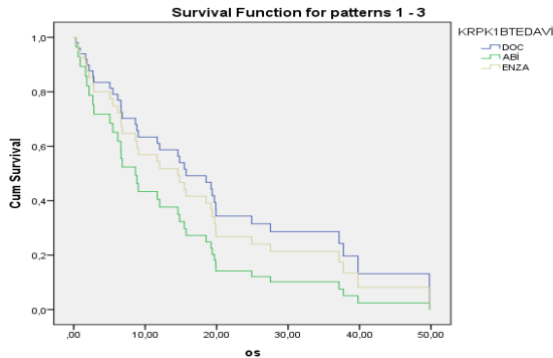

Figure 1. Median overall survival according to treatment in castration-resistant prostate cancer patients with visceral metastases
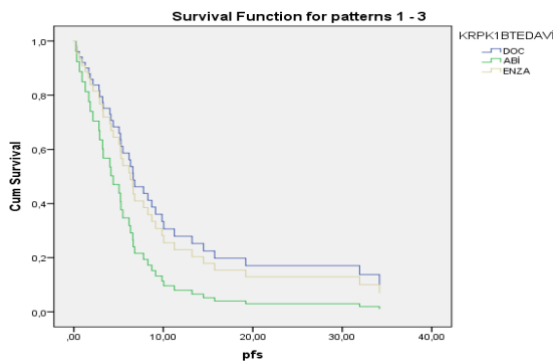

Figure 2. Median progression-free survival according to treatment in castration-resistant prostate cancer patients with visceral metastasis

Table 1. Demographic, clinicopathological and treatment characteristics of the patients

		n (%)
Age (Mean±St.D.)		68.7 ± 9.2
PSA at the time of diagnosis (ng/ml) (Mean±St.D.)		467 ± 947
Time to castration resistance (months) (Mean±St.D.)		24.4 ± 26.6
ECOG	0-1	19 (%47.5)
	2-3	21 (%52.5)
Gleason Score	Grade group 1 (3+3)	4 (%10)
	Grade group 2 (3+4)	2 (%5)
	Grade group 3 (4+3)	1 (%2.5)
	Grade group 4 (4+4, 5+3, 3+5)	6 (%15)
	Grade group 5 (4+5, 5+4, 5+5)	27 (%67.5)
Metastasis at diagnosis	Yes	29 (%72.5)
	No	11 (%27.5)
Sites of visceral metastases	Liver	8 (%20)
	Lung	12 (%30)
	Brain	2 (%5)
	Bone marrow	2 (%5)
	Adrenal gland	6 (%15)
	Distant lymphadenopathy	10 (%25)
First-line therapy in the castration-resistant period	Docetaxel	21 (%52.5)
	Abiraterone	10 (%25)
	Enzalutamide	9 (%22.5)

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FDA-APPROVED MOLECULAR TESTS USED TO DEFINE HUMAN PAPILLOMAVIRUS (HPV) INFECTIONS WHICH CAUSES CERVIX CANCER

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Abstract

Human papillomavirus (HPV) is a non-enveloped, commonly sexually transmitted virus with icosahedral symmetry and double-stranded circular DNA. Its genome, which is about 8 kb in size, encodes early genes (E1-8) and two late structural capsid genes (L1 and L2). Among the genes that play a role in viral pathogenesis, L1, E6, and E7 genes are frequently found. The E6 and E7 viral genes have a significant role in apoptosis inhibition, viral spread, development of squamous intraepithelial lesion (SIL), cell immortalization, neoplastic transformation, and invasive cancer.

Demonstration of the relationship between cervical cancer and HPV infections has led to increased interest in this subject and the classification of some HPV genotypes in the high-risk group (HR-HPV) for cervical cancer. Numerous commercial molecular tests have been developed for the identification of HPV genotypes involving different approaches. HPV molecular tests approved by the US Food and Drug Administration (FDA) include Digene Hybrid Capture® 2 (HC2), Cervista™, cobas®, Aptima®, and BD Onclarity™. This article reviews the methodologies, limitations, and commonalities of five FDA-approved tests. The HC2 and Cervista™ tests use non-PCR-based signal amplification methods, while the cobas® and BD Onclarity™ tests use PCR-based target amplification methods. On the other hand, the Aptima® test uses the mRNA transcriptional mediated amplification (TMA) method.

Each of these methods used in the diagnosis and follow-up of HPV has its strengths and weaknesses. These HPV molecular tests have high sensitivity and specificity. They are also more automated and repeatable than cytological methods. In addition to these advantages, there are also several limitations. Because of these limitations, molecular tests are no more perfect than cytological tests. This shows that these tests should not be used alone in the evaluation of HPV infections and cancer identification. On the contrary, HPV test results should be correlated with cytology or biopsy findings.

Keywords: *Cervical Cancer, HPV, Molecular Diagnosis, FDA*

CLINICAL FEATURES AND SURVIVAL OF PATIENTS WITH SOLID ORGAN TUMORS ACCOMPANIED BY SYNCHRONOUS OR METACHRONOUS HEMATOLOGICAL MALIGNANCIES.

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Abstract

Introduction: Due to various reasons such as environmental modifications, genetic predisposition, therapy, increased surveillance or long survival, more and more patients are diagnosed with more than one primary cancer (MPM), which adversely affects the prognosis of patients. The clinical features and prognosis of patients with synchronous or methochronous solid organ cancers and hematological malignancies have not been fully elucidated. In this study, we aimed to investigate the clinical features and prognosis of patients with synchronous or methochronous solid organ cancers and hematological malignancies who applied to the Erciyes University Medical Oncology clinic.

Methods: The records of patients who underwent examination and treatment in Erciyes University Medical Oncology Clinic between December 2010 and February 2022 were reviewed retrospectively. 186 patients with MPM were identified. Second primary cancers diagnosed within 6 months of the diagnosis of the previous primary cancers were called synchronous primary cancers, and those diagnosed more than 6 months later were called metachronous cancers and Patients with MPM were divided into two groups as synchronous (Group 1) or metachronous (Group 2). The overall survival (OS) of the patients was calculated by Kaplan-Maier and the relationship between the groups using chi-square methods.

Results: Between December 2010 and February 2022, it was found that 27 (14.5%) of 186 MPM patients who were examined and treated in our clinic had accompanying hematological malignancies. The mean age of the patients was 64 years, and the mean development interval for second malignancy was 45 months. There was no difference between the groups in terms of clinical features. Clinical features of patients with MPM are presented in table 1.

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Table 1. Clinical characteristics of patients with MPM

Properties	Total =27	Grup1 (n:5)	Grup2 (n:22)	P value
Age				
<65	14 (%51,9)	2 (%40)	12 (%54,5)	0,462
≥ 65	13 (%48,1)	3 (%60)	10 (%45,5)	
Gender				
Woman	12 (%44,4)	2 (%40)	10 (%45,5)	0,612
Man	15 (%54,5)	3 (%60)	12 (%54,5)	
Cigaret				
Yes	8 (%72,9)	0	8 (%36,4)	0,144
No	19 (%27,1)	5 (%100)	14 (%73,7)	
Family History				
Yes	6 (%22,2)	0	6 (%27,3)	0,252
No	21 (%77,8)	5 (%100)	21 (%72,7)	
Number of cancers				
2	22 (%81,4)	5 (%100)	17 (%77,2)	0,326
3	4 (%14,8)	0	4 (%18,1)	
4	1 (%3,7)	0	1 (%4,5)	
Hematological Tumors				
AML	3 (%11,1)	1 (%20)	2 (%9)	
KML	3 (%11,1)	0	3 (%13,6)	
KLL	7 (%25,9)	1 (%20)	6 (%27,2)	0,109
MYELOM	4 (%14,8)	1 (%20)	3 (%13,6)	
LENFOMA	9 (%33,3)	1 (%20)	8 (%36,3)	
MDS	1 (%3,7)	1 (%20)	0	
Solid Tumor Stage				
Stage 1	3 (%11,1)	2 (%40)	1 (%4,5)	
Stage 2	4 (%14,8)	1 (%20)	3 (%13,6)	0,139
Stage 3	4 (%14,8)	0	4 (%18,2)	
Stage 4	16 (%59,3)	2 (%40)	14(%63,6)	
Tumor Diameter (mm)				
<40	12 (%50)	3 (%100)	9 (%42,9)	0,109
≥40	12 (%50)	0	12 (%57,1)	
Two Tumor Ranges(month)				
<6 months	5 (%18,5)	5 (%100)	0	
7-24 months	6 (%22,2)	0	6 (%27,3)	0,001
25-36 months	2 (%7,4)	0	2 (%7,4)	
≥ 37 months	14 (%51,9)	0	14 (%63,6)	

Stomach (7/33), lung (6/33) and breast (5/33) cancers are the most common solid tumors; Among the hematological malignancies, the most common lymphoma (9/27), CLL (7/27) and myeloma (4/27) were accompanied by MPM. These accompanying malignancies were mostly metachronous. Of the hematological cancers that developed metachronously, 13 developed before solid tumor development and 8 developed after solid tumor diagnosis. Concomitant malignancies are presented in table 2.

Table 2. Concomitant malignancies

Concomitant Cancers	Total (n:33)	AML (n:4)	KML (n:3)	KLL (n:10)	MYELOMA (n:6)	LENFOM A (n:9)	MDS (n:1)	Grup 1 (n:5)	Grup 2 (n:28)
Lung Cancer	6	1	2	1	2	-	-	0	6
Ovarian Cancer	1	-	-	-	-	1	-	0	1
Breast Cancer	5	-	-	2	-	3	-	0	5
Bladder Cancer	2	-	-	2	-	-	-	0	2
Gastric Cancer	7	1	-	3	-	3	-	3	4
Colon Cancer	4	-	1	-	2	1	-	1	3
Rectum Cancer	1	1	-	-	-	-	-	0	1
Sarcoma	1	1	-	-	-	-	-	0	1
Gist	1	-	-	-	1	-	-	0	1
Melanoma	2	-	-	-	1	1	-	0	2
Head-Neck Cancer	3	-	-	2	-	-	1	1	2

Overall survival in Group1 and Group2, respectively; 82 months (39.5-124.4) and 126.9 months (93-160.8). Although the patients in Group2 were not significant, they showed a better prognosis than the patients in Group1 (P:0.929).

Conclusion: While the most common accompanying malignancies in MPMs were gastric cancer, lung cancer and breast cancer from solid organ tumors, lymphoma, CLL and myeloma were hematological malignancies. These accompanying malignancies were mostly accompanied by methochrons. As in many studies, in our study, if synchronous MPMs were accompanied, they showed less survival than metachronous accompaniment.

CLINICOPATHOLOGICAL FEATURES AND SURVIVAL OF RECLASSIFIED AS NON-INVASIVE FOLLICULAR THYROID NEOPLASM WITH PAPILLARY-LIKE NUCLEAR FEATURES (NIFTP): A RETROSPECTIVE REVIEW IN A SINGLE INSTITUTION AND OUTCOME STUDY

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Abstract

Aim: RAI treatment is necessary in the treatment and follow-up of PTC. However, recent guidelines emphasize that there is no need for RAI treatment in PTC subgroups such as NIFTP with a low incidence of malignancy. Since the first definition of NIFTP in 2016, past overtreatment status, impact for the risk of malignancy and incidence have been the subject of interest. Retrospective cohort studies have been published with widely varying results in different geographic regions. In this study, it was aimed to reclassify, incidence, survival and clinicopathological features of NIFTP cases admitted to our clinic for RAI treatment.

Methods: This retrospective cohort study was conducted in a single center of diagnosed follicular variant papillary thyroid carcinoma in thyroidectomy/thyroid lobectomy specimens between 2014 and 2021. Reports of FVPTC cases between 2014 and 2018 were evaluated to identify candidates for NIFTP by pathology department.

Results: By scanning our hospital database, 84 patients with a diagnosis of FVPTC who were operated between 2014-2021 were identified. After blind evaluation of pathology slides by our pathology department, a total of 14 patients were diagnosed with NIFTP between 2014 and 2021 according to the new criteria. NIFPT represents 16.7% of FVPTC and 7.6% of PTC in our cohort in all PTCs. The median follow-up of the NIFTP patients was 4,3 years and no recurrence or metastasis was reported. It was observed that four patients who underwent total thyroidectomy were given RAI treatment. One of these patients had a concomitant papillary microcarcinoma focus, and the other had follicular adenoma.

Conclusion: NIFTP has been accepted as benign entity and lobectomy is sufficient in the treatment. RAI treatment is considered unnecessary, and our current clinical practice is in this direction. We think that it would be appropriate for these patients to remain in active follow-up.

Introduction

Despite the increased incidence of papillary thyroid carcinoma (PTC) over the last 30 years, mortality rates from PTC have remained stable [1]. Increased ultrasonographic scans and fine-needle aspiration biopsy (FNAB) rates result in overdiagnosis and treatment. One of the reasons for this situation is the presence of low-grade/non-aggressive tumors within the PTC subgroup. Follicular variant of papillary thyroid carcinoma (FVPTC) indicates a predominately follicular growth pattern with nuclear features of classic PTC [2]. FVPTC is the least aggressive subtype of PTC with the highest increase rate in recent years [3]. FVPTC has been classified as infiltrative/ non-encapsulated and encapsulated FVPTC (E-FVPTC) [4]. The infiltrative FVPTC may be associated with recurrence or metastasis and shows a molecular profile similar to classic PTC and E-FVPTC that exhibits indolent behavior and is often associated with a molecular profile seen in follicular neoplasms [5]. The Endocrine Pathology Society Working Group examined E-FVPTC in 2016, and the terminology of non-invasive follicular thyroid neoplasm (NIFTP) with papillary-like nuclear features was defined with new diagnostic criteria [6]. The diagnosis of NIFTP is based on the absence of invasion along with other histological criteria, including nuclear and architectural features. The indolent nature of NIFTP, by this definition, allows for less radical treatment, and this terminology change is expected to reduce overtreatment and the psychological burden associated with a thyroid cancer diagnosis [6]. RAI treatment is considered unnecessary, and patients treated for such tumors are expected to have an excellent prognosis. Rosario et al. [7] reported no deaths related to NIFTP, but case series with one pulmonary metastasis and lymph node metastases were reported. It has been reported that the cases should be followed up as low-risk PTC or that current PTC follow-up routines are unnecessary [8-9]. Canberk et al. [10] reported that concomitant tumors in the contralateral lobe were not negligible (18%), and most were malignant.

The goal of this study is to retrospectively examine the clinicopathological features and survival of the cases diagnosed with NIFTP.

Method

The Institutional Review Board approved the study at Kayseri Training and Research Hospital (Protocol No:652/2022). A retrospective review was performed of diagnosed papillary carcinoma in thyroidectomy/thyroid lobectomy specimens in Kayseri City Training and Research Hospital Pathology Clinic between 2014 and 2021. During this period, questioning was made in the hospital medical records system using the following words: "thyroid", "follicular variant" "encapsulated", and "papillary thyroid carcinoma" for the index lesion.

Follicular thyroid cancers were excluded, and FVPTC or NIFTP pathology reports were retrieved to identify possible cases of NIFTP. After that, reports of diagnosed with FVPTC

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between 2014 and 2018 were evaluated by endocrine-specific pathology specialists to identify candidates for NIFTP. Archived glass slides of the potential NIFTP cases were retrieved and reviewed independently by pathology department. The modified current criteria revised in 2018 by Nikiforov et al. [11] for NIFTP were used (Table 1). Since there was no BRAFV600E mutation information about the patients, they were not included in the evaluation. Locoregional recurrence or metastasis during the follow-up period was defined as adverse events.

Results

The patient selection diagram and exclusion criteria of patients not accepted as NIFTP are shown in Table 1. The clinical features of all cases are summarized in Table 2.

Table 1. diagnostic criteria for noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP)

REVISED DIAGNOSTIC CRITERIA FOR NIFTP	EXCLUSION CRITERIA

Encapsulation or clear demarcation
Follicular growth pattern with:
    No well-formed papillae
    No psammoma bodies
    <30% solid/trabecular/insular growth pattern
Nuclear score 2-3
No vascular or capsular invasion
No tumor necrosis or high mitotic activity
	Any true papillae
	Psammoma bodies
	Infiltrative border
	Tumour necrosis
	High mitotic activity Cell/morphologic characteristics of other variants of papillary thyroid cancer

Table 2. Clinical features of cases reclassified as NIFTP

	Age	Sex	FNAC Bethesda classification	Surgery	Tumor size (mm)	Duration of follow-up (years)	RAI	Controlateral lesion
1	64	F	2	Total thyroidectomy	22	6	No	Noduler colloidal goiter
2	61	F	1	Total thyroidectomy	23	5	Yes	Papiller microcarcinoma**
3	50	F	1	Total thyroidectomy	13	6	Yes	No
4*	49	F	#	Lobectomy	10	7	No	No
5	59	M	#	Total thyroidectomy	12	8	No	No
6	44	F	2	Total thyroidectomy	15	4	Yes	Noduler colloidal goiter
7	44	M	4	Total thyroidectomy	45	4	Yes	Follicular adenoma

*Patient with previous lobectomy FNAC: Fine Needle Aspiration Cytology (1=nondiagnostic, 2=benign, 4= Follicular Neoplasm or Suspicious for a Follicular Neoplasm). RAI: Radioactive iodine treatment ** The other lobe tumor size 3 mm #: Unknown.

Clinico -pathologic findings of all NIFTP: Between 2014 and 2021, 84 out of 184 cases of papillary carcinoma were diagnosed with FVPTC. A total of 14 patients were diagnosed with NIFTP according to the new criteria. NIFPT represents 16.7% of FVPTC and 7.6% of PTC in our cohort in all PTCs from 2014 to 2021. The mean age of patients was 51 ± 8.0 (range 40-64) years, and 78.6% of the patients were women. The mean size of the lesions

was 18,2 ± 10.0 (range 8- 45) mm. Six nodules were located in the right lobe and 8 in the left lobe.

Total thyroidectomy was performed in 11 (88,6%) patients, and lobectomy was performed in three patients (one had previously undergone a lobectomy on the contralateral side) in our general surgery clinic. FNAB results had been reached on ten patients, and these results: 3 undetermined significance, 1 follicular neoplasm, 2 positive for PTC and 4 negative results.

Outcome of NIFTP: The median follow-up of the NIFTP patients was 4,3 years (±1,86, range of 2- 8). Among them, 7 (50%) had at least three years of follow-up (diagnosed before 2018), and no recurrence or metastasis was reported. Incidental concomitant micropapillary carcinoma focus on the contralateral lobe was observed in two patients and follicular adenoma was observed in one patient. It was observed that four patients who underwent total thyroidectomy were given RAI treatment. One of these patients had a concomitant papillary microcarcinoma focus, and the other had follicular adenoma.

Discussion

In the first study by Nikiforov et al. [6], 109 patients with a non-invasive encapsulated follicular variant of PTC (67 patients treated with only lobectomy without RAI ablation treatment) were alive with no evidence of disease in follow-up periods (median of 13 years). Otherwise, an adverse event was seen in 12% of invasive E-FVPTC cases, including distant metastasis and disease-related mortality. Based on these results, the first time the term "non-invasive follicular thyroid neoplasm with papillary-like nuclear features" (NIFTP) was used, and this change also was adopted by the World Health Organization in 2017 [12]. This change in diagnostic terminology aimed to reduce overtreatment and eliminate the psychosocial issues associated with a cancer diagnosis.

The 2015 American Thyroid Association guidelines recommend that lobectomy is sufficient and unnecessary RAİ treatment for the low-risk patient with a well-differentiated thyroid malignancy defined as tumors >1 cm and <4 cm without extrathyroidal spread or evidence of lymph node metastasis [8,13].

57.1% of NIFTP patients in our study received RAI for residual thyroid tissue for quantitative thyroglobulin evaluation and clinical follow-up. RAI treatment rates in other published reports are 44%-47% [9,14]. Pathologic evaluation using the strict application of the NIFTP criteria, the patients in our study results had excellent outcomes. Contrary to our results, in the literature, Parente et al. [9] published five patients with nodal metastases and one distant metastasis (lung) over a mean follow-up of 5.7 years. Kim et al. [15] had nine patients with positive central neck lymph nodes (over half of these patients had concomitant classic PTCs) among 74 NIFTPs. Cho et al. [16] also determined two patients with central lymph node metastases but no distant metastases over a median follow-up of 37 months. An overall lymph node metastasis rate of 1.8% (range: 0%–12%) and distant metastasis rate of 0.08% (range:

0%–1%) were demonstrated in a systematic review [17]. Consistent with the literature considering the 14.3% contralateral tumor rates detected in our study and also significant heterogeneity in the overall lymph node metastasis rate in the literature, these patients should remain in the follow-up routine.

In the present study, the incidence of NIFTP was 7.6% in all PTCs, which was higher than the incidence rates in our country. However, our FVPTC rates were also high (45.7%) among all PTCs. Turan et al. [17] reclassified 84 (17.5%) of 481 patients with FVPTC as NIFTP, similar to our results. In a study recently published in our country, the most common subtype was FVPTC, with 247 (53.7%) among 460 PTC cases [18]. In another study, it was the most common subtype (23.6%) after micropapillary and classical PTC [19].

Limitations: This study has several limitations, most notably the small number of patients and its retrospective nature. Results may not reflect the entire NIFTP population. Moreover, we did not have the molecular profile of the tumors, and FNAB results were missing in some patients. Another controversial issue is the ethical situation; these cases were diagnosed with cancer beforehand, treated, and followed accordingly. Some authors have recommended that pathology departments implement retrospective database reviews of tumors diagnosed as FVPTC for patients currently under surveillance [18]. If the nodules are suitable for NIFTP diagnosis, the clinicians and patients should be alerted about the new diagnosis [19].

Conclusion

In conclusion, NIFTP has been accepted as a benign or low-grade entity since its definition. Lobectomy is sufficient in the treatment, RAI treatment is considered unnecessary, and our current clinical practice is in this direction. However, it seems appropriate to keep these patients under active follow-up due to conditions such as multifocality, concomitant PTC and bilaterality, and uncertainties in the follow-up.

Acknowledgments

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GASTRIC CANCERS IN A CITY IN CENTRAL ANATOLIAN TURKEY: A SINGLE-CENTER DESCRIPTIVE STUDY

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Abstract

Objective: This study aimed to determine the characteristics of patients with gastric cancer living in Eskişehir, a city located in the central Anatolian region of Turkey, together with factors affecting the recurrence and survival time.

Methods: This descriptive cross-sectional study was conducted using patients records who were admitted to Eskişehir Osmangazi University Health Practice and Research Hospital, Department of Internal Medicine between December 1998 and January 2011 with a diagnosis of gastric cancer. Missing data was obtained by calling the patients or their relatives by phone.

Results: Male sex was approximately 2.5 times dominant, and most of the patients were diagnosed between the ages of 60-69. Approximately $1/5^{th}$ of the patients applied to the health center 6 months after the onset of symptoms. Age, chemotherapy, and radiotherapy were significantly related to recurrence ($p=0.028$, $p=0.009$, and $p=0.005$, respectively). Stage, area of involvement, positive surgical margin, chemotherapy, radiotherapy, and the number of lymph nodes removed were significantly related to survival time ($p<0.001$ for all variables).

Conclusion: In the studied population, gastric cancer diagnosis is delayed in a significant proportion of symptomatic patients. To decrease missed diagnoses, health professionals, especially those working in primary health care, should be made more sensitive towards the red flags of gastric cancer. Chemotherapy and radiotherapy are effective treatment options in preventing recurrences and improving survival.

Keywords: *Gastric cancer, Diagnosis, Survival, Chemotherapy, Radiotherapy*

THE EFFECT OF PHYSICAL AND PSYCHOLOGICAL SYMPTOMS OBSERVED IN CANCER PATIENTS RECEIVING INPATIENT TREATMENT ON SPIRITUAL WELL-BEING AND EMOTIONAL DISTRESS

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Abstract

Aim: This study was conducted to examine the effects of physical and psychological symptoms on spiritual well-being and emotional distress in cancer patients treated in oncology/hematology/stem cell services.

Method: This descriptive and cross-sectional study was conducted with 98 cancer patients between April and June 2022. Data were collected using the Socio-Demographic Characteristics Form, Karnofsky Performance Score, Nightingale Symptom Assessment Scale, Hospital Anxiety and Depression Scale, Distress Thermometer and Spiritual Well-being Scale. SPSS 24.0 package program was used to evaluate the data. Socio-demographic data are given as numbers, mean, percentage and standard deviation. Independent groups t-test, One-way ANOVA test and Pearson correlation test were used in the analysis of the data.

Results: It was determined that the type of cancer ($p<0.01$), treatment received ($p<0.05$) and Karnofsky Performance Scores ($p<0.01$) had an effect on the spiritual well-being and distress scores of the patients. It was determined that 39.8% of the patients were in the yellow zone of the distress thermometer and could not manage their distress well and needed psychological support. It was determined that as the psychological symptoms of the patients increased, their spiritual well-being decreased ($r=-0.447$, $p<0.01$) and their distress scores increased as their physical ($r=0.222$, $p<0.05$) and psychological symptoms ($r=0.311$, $p<0.01$).

Conclusion: It was observed that as the psychological symptoms of cancer patients increased, their spiritual well-being decreased, and as their physical and psychological symptoms increased, their distress increased. It is thought that oncology nurses' diagnosis of the problems experienced by the patients and their attempts to address the problems will contribute significantly to the patients' spiritual well-being and emotional distress.

Keywords: *Distress, Spiritual Well-Being, Cancer*

EVALUATION OF HBV PROPHYLAXY IN PATIENTS WITH MALIGNITIS RECEIVING CHEMOTHERAPY

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Abstract

Today, immunosuppressive, and biological agents are widely used in the treatment of many diseases. All patients with serological evidence of previous hepatitis B virus (HBV) infection are at risk of reactivation if they receive immunosuppressive therapy. Therefore, this group of patients should be screened and followed up for hepatitis indicators before treatment. In this study, 36 (18 male, 18 female) patients who received chemotherapy for malignancy were evaluated. The mean age of the patients was 75.5 ± 10.9 (24-85). 35% of the patients had chronic HBV, 42% had previous HBV, and 23% had isolated anti-HBc positivity. Of the patients, 62% were receiving tenofovir disoproxil fumarate (TDF), 26% were receiving entecavir (ETV), and 12% were receiving tenofovir alafenamide fumarate (TAF) prophylaxis. Despite the antiviral used in a patient in the previous infection group, it was observed that the initially positive anti HBs (65 titer) became negative. However, no positive HBs Ag was detected in the follow-ups. HBV reactivation was detected in another patient with previous HBV who was started on entecavir prophylaxis but stopped self-medication. It was determined that anthracycline derivative (high risk) chemotherapeutic was used in both patients. During the follow-up period, no side effects related to the antivirals used in the patients were reported.

Keywords: *Hepatitis B, Malignancy, Reactivation*

Introduction

A highly endemic preference for the hepatitis B virus target from computer virus, which is a vaccine preventable disease, and hepatitis B virus surface antigen (HBsAg) positivity is 4% and hepatitis B "core protein" antibody (anti-HBc) positivity is 31% (1,2,3). Even if HBV improves in its preliminary appearance, the state of immunosuppression may appear apparently due to the persistence of HBV DNA (cccDNA) in hepatocytes, as covalently clear (4). Today, immunosuppressive and medicine are used today. However, these seriousness can lead to serious reactivations and acute hepatitis in chronic hepatitis B (CHB) patients and innate immunity and occult hepatitis B patients. The applications that should be preferred, targeted, and kept in the foreground as necessary for this progress. In this study, patient reviews

considered high and beneficial patient evaluation, entecavir (ETC)/tenofovir dipivoxil fomarate (TDF) prophylaxis were retrospectively evaluated.

Method

The study included 36 patients who received chronic hepatitis B (CHB) and previous hepatitis B-induced HBV prophylaxis in the infectious diseases outpatient clinic of our hospital. Patients' age, gender, treatments, hepatitis B status, treatment follow-up parameters) were evaluated retrospectively.

Results and Discussion

A total of 36 (18 male, 18 female) patients who received chemotherapy for malignancy and who came to their regular visits were included in the study. The mean age of the patients was 75.5 ± 10.9 (24-85). 35% of the patients had chronic HBV, 42% had previous HBV, and 23% had isolated anti-HBc positivity. Of the patients, 62% were receiving tenofovir disoproxil fumarate (TDF), 26% were receiving entecavir (ETV), and 12% were receiving tenofovir alafenamide fumarate (TAF) prophylaxis. While HBV DNA was positive in all patients in the chronic hepatitis B group, HBV DNA was negative in all of them after treatment. Despite the antiviral used in a patient in the previous infection group, it was observed that the initially positive anti HBs (65 titer) became negative. However, no positive HBs Ag was detected in the follow-up. HBV reactivation was detected in another patient with previous HBV who was started on entecavir prophylaxis but stopped self-medication. It was determined that anthracycline derivative (high risk) chemotherapeutic was used in both patients. During the follow-up period, no side effects related to the antivirals used in the patients were reported.

Conclusion

Anti-HBs became negative under treatment in one of the 36 patients followed up, and HBV reactivation was found in another patient who was incompatible with prophylaxis. These data demonstrate the importance of HBV screening and prophylaxis in patients receiving chemotherapy.

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FEVER OF UNKNOWN CAUSE: A CASE OF COLANJIOCARCINOMA

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Abstract

Fever of unknown cause (FUC) was defined as fever that lasted longer than three weeks and was undiagnosed after three specialist visits or hospitalizations in three days or outpatients in seven days. Although the most common cause is infections, malignancies and autoimmune diseases are other important causes. In our case, a 65-year-old female patient, who was followed up with the diagnosis of FUC and presented with the complaint of subfebrile fever for about 2 months, revealed metastasis in the abdominal USG performed while the focus was being investigated.

Keywords: Cholangiocarcinoma, Malignancy, Fever of Unknown Origin

Introduction

Fever of unknown cause (FUC) remains a diagnostic challenge despite all diagnostic methods. FUC is defined as fever that lasts longer than three weeks and cannot be diagnosed in three days or outpatients in seven days after three specialist visits or hospitalization[1]. FUC is classified as classic, nosocomial, neutropenic, and HIV-associated FUC. The most common causes are infections, malignancies, and inflammatory diseases[2]. In this study, a case with a diagnosis of cholangiocarcinoma and various complications while investigating the etiology of FUC is presented.

Case

A 65-year-old female patient with a diagnosis of DM, HT, CAH was admitted to our hospital with complaints of fever and cough for about 2 months. There is no recent hospitalization, no travel history, no eating raw milk and fresh cheese. There is cough and sputum in the system query. His vital signs are fever: 38,8°C, pulse: 90 beats/min, blood pressure: 130/80mmHg, respiratory rate:22/min, and there are no pathological findings in physical examination. The patient was hospitalized with a preliminary diagnosis of fever of unknown origin. Before the treatment, 2 blood cultures and urine cultures were taken from the patient. Hemogram, AST, ALT, urea, creatinine, CRP, sedim, brucella rose bengal, peripheral smear, complete urinalysis, thyroid function tests, chest X-ray, abdominal USG and transthoracic echocardiography were planned. The patient was followed up on the first day

without antibiotics in order to follow the course of fever. In the examinations, wbc: 23 thousand (85% PML), hb: 7.6, CRP: 21 mg/dL, sediment 127 mm/hour, AST: 39 U/L, ALT: 34 U/L, GGT: 399 U/L, resulted in ALP: 320 U/L. Ceftriaxone 2x1 gr IV and clarithromycin 2x500 mg tb treatments were started with the preliminary diagnosis of pneumonia.

Internal medicine consultation was requested in terms of anemia. Hepatitis markers were requested. Occult blood in stool was checked for 3 days. 2 units of erythrocyte suspension was given with the recommendation of internal medicine. Vitamin B12 and folic acid replacement was started. Ceftriaxone and clarithromycin treatments were stopped on the 5th day due to the persistence of fever, piperacillin-tazobactam 3x4.5 gr was started, and clarithromycin was continued. Transthoracic echocardiography was planned. Abdominal USG: It was reported as "hypoechoic areas of 34x43 mm were observed in the posterior segment of the right lobe of the liver (metastasis?)". Contrast-enhanced thorax and abdomen CT were planned. Cyst hydatid IHA, E. histolytica Ig G, T. gondi Ig M and Ig G, F. hepatica Ig G tests were requested. Liver biopsy was planned in consultation with interventional radiology. Before the biopsy, 1 unit of erythrocyte suspension was given. On the 8th day of the service follow-up, the patient's fever continued. No signs of abscess or vegetation were found on echocardiography. During the service follow-up, the patient developed a sudden onset of headache and a change in consciousness. Brain CT and diffusion MRI revealed findings consistent with multiple acute infracts. The patient whose clinic worsened during the service follow-up was taken to the intensive care unit. In this process, the liver biopsy result of the patient was concluded as cholangiocarcinoma. The patient died as a result of cardiac and respiratory arrest on the 30th day of hospitalization.

Conclusion

Although more than 50 years have passed since the first definition, the difficulties in the diagnosis of the FUC remain. Infectious diseases, malignancies and inflammatory diseases are the most common causes of FUC, but the cause of fever cannot be found in a significant part of the cases. The prognosis of patients whose etiology cannot be found is generally good.
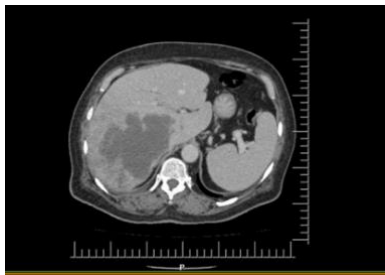
Abdominal CT. 12x9 cm hypodense mass lesion in liver segment 6 and 7 locations.
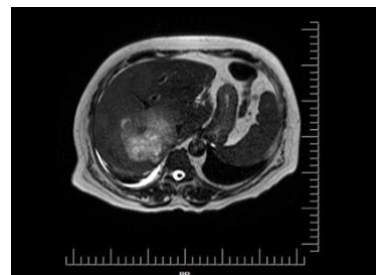
Dynamic MRI. Multiple massive/nodular lesions in the right lobe of the liver, 13x9 cm in the widest part, with lobulated contours and septal enhancement

III. INTERNATIONAL CANCER DAYS

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PHYSIOLOGICAL BIODISTRIBUTION OF GA68-PSMA PET/CT AND THE FACTORS EFFECTING BIODISTRIBUTION

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Abstract

Aim: The study aims to determine the physiological and pathophysiological distribution of the radiopharmaceutical (Ga^{68}-PSMA-617) and investigate whether there are differences in distribution according to the laboratory, histopathological and clinical findings that can affect image evaluation. Also, we aimed to determine cut-off values to distinguish physiological and pathological uptake in prostate, bone, and lymph nodes.

Methods: 229 prostate cancer patients who underwent Ga^{68}-PSMA PET/CT at our department between January and May 2018 were retrospectively analyzed. The patients were grouped according to PET/CT results, Gleason scores, PSA values, received treatments, metastatic status, and other laboratory values. The SUV values of the organs, tissues, and pathological lesions of the patients in these subgroups were compared among themselves.

Results: In the group with patients that received androgen deprivation therapy (ADT), the bone metastasis SUV values were found to be higher, and the SUV values of the submandibular gland and renal cortex were found to be lower (Mann-Whitney U, p=0.043; 0.004; 0.01, respectively). In the group with patients that received radiotherapy, the normal prostate tissue SUV values were determined to be higher (Mann-Whitney U, p=0.009). The SUV values of the submandibular gland, muscle, liver, and blood pool were found to be lower in the group of patients with high serum LDH values. The cut-off SUVmax value was determined to be 6,945 (sensitivity 89.6%, specificity 98.1%) for primary prostate lesion; 4,72 for lymph node metastasis; 4,25 for bone metastasis. The serum PSA cut-off value to distinguish the negative/positive groups was found to be 1,505 (sensitivity 79.7%, specificity 77.3%).

Conclusion: In conclusion, PSMA-617 demonstrates a similar biodistribution with other PSMA ligands. It should be kept in mind that the normal prostate tissue uptake may increase in patients receiving radiotherapy, the physiological/pathological uptake of the organs may differ due to the changes in PSMA expression in patients receiving ADT, tumor burden, and kidney function may affect the biodistribution.

Keywords: *Prostate Cancer, PSMA (Prostate Specific Membrane Antigen), PET (Positron Emission Tomography), Biodistribution.*

Introduction

Prostate cancer is the second most frequent cancer and the fifth leading cause of cancer death among men in 2020 [1]. Recently Ga^{68}-PSMA PET/CT has been introduced, targeting prostate-specific membrane antigen (PSMA) which is a cell surface transmembrane protein overexpressed in prostate cancer cells [2]. It is increasingly widely used in primary staging, biochemical recurrence, therapy response evaluation of prostate cancer. There are studies regarding the biodistribution of Ga^{68}-PSMA-11 and Ga^{68}-PSMA-I&T in the literature [3] [4] [5]. Preclinical studies showed that the binding affinity and internalization fraction of PSMA-617 ligand into the prostate cancer cells are significantly high. In addition, it was observed that the tumor/background activity ratio after 24 hours of the injection increased up to 1,508 [6]. In the clinical study conducted with PSMA-617 in 19 prostate cancer patients, the distribution and uptake of the tracer compared between the images obtained different periods after injection and the radiation exposure by the radioligand was evaluated [7]. To the best of our knowledge, this is the first study to investigate the physiological and pathophysiological distribution of Ga^{68}-PSMA-617 in a large patient group.

Our study aims to determine the physiological and pathophysiological distribution of the radiopharmaceutical Ga^{68}-PSMA-617 by detecting the range of uptake in the organs and tissues, primary prostate tumor, lymph node, and bone metastasis and investigate whether there are differences in distribution according to the laboratory, histopathological and clinical findings that can affect image evaluation of Ga^{68}-PSMA-617 PET/CT in prostate cancer patients. Furthermore, we aimed to establish cut-off uptake values to distinguish primary prostate tumor from normal prostate tissue, bone and lymph node metastasis from physiological bone and lymph node uptake.

Method

We retrospectively evaluated 229 prostate cancer patients who underwent Ga68-PSMA PET/CT in our department between January 2018 and May 2018. Medical data in terms of patients' age, received treatments, histopathological (Gleason score) and laboratory findings were extracted from the institutional database. Serum PSA, LDH, ALP, creatinine levels within the same month of PET/CT were recorded.

This retrospective study was approved by the institutional ethics committee and written informed consent was obtained from all patients.

Evaluation of images

The images were reviewed by two experienced nuclear medicine physicians. Ga68-PSMA uptake in each organ above physiological background activity was considered pathological by visual evaluation.

In order to evaluate physiological uptake of organs and tissues, regions of interest (ROI) were drawn from attenuation-corrected transaxial PET images by correlating them with CT images and semiquantitative parameters including maximum standard uptake value (SUVmax)

and mean standard uptake value (SUVmean) within these areas were obtained. SUV values were obtained from 29 normal anatomical structures for each patient, avoiding the inclusion of any activity from adjacent organs. ROIs were drawn from the cerebral cortex (parietal lobe gray matter), cerebellar cortex, cranium, lacrimal gland, palatine tonsil, parotid gland, submandibular gland, larynx (vocal cord), nasopharynx, thyroid gland, lung (upper lobes peripheral regions), mediastinal lymph node, mediastinal blood pool (descending aorta), periareolar breast tissue, pancreas (corpus), liver (right lobe), spleen, renal cortex, jejunum, adrenal gland, stomach (corpus wall), bone marrow (iliac bone medullary region), bladder lumen, seminal vesicle, rectum wall, gluteus maximus muscle, subcutaneous adipose tissue (thigh region) and testis.

Patients with no pathological activity on Ga68-PSMA PET/CT were considered as 'negative group', and the patients with pathological activity (primary prostate tumor, lymph node, or bone metastasis) on Ga68-PSMA PET/CT were considered as 'positive group'. SUV values of the organs and tissues in the negative and positive groups were compared. Within the positive group, subgroups were formed according to Gleason scores (differentiation degree grouping), PSA values (<2 ng/ml, 2-20 ng/ml and >20 ng/ml), therapy given before imaging (androgen deprivation therapy/chemotherapy/ radiotherapy given/not given), metastatic status (with/without bone metastasis, with/without lymph node metastasis), ALP values (elevated/normal), LDH values (elevated/normal), serum creatinine values (elevated/normal).

Statistical Analysis

Statistical analysis of the data was performed using the IBM SPSS Statistics 23.0 software (IBM Corp., Arnork, NY). In the comparison of two independent groups of continuous variables, the independent samples t test was used for normally distributed variables, and the Mann-Whitney U test was used for non-normally distributed variables. The differences among three and more independent groups were compared using one-way ANOVA with Tukey post hoc test for normally distributed variables and the Kruskal Wallis test with Bonferroni correction for non-normally distributed variables. Pearson Chi-Square test was used for the analysis of categorical variables. A p value of <0.05 was considered statistically significant. Receiver operating characteristic (ROC) curve analyses including calculation of the area under the curve (AUC) were generated and the optimal cut-off values for each parameter were evaluated based on Youden index.

Results and Discussion

Biodistribution Findings

Considering the physiological biodistribution in 229 patients, the highest Ga^{68}-PSMA activity was found in descending order of the renal cortex (mean±SD SUVmax 46,59±14,77), bladder lumen (mean±SD SUVmax 29,38±25,09), submandibular gland (mean±SD SUVmax 17,33±4,79), parotid gland (mean±SD SUVmax 17,14±4,91), lacrimal gland (mean±SD SUVmax 12,94±4,86) and jejunum (mean±SD SUVmax 12,56±4,95). Moderate uptake of

Ga^{68}-PSMA was observed in the spleen (mean±SD SUVmax 9,37±3,23), liver (mean±SD SUVmax 7,96±2,58), and tonsil (mean±SD SUVmax 6,09±2,72); the other organs had lower activities of Ga^{68}-PSMA. Mean±SD, median, and range SUV values of every anatomical structure are shown in Figure 1.
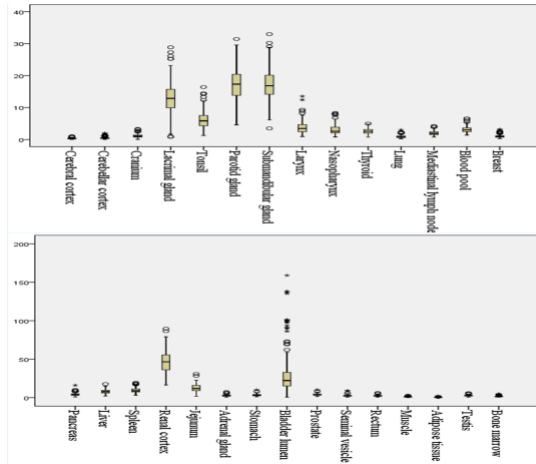

Figure 1. Box plot of organ and tissues SUVmax values

Effect of Factors on Biodistribution

Comparing organ SUV values between the negative and positive groups; submandibular gland, renal cortex SUVmax values were found to be significantly higher in the negative group, whereas muscle SUVmax and SUVmean values were found to be significantly higher in the positive group.

Comparison of organ SUV values between the subgroups (ADT given/not given) within the positive group and between the subgroup that received ADT and the negative group were performed and the significantly different common findings in two comparisons were given as follows; submandibular gland and renal cortex SUVmax and SUVmean values values were significantly lower in the subgroup that received ADT.

Since radiotherapy is a local treatment, comparison between the subgroups that received and not received RT was performed only for the iliac bone and prostate tissue SUV values. Normal prostate tissue SUVmax and SUVmean values were found to be higher in the subgroup that received RT (SUVmax mean±SD 4,68±1,31; 3,9±1,32; p=0,009, SUVmean mean±SD 3,08±0,79; 2,71±0,89; p=0,037).

1. Blood pool SUVmean (automatized) and muscle SUVmax and SUVmax values were significantly lower in the subgroup with high (≥246 U/L) serum LDH values than in the subgroup with normal (<246 U/L) LDH values (blood pool SUVmean 1,87±0,62; 2,31±0,54; p=0,006, muscle SUVmax 0,91±0,44; 1,12±0,39; p=0,025, muscle SUVmean 0,54±0,21; 0,65±0,2; p=0,031).

2. Comparison of the organ SUV values between the subgroup with high serum LDH values and the negative group revealed that submandibular gland SUV values were significantly lower in the subgroup with high serum LDH values.

3. In the comparison of organ SUV values between the subgroups with high (≥1.3 ng/ml) serum creatinine level and normal (<1.3 ng/ml) serum creatinine level, submandibular gland SUVmax and SUVmean were found to be significantly higher in the subgroup with high serum creatinine levels. When the comparison was performed between the subgroup with high serum creatinine level and the negative group, submandibular gland SUVmax and SUVmean were also significantly higher, whereas renal cortex SUVmax and SUVmean were significantly lower in the subgroup with high serum creatinine level.

Analysis of the Pathological Lesions and Cut-off Levels

Comparing the pathological lesion SUV values between the Gleason score subgroups demonstrated that well-differentiated subgroup had significantly lower pathological prostate lesion SUV mean±SD than the poorly differentiated subgroup (SUVmax 12,3±8,7; 21,22±13,97; p=0,021, SUVmean 6,71±3,92; 13,39±11,58; p=0,015). There was no significant difference between other subgroups.

ROC analysis revealed an optimal prostate lesion SUVmax and SUVmean cut-off of 6.945 and 3.89 for discrimination of pathological prostate lesions (n=106) from normal prostate tissue (n=160), which gave 89.6 % sensitivity, 98.1 % specificity (AUC: 0.892, 95% CI: 0.970-0.994) and 91.5 % sensitivity, 90.6 % specificity (AUC: 0.973, %95 CI: 0,958-0,988), respectively (B, Figure 2).

In the ROC analysis SUVmax of 4.25 and SUVmean of 2.32 were the optimal cut-off values for distinguishing pathological bone lesion (n=87) from physiological iliac bone (n=216) with 98.9% sensitivity, 99.1% specificity (AUC: 0.998, 95% CI: 0.993-1) and 98.9% sensitivity, 97.7% specificity (AUC: 0.995, 95% CI: 0.989-1), respectively (C, Figure 2). When degenerative bone lesions/changes were considered as non-pathological bone tissue and 198 degenerative bone lesion SUV values were analysed, SUVmax of 4.95 and SUVmean of 2.75 were the optimal cut-off values with 97.7% sensitivity, 97.5 % specificity (AUC: 0.992 , 95% CI: 0.980-1) and 97.7% sensitivity, %95.5 specificity (AUC: 0.988 , 95% CI: 0.972-1), respectively (E, Figure 2).

In the ROC analysis SUVmax of 4.72 and SUVmean of 3.11 were the optimal cut-off values for distinguishing pathological lymph node (n=73) from physiological mediastinal

lymph node (n=217) with 97.3% sensitivity, 100% specificity (AUC: 1, 95% CI: 0.999-1) and 93.2% sensitivity, 100% specificity (AUC: 0.997, 95% CI: 0.993-1), respectively (D, Figure 2).

In the comparison of SUVmax values of the pathological prostate, lymph node, and bone lesions; the pathological bone lesions demonstrated a significantly higher mean than the pathological prostate lesions (26.09±19.9, 19.65±16.38, p=0.015). There is no significant difference between pathological lymph node and prostate lesion SUVmax values (24.18±25.66, 19.65±16.38, p=0.15) and between the lymph node and bone lesions SUVmax values (24.18±25.66, 26.09±19.9 p=0.59).
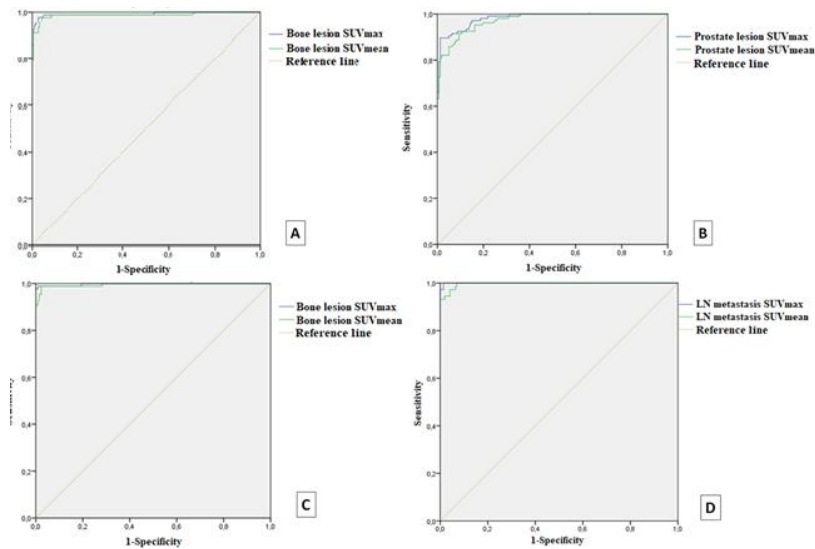

Figure 2. ROC analysis of SUV values of bone lesions in all patients when degenerative bone lesions was considered as negative reference (A), SUV values of prostate lesions in all patients (B), SUV values of bone lesions in all patients when iliac bone was considered as negative reference (C), SUV values of lymph node metastasis in all patients (D).

Analysis according to PSA values and Gleason scores

There was a significant difference between negative and positive groups in terms of serum PSA value (p<0.001). No statistically significant difference was found between positive and negative groups in terms of Gleason score (p=0,069). In the ROC analysis for the study cohort, the optimal cut-off value of serum PSA was determined as 1.505 ng/ml for distinguishing negative and positive groups, with an area under the curve of 0.825 (95% CI: 0.721-0.928).

Discussion

It is crucial to be aware of the physiological and pathophysiological distribution of the radiopharmaceuticals in the normal organs and tumoral lesions and the factors that may affect the distribution to increase the accuracy of the imaging evaluation. Furthermore, since effects similar to the factors that influence biodistribution on PSMA PET/CT may occur during PSMA

radionuclide therapy, being aware of these factors and guiding the treatment accordingly may contribute to the effectiveness of the therapy.

Recently, there have been studies investigating the distribution pattern of Ga68-PSMA-11, Ga68-PSMA-I&T and reporting the mean, range of SUV values of the normal organs and tissues [3] [4] [5]. Although there are some minor differences in the ranking, the organs with the highest uptake and SUVmax values of the organs are similar to our study. To the best of our knowledge, our study is the first to examine the physiological and pathophysiological distribution of Ga68-PSMA-617 in a large patient group.

Based on in vitro studies, it is known that ADT increases PSMA expression [8]. Nevertheless, there is no consensus among imaging professionals. Although most of the studies have revealed that ADT increases PSMA expression, there are different results depending on short or long-term ADT, castration-resistant or castration-naive patients [9]. In a prospective study conducted with Ga68-PSMA-11 PET/MR images of 9 prostate cancer patients without previous treatment, a heterogenous increase of PSMA uptake which was more evident in bone metastases (average of 77% increase in SUVmax value) was observed on 3-4 weeks after ADT [10]. In our study, in the comparison of the subgroups (ADT given/not given) within the positive group, SUV values of the pathological bone lesions were found to be significantly higher in the subgroup that received ADT, no significant difference was found for pathological lymph node and prostate lesions. Nevertheless, the submandibular gland and renal cortex SUV values were significantly lower in the subgroup that received ADT than the negative group and the subgroup that not received ADT. Unlike the aforementioned prospective study, the evaluation in our study was performed not on the same patients, but on the different patients who received and didn't receive ADT and without considering the time difference between therapy and scan. These may be the reason for the different results, and it can be investigated with studies involving larger patient groups whether there is an increase in PSMA expression of physiological uptake of organs.

The difference of normal prostate tissue SUV values between the subgroups that received and didn't receive RT within the positive group was thought to be related to the inflammatory effects of RT. However, the time between RT and scan wasn't considered in this study, therefore the accuracy and the reason for this result can be examined in larger patient groups. However, this finding should be taken into account as the high SUV values of the prostate tissue may affect the assessment of local recurrence after RT.

Submandibular SUV values were significantly higher in the subgroup with high serum creatinine levels. This result might be due to the increase of the amount of tracer remaining in the body because of the diminished excretion.

Serum LDH level correlates with the tumor burden in many solid tumors, including prostate cancer [11]. Tumor burden may affect the tracer biodistribution in normal organs due to the tumor sink effect. The study performed with 135 patients who underwent Ga68-PSMA-

11 PET/CT for staging reported that radiopharmaceutical uptake in normal organs and tissues decreased by 58-64% in patients with high tumor burden. The decrease was observed especially in the kidneys, salivary glands, and lacrimal glands [12]. Additionally, a recent study also revealed a significant decrease in SUVmax of normal organs (salivary glands, kidney, and liver) in the patients with high tumor burden, confirming the tumor sink effect [12]. In the comparison of SUV values between the subgroups with high and normal LDH levels; muscle SUVmax and SUVmean values; between the subgroup with high LDH levels and the negative group; submandibular gland, SUVmax and SUVmean values were found to be significantly lower in the subgroup with high LDH levels. These results of the study are attributed to the tumor sink effect in the patients with high tumor burden. Additionally, these results may suggest that in the patients with high tumor burden, Lu177-PSMA therapy may be administrated at tolerably higher activities before side effects in dose-limiting organs such as kidneys and salivary glands become apparent.

In a retrospective analysis of 21 prostate cancer patients who underwent Ga68-PSMA PET/CT before RP and histopathological examination after RP based on a 6 segments model, Fendler et al. reported SUVmax values of histopathology-positive segments were higher than histopathology-negative segments, ROC analysis revealed an optimal SUVmax cut-off value of 6.5 (67% sensitivity, 92% specificity, AUC: 0.84) to distinguish histopathologically positive and negative segments [14]. In our cohort, although histopathological confirmation couldn't be obtained, ROC analysis of 106 pathological prostate lesions and 160 normal prostate tissue revealed an optimal cut-off SUVmax value of 6.945 (89.6% sensitivity, 98.1% specificity, AUC: 0.982) and it is similar to the study with histopathological confirmation.

Analyses investigating whether the PSMA uptake of the primary tumor differs according to the clinical parameters revealed a significant difference in uptake between different PSA levels and Gleason score groups [13] [16]. In our cohort, analysis of the Gleason score groups showed that primary tumor SUV values were significantly lower in the well-differentiated group than the poorly differentiated group. In this manner, the tendency of higher PSMA uptake in higher grade malignancies reported in the literature was demonstrated in the present study. However, no significant difference in pathological prostate lesion SUV values was found between the PSA level groups. We attributed this result to the fact that the PSA value at the time of scan may not reflect the characteristics of the primary tumor due to the dynamic nature of PSA during the disease process.

Examination of the pathological prostate, lymph node, and bone lesions SUV values of the prostate cancer patients revealed different consequences. Some studies showed that there is no significant difference between the lesion SUV values [15], whereas some demonstrated that the pathological bone lesions had significantly higher SUV values than the other lesions [7]. We also found that SUV values of the pathological bone lesions were significantly higher than the pathological lymph node and prostate lesions.

Recently, many studies have examined the role of Ga68-PSMA PET/CT in patients with recurrent prostate cancer. In these retrospective analyses, they reported significantly higher PSA levels in patients with positive findings on Ga68-PSMA PET/CT than the patients with negative scans [7] [15] [17]. On the other hand, similarly to our cohort, the study conducted in a heterogeneous group of 415 patients who underwent PET/CT for staging, restaging, and biochemical recurrence, PSA values were found to be significantly higher in the patients with positive scans than the patients with negative scans [18]. Since the increase in PSA levels indicates progressive disease, these consequences are expected, and the present study had the same results. In the mentioned studies, ROC analysis revealed the optimal PSA cut-off values for discrimination of positive and negative scans as follows: 0.67 (95.6% sensitivity, 83.3% specificity, AUC: 0.952) in the study with 109 recurrent prostate cancer patients [17] and 1.16 (77% sensitivity, 75% specificity, AUC: 0.805) in the study with 415 patients [18]. In our cohort with 22 negative group patients and 69 positive group patients, an optimal PSA cut-off value of 1.505 was obtained with 79.7% sensitivity and 77.3% specificity (AUC: 0.825). It is higher than the other studies in the literature, however, it is closer to the cut-off value in the study with a heterogenous group of 415 patients similar to our study.

Afshar-Oromieh et al., in a retrospective analysis performed on 1007 patients who underwent Ga68- PSMA-11 PET/CT for recurrent prostate cancer, found that there is no significant difference in terms of Gleason scores between the patients with and without positive findings on scan [19]. Despite most of the studies have found similar results [15] [17], there are also studies reporting a significant difference [18]. We ended up with no significant difference in Gleason score between the patients with and without pathological activity as reported in most of the studies in the literature. Gleason score is significant during the first phase of disease, and it is a major prognostic factor however in the subsequent phases of the disease, it loses its importance and the possible effect on PSMA uptake decreases.

Our study has inherent limitations because of its retrospective nature. The lack of histopathological confirmation of the lesions, the inaccessibility of the clinical and laboratory data for every patient, and the heterogeneous patient population are the main limitations of this study. Moreover, the number of patients in some of the subgroups is low due to groupings despite the study has a relatively high patient number. This may also affect the strength of the analyses negatively in these particular subgroups.

Conclusion

In conclusion, PSMA-617 shows similar biodistribution to other PSMA ligands using for imaging (PSMA I&T, PSMA-11). Physiological uptake of lymph nodes and bones, which are mostly metastasized in prostate cancer, are not affected by the factors we examined. It should be considered that normal prostate tissue SUV values may increase in patients receiving RT, physiological and pathological uptake of the organs may differ due to the changes in PSMA expression in patients receiving ADT, the tumor burden and the kidney function may influence

the biodistribution. Furthermore, the established SUV cut-off values of prostate lesions (SUVmax: 6,94), lymph node metastasis (SUVmax: 4.72) and bone lesions (SUVmax: 4.25) may help in the interpretation of indeterminate cases.

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MIS-C SYNDROME IN PATIENT OPERATED DUE TO A SIMPLE BONE CYST IN THE PROXIMAL FEMUR

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Abstract

BCC are benign lesions seen in growing children. Cases are mostly seen in the proximal humerus (55–70%) and later in the femur (20%). The metaphysis adjacent to the epiphysis is the typical location. Although it can be seen at any age, it is most commonly diagnosed between the ages of 5-15. Pediatric inflammatory multisystem syndrome, PIMS/ PIMS-TS is a rare systemic disease involving persistent fever and excessive inflammation following exposure to SARS-CoV-2, the virus responsible for COVID. It can quickly lead to body-wide medical emergencies such as septic shock. Our aim in this study is to pay attention to the development of MIS-C after pediatric orthopedic cases.

A 5-year-old girl applied to us with complaints of pain and limping in her left hip. The imaging performed upon the patient's application revealed a simple bone cyst in the proximal femur that destroyed the cortex and could cause a pathological fracture. The patient underwent curettage, grafting and fixation surgery. The patient was covid negative and all blood values were normal before surgery. Anemia, leukopenia, hypoalbuminemia, hyponatremia and elevated transaminase, BUN, creatinine, and uric acid were detected in the patient's follow-up. The patient was consulted to the pediatrician. Covid test, blood and stool cultures were taken from the patient, whose lung and heart sounds were normal in the history taken by Pediatrics, and diarrhea and fever symptoms were observed. There was no growth in the blood and stool cultures taken. The patient was followed up and treated by pediatrics with the diagnosis of MIS-C.

We wanted to emphasize that the diagnosis of MIS-C should not be forgotten in post-op conditions after orthopedic surgical interventions, considering the diagnosis and treatment after the surgical operation and septic shock in the follow-up, as in the case we gave in the case report.

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A CASE OF DEEP HYPOTHROIDIA DEVELOPED IN A PATIENT USING ARLOTINIB FOLLOWED WITH RENAL CELL CANCER

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Abstract

Introduction: Axitinib is a second-generation VEGF receptor inhibitor oral agent developed to overcome resistance to first-generation vascular endothelial growth factor (VEGF) inhibitors in patients with renal cell carcinoma (RCC) [1].

Case: Right nephrectomy was performed on a 52-year-old patient who was followed up for four years with renal cancer (RCC). While the patient had been using axitinib for a year, he had complaints of weakness, constipation, and swelling in the body. In the examinations performed, overt hypothyroidism was detected. Axitinib-induced hypothyroidism was considered in the patient with thyroid autoantibodies, urinary iodine level within the normal range, and heterogeneity in thyroid ultrasonography. The patient, who was started on L-thyroxine and vitamin C treatment, became euthyroid with dose titration in four months.

Result: Hypothyroidism is a frequent complication of oral tyrosine kinase inhibitor therapy. Regular surveillance of thyroid function is warranted in patients receiving the drug. Although the mechanism by which this complication occurs is unknown, the observations of preceding TSH suppression and subsequent absence of visualized thyroid tissue in some patients suggest that axitinib may induce a destructive thyroiditis through follicular cell apoptosis. This case provides a rationale for further investigation of axitinib treatment in patients with advanced thyroid cancer.

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III. INTERNATIONAL CANCER DAYS

THE ROLE OF PRO-GRP AND VITAMIN D IN THE DIAGNOSIS OF COLON CANCER: A CASE-CONTROL STUDY

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Abstract

Background: Colon cancer (CC) is the third most common cancer with a 10.2% incidence, and despite advances in surgical techniques, chemotherapy and radiotherapy, CC remains the second most common cause of cancer-related death worldwide. Early recognition of colon adenocarcinoma is difficult due to the lack of effective predictors [1-3].

Aims: In this study, we aimed to determine the utility of pro-GRP (gastrin releasing peptide) and vitamin D in the early diagnosis of colon adenocarcinoma by comparing levels in patients with disease and controls.

Methods: This was a case-control study conducted between April 2018 and May 2019 in Internal Medicine Department of Ufuk University Faculty of Medicine, Ankara, Turkey. A total of 30 patients histologically diagnosed with colon adenocarcinoma and 30 healthy subjects were included. Pro-GRP and vitamin D levels were determined at the time of diagnosis in patients and at enrollment in controls.

Results: Overall mean age was 62.45 ± 11.61 (range 41 - 85); 63.93 ± 10.73 years in patients and 60.97 ± 12.43 years in controls. Males comprised 60.0% of the patients and 33.3% of controls. The pro-GRP values of patients were significantly higher than controls (p = 0.010). Although vitamin D level was higher in controls, significant difference was not present (p = 0.060). Multiple logistic regression analysis revealed that high pro-GRP level was predictive factor of the colon cancer (p=0.049).

Conclusions: Pro-GRP levels were significantly higher in patients than in controls, but the diagnostic capability of pro-GRP was low for colon adenocarcinoma. New strategies should be developed to clearly define the roles of these molecules in CC pathophysiology, and to confirm our findings in different populations.

Keywords: *Colon Cancer, Pro-Gastrin Releasing Peptide, Vitamin D*

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A SYSTEMIC INFLAMMATION RESPONSE INDEX (SIRI) IS A PREDICTIVE AND PROGNOTİC FACTOR FOR THE TREATMENT OF mFOLFIRINOX IN METASTATIC PANCREATIC CANCER

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Abstract

Objective: The aim of this study was to evaluate the prognostic and predictive value of a baseline Systemic Inflammation Response Index (SIRI) in metastatic pancreatic cancer.

Methods: Associations between progression free survival (PFS), and SIRI were analyzed. SIRI is defined by neutrophil x monocyte/lymphocyte 10^9/L.

Results: 62 metastatic pancreatic cancer patients were in the retrospective study. Median age was 61 years. The pretreatment SIRI score cutoff was 2.0×10^9/L. Patients with SIRI $<2.0 \times 10^9$/L showed a statistically significant improvement in PFS compared to SIRI $\geq 2.0 \times 10^9$/L [9.3 months versus 4.6 months, p = 0.004]. In addition, patients with SIRI$<2.0 \times 10^9$ showed a longer overall survivall (OS) but didn't show a statistically significant (15.3 versus 11.7 months, P = 0.069). We observed that patients with SIRI $<2.0 \times 10^9$/L were more likely to benefit from mFOLFIRINOX therapy.

Conclusion: An elevated SIRI ($\geq 2.0 \times 10^9$/L) was a predictive and prognostic factor for patients with metastatic pancreatic cancer, warranting prospective evaluation.

Keywords: *Pancreatic Adenocarcinoma, Biomarker, Inflammation, Predictive Factor, Systemic Inflammatory Response Index*

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CONCERNS AND EXPECTATIONS OF PATIENTS WITH CANCER IN THE COVID-19 PANDEMIC: A PROSPECTIVE COHORT STUDY

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Abstract

Cancer affects people psychologically and organically. The emotional state of cancer patients is fragile and can be affected by many factors. We aimed to evaluate the effect of the Covid-19 pandemic on the mood and behavioral changes of cancer patients with solid cancer who are in follow-up and treatment. A face-to-face questionnaire was filled in solid cancer patients without known psychological disorders who applied to the Medical Oncology outpatient clinic between 1-30 September 2021. The Hospital Anxiety and Depression Scale (HADS) and the scale examining the perspectives on Covid-19 were applied to the patients whose consent was obtained. A total of 235 people, 139 women and 63 men, participated in the survey. In the review of 202 completed surveys, the median age was 55 (23-83 years). In the study in which seventeen different solid cancer patients were evaluated, breast (52.5%), colon (19.3%) and lung (10.8%) cancers were most common. Most of the people who were more afraid of Covid-19 compared to cancer were patients who were on active cancer treatment. In the multivariate regression analysis, being on active treatment was found to be the only risk factor for 'being more afraid of Covid-19' compared to cancer'. During Covid-19 pandemic, it was observed that 18 (8.9%) patients delayed their treatment/follow-up due to fear of Covid-19 infection. A high HADS anxiety score was observed in 58 (28.7%) patients, and a high HADS depression score was observed in 39 patients (19.3%). In conclusion, cancer patients are seriously worried about the progression of their cancer due to changes in follow-up or treatment due to Covid-19 pandemic. However, despite the associated risks, they were found to want to continue their treatment as planned.

Keywords: *Anxiety, Cancer, Covid-19, Depression, ENGAGE, Fear*

Introduction

The Covid-19 pandemic has affected the whole world, especially advanced age, people with chronic diseases and cancer patients have been adversely affected by this process [1].

Covid-19 shows a different and severe course from any other known seasonal infectious disease or typical infections observed in immunosuppressed patients. It has been reported that Covid-19 infection is more mortal in cancer patients [2]. During the pandemic period, health systems all over the world were significantly challenged due to the rapidly increasing patient load. In order to prevent this highly contagious infection, regulations were made in health policies [3]. In the early part of the pandemic, large multidisciplinary associations published consistent recommendations for minimizing exposure to the virus [4,5,6,7]

Daily television news, social isolation, new mutations in the virus have triggered problems such as anxiety and depression in people.

In our study, it was aimed to examine the shocking effect of the pandemic and the effects of the regulations made in health care services on the mood and behavioral changes of cancer patients.

Method

On 2020, September 1-30, when the pandemic experienced its most devastating state in the world, a survey study was conducted for patients diagnosed with solid cancer who started Medical Oncology outpatient clinic. A written consent form was received from those who were accepted to participate, then a face-to-face questionnaire was filled out. The study protocol was approved by the Ethics Committee of Antalya Training and Research Hospital. The study was conducted in accordance with the Helsinki Declaration and data usage permission was obtained.

Inclusion criterias: 1) being over 18 years old, 2) being under follow-up and/or treatment for solid cancer, 3) not having a known history of psychological disorders.

Exlusion criterias: 1) to have a psychiatric disorder such as bipolar disorder or schizophrenia that requires drug treatment 2) to use alcohol and psychotropic drugs 3) to have diseases such as dementia, mental retardation, 4) to refuse to participate in the survey.

In our survey, there was a Hospital Anxiety and Depression Scale (HADS) and a scale in which the patients' perspective on Covid-19 was evaluated (8). HADS is a scale designed to assess anxiety and depression that has been validated and proven to be effective in Turkey. It is a four-point likert-style scale consisting of 14 questions (range 0-3). On the HADS scale, which received a maximum of 21 points, those who scored ≥11 was considered psychological morbidity (abnormal); those who scored between 8-10 were classified as "borderline" and 0-7 as "normal". Anxiety and depression scores were calculated in accordance with the HADS questionnaire questions.

The scale, in which the perspective on Covid-19 is evaluated, was developed by Hacettepe University Faculty of Medicine Gültekin M. et al. and used in the Pan-European multicenter study (ENGAGe) during Covid-19 period (8). This questionnaire, consisting of 14

multi-choice questions to determine the perspectives of cancer patients during Covid-19 pandemic period, was included in our survey study after the necessary permissions were obtained. The answers to the questions about the effect of Covid-19 on patients were evaluated together with the HADS score.

Statistics: SPSS 25.0 (IBM Corp.) statistical package program was used in the analysis of the data. Surveys containing two or more missing or invalid questions were excluded from the study. Descriptive statistics of evaluation results; numbers and percentages for categorical variables, mean, standard deviation, median, and interquartile range (IQR) for numerical variables. Parameters that were significant in the univariate regression analysis were included in the multivariate regression analysis. Determined dependent variables were grouped categorically (0 and 1). All of the Likert type questions were divided into two; According to the aims of the research, strongly disagree, disagree and neither agree nor disagree were coded as '0'; I agree and strongly agree was coded as 1. Statistical alpha significance level was accepted as p<0.05.

Results and Discussion

The questionnaire forms of a total of 235 patients were evaluated. 33 questionnaires were not included in the study due to lack of data. Of the patients, 139 were female and 63 were male. The median age was 55 years (range, 23-83). Of the patients, 179 (88.6%) were between the ages of 31-69, and 20 (10%) were ≥70 years old. The patients surveyed were found to have 17 different types of cancer. The three most common cancer types were breast (52.5%), colon (19.3%) and lung cancer (10.8%), respectively. Of the patients, 92 (45.5%) had at least one comorbidity. While 25 of them (12.4%) had two comorbid diseases; 19 (9.4%) had three or more comorbid diseases (Table 1).

132 (65.3%) of the patients were receiving active treatment. Of the patients who received active treatment, 73 (55.3%) were more afraid of Covid-19, mainly due to the suppression of their immune system caused by chemotherapy. Of the 70 patients who were followed up, 39 (55.7%) were more afraid of recurrence of cancer diseases. It was found that 78.8% of patients consider cancer disease as a risk factor for Covid-19. 51.5% of the patients found it more frightening to get Covid-19 than the progression of cancer, while 48.5% found the progression of their cancer more frightening. 83.2% (168) of the patients were concerned that their cancer would progress as a result of postponing or canceling their treatment or follow-up. 78.7% (159) of the patients had a fear of being infected with Covid-19 from the hospital or clinic during their oncological treatment or follow-up

In our study, 51.5% of the patients were afraid of Covid-19 infection and 48.5% were afraid of cancer disease. Although 78.7% of patients were aware of the risks associated with Covid-19, 83.2% feared that the cancer disease would progress if cancer treatment was interrupted during the pandemic.

When the settlements where the patients lived were grouped as provinces, districts and villages / towns, it was found that the average scores of anxiety and depression differed. While the average anxiety HADS score was the highest in the provincial center; the lowest were those living in the village/town (8 points vs. 5 points). The average depression HADS score, on the contrary, was highest in those living in the village/town, while it was lower in those living in the city center (7 points vs. 6 points).

When cancer types were compared with anxiety and depression scores, no statistically significant relationship could be found. However, the mean scores of anxiety were found to be higher in the group with breast cancer and gynecological cancers (8.3 and 8.2, respectively).

When the effect of the Covid-19 pandemic on patient care is examined; While it was observed that 88.1% (178) patients continued their care as planned despite the pandemic, it was found that only 18 (8.9%) patients did not go to treatment/follow-up appointments due to fear of Covid-19 infection. It was observed that 6 (3%) patients canceled their appointments in line with their own request or joint decision with their physician.

In multivariate regression analysis, active treatment (OR: 1.98; 95% CI: 1.03-3.80, p=0.03) and follow-up and treatment status disrupted in pandemic (OR: 3.42; 95% CI: 1.27-9.17, p=0.01) were identified as the risk factors for 'more fear of Covid-19 than cancer'. Being 65 years or older, having comorbid diseases, female gender, living place, being a breast cancer patient, additional comorbidities, fear of not going in oncology due to pandemic; It was found that there was no significant effect on 'more fear of Covid-19 than cancer'. (Table 2).

It was observed that 111 patients (55%) did not know whether other patients affected by Covid-19 were being treated at the hospital/clinic where they were treated. Only 33.2% (67) of the patients had had a Covid-19 test before or during their treatment.

Follow-up and treatments of 34 (16.8%) patients were changed due to Covid-19. Respectively, 8 patients (4%) had delayed chemotherapy, 4 (2%) had chemotherapy doses reduced, 3 (1.5%) had their imaging canceled, two (1%) could not reach their doctor, two (1%) had delayed radiotherapy appointments, and 16 of them (7.9%) postponed their follow-up.

170 patients (84.2%) stated that their oncological follow-up or treatment was not delayed. It was determined that the treatment of 32 patients (15.8%) was delayed for a median of 7.21 (1-46) weeks.

'What is the most difficult problem you have during this period? the question was answered by 180 patients. 119 patients (58.9%) reported pandemic-related problems, while 49 (24.3%) reported problems related to their cancer. Only 12 patients (5.9%) described the financial aspects caused by the pandemic as a challenging problem.

The median values of HADS anxiety and depression scores were calculated as 8 (4-11) and 6 (4-10) points, respectively. HADS Anxiety score; It was calculated as normal in 95 (47%) patients, borderline in 49 (24.3%) and abnormal (high) in 58 (28.7%) patients. HADS

Depression score was calculated as normal in 125 (61.9%) patients, borderline in 38 (18.8%) and abnormal (high) in 39 (19.3%) patients, respectively.

In multivariate logistic regression analysis, patients with abnormal HADS-anxiety scores were only fear of not going in oncology due to pandemic (OR: 3.48; 95% CI: 1.24-9.81, p=0.018) and increased HADS-depression score (OR: 1.63; 95% CI). : 1.40-1.90, p<0.001) were found to be significantly related. Apart from these, age, gender, being in follow-up or treatment, having breast cancer, comorbidity status, being afraid of Covid-19 more than cancer, fear of to get Covid infection in the hospital, fear of not going to oncology due to pandemic and to experience modification of care due to the pandemic (of any type). None of these had an effect on anxiety. (Table 3)

In the multivariate logistic regression analysis performed on patients with abnormal HADS-depression scores (i.e., ≥11), only increased HADS-anxiety scores were associated with higher depression scores (OR: 1.77; 95% CI: 1.45-2.15, p<0.001). Apart from these, age, gender, being in follow-up or treatment, having breast cancer, comorbidity status, being afraid of Covid-19 more than cancer, fear of to get Covid infections in the hospital, fear of not going to oncology due to pandemic and to experience modification of care due to the pandemic (of any type). None of these had an effect on depression. (Table 4)

Our trial: It is a survey study that examines the opinions, fears and perspectives of solid cancer patients in our center about the changes due to the COVID-19 pandemic in all solid cancer patients.

As it is known, cancer is one of the major risk factors for the development of COVID-19. In a study examining the data of 1524 cancer patients who applied to the Cancer Treatment Center of Wuhan University, it was reported that the risk of contracting Covid-19 was twice as high in cancer patients compared to the general population (o16, source). However, in our study, it was found that most patients feared Covid-19 more than cancer (51.5% vs. 48.5%). Although most patients (78.7%) were aware of the risks associated with Covid-19, their main concern was the development of progressive disease (83.2%) if cancer treatment was interrupted during the pandemic.

As expected, there was a strong correlation between depression and anxiety in our study (p<0.001). As the depression scores of the patients increased, it was observed that they paid less attention to fears such as fear of the progression of the disease and not being able to go to the oncology doctor because of the pandemic, but this relationship could not be shown with the anxiety score groups. There is evidence to suggest that psychological stress may affect the onset or progression of cancer (10). Therefore, it is important for clinicians to consider the psychological stress status of patients. However, in our study, it was found that 'more fear of Covid-19 than cancer' did not affect anxiety and depression levels.

In the ENGAGE pan-European gynecology study conducted in 2020 (8), HADS-anxiety score averages were found to be lower than the anxiety score in our study in 2021. In our study,

the average HADS-depression score was found to be lower. This result may be due to the gradual increase in the level of anxiety due to the developing large peaks, and an important reason for this increase in anxiety in our patients is the concern that their disease may progress as a result of the gradual disruption of cancer treatment or follow-up.

It has been shown that different geographical features may cause different perceptions of the pandemic (8,11). In our study, which was carried out in a single center, anxiety and depression scores were different in smaller settlements with different sociocultural characteristics, but statistical significance could not be reached due to patient limitation. In our study, anxiety was higher in those living in the city center and depression was higher in village/town residents.

An increase in anxiety and depression due to Covid-19 was reported in a study in patients with breast cancer (12). In our study, the mean scores of anxiety were high in the group with breast cancer and gynecological cancers, but statistical significance could not be obtained.

In our study, during the pandemic period, in the hospital where the patients were treated and followed; It was determined that the information about the COVID-19 situation, the infected health personnel and the vaccine was quite insufficient. This situation was thought to be an indication of the failure to provide transparent information to patients about the pandemic.

Our limitations in the study; 1) Patients who did not come to the clinic in any way due to much more serious anxiety at the time of the study and patients who needed home care could not be reached, so this group could not be included in the study. 2) Patients were randomly selected for the survey, so no equivalence could be achieved between the groups in terms of the number of patients in cancer types. 3) The number of patients is limited.

Our study shows that we as clinicians should consider not only physical health but also psychological health when trying to cure diseases. Because, as defined by the World Health Organization, "Health is not merely the absence of disease or infirmity, but a state of complete physical, mental and social well-being". In times of serious threats such as pandemics, a holistic approach is required in order for patients to cope with both known cancer conditions and anxiety and depression caused by the pandemic.

Conclusion

In our study, it was shown that patients with solid tumors of different histological types and followed up in the Medical Oncology clinic have increased anxiety about the progression of their cancer due to changes in their follow-up or treatment in the Covid-19 pandemic. Our study is important in terms of showing how patients perceive the changes related to diagnosis, treatment, or follow-up during extraordinary crisis periods such as pandemics.

Acknowledgments

We would like to thank our patients, who participated in our study, colleagues, and assistant health personnel.

Table 1. Demographics and HADS scores of patients

		Patient (n=202)
Age, year		54.9±11.2
Age group n (%)	Age ≤30	3 (1.5)
	31≤ Age ≤69	179 (88.6)
	Age ≥70	20 (9.9)
Live location n (%)	city	127 (62.9)
	county	70 (34.7)
	village/town	5 (2.5)
Gender n (%)	Female	139 (68.8)
	Male	63 (31.2)
Cancer Type n (%)	Breast cancer	106 (52.5)
	Gis cancer	44 (21.8)
	Gus cancer	24 (11.9)
	Lung cancer	22 (10.9)
	Others	6 (3.0)
Oncologic Sittuation n (%)	Treatment	132 (65.3)
	Follow	70 (34.7)
Comorbidty n (%)	Yes	92 (45.5)
	No	110 (54.5)
HAS scale mean score (%25-75 IQR)	Anxiety	8.0 (4-13)
	Depression	6.0 (4-10)

Table 2. Risk factors for more 'being more afraid of COVID compared to cancer': multivariate analysis (logistic regression)

Variable	Odds ratio	95% Confidence interval		p value
		Lower	Upper	
Age (<65 years)	1.14	0.54	2.37	0.72
Gender (female)	1.02	0.42	2.45	0.95
Breast cancer (yes)	1.25	0.53	2.91	0.60
Live location (city)	1.14	0.54	2.37	0.72
Oncological situation (Treatment)	1.98	1.03	3.80	0.03
Additional comorbidities (yes)	1.07	0.59	1.94	0.81
Fear of Not Going in Oncology Due to Pandemic (yes)	1.27	0.70	2.29	0.43
Follow-up and Treatment Status Disrupted in Pandemic (yes)	3.42	1.27	9.17	0.01

Table3. Risk factors for abnormal (> 11) HADS anxiety score: multivariate analysis (logistic regression)

Variable	Odds ratio	95% interval Lower	Confidence Upper	p value
Age (≥65 years)	1.48	0.52	4.18	0.45
Gender (male)	1.08	0.28	4..23	0.46
Breast cancer (yes)	1.76	0.48	6.46	0.45
Live location (city)	1.15	0.49	2.69	0.74
Oncological situation (Treatment)	1.40	0.56	3.52	0.46
Additional comorbidities (yes)	1.69	0.69	4.13	0.24
Fear of Getting Covid Infection in the Hospital (yes)	2.79	0.82	9.46	0.09
Fear of Not Going to Oncology Due to Pandemic (no)	5.58	1.91	16.3	0.002
COVID-19 fear more than cancer fear (yes)	1.98	0.79	4.99	0.14
Experience modification of care due to the pandemic (of any type) (yes)	1.19	0.40	3.51	0.74
HADS depression score (increased)	1.63	1.39	1.90	<0.001

Table4. Risk factors for abnormal (i.e., 11–21) HADS depression score: multivariate analysis (logistic regression)

Variable	Odds ratio	95% Confidence interval Lower	Upper	p value
Age (<65 years)	1.48	0.46	4.71	0.50
Gender (female)	1.77	0.47	6.55	0.39
Breast cancer (no)	1.45	0.43	4.89	0.54
Live location (village/town)	1.34	0.53	3.37	0.53
Oncological situation (Follow-up)	1.55	0.58	4.11	0.37
Additional comorbidities (no)	1.80	0.73	4.48	0.20
Fear of Getting Covid Infection in the Hospital (no)	1.01	0.29	3.53	0.97
Fear of Not Going to Oncology Due to Pandemic (yes)	1.73	0.61	4.90	0.29
COVID-19 fear more than cancer fear (yes)	2.11	0.84	5.26	0.10
Experience modification of care due to the pandemic (of any type) (yes)	1.39	0.47	4.12	0.55
HADS anxiety score (≥11)	17.54	7.00	43.97	<0.001

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MRI OF VAGINAL MYOMA

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Abstract

Objective: Vaginal leiomyomas are very rare. To date, about 300 cases have been described in the literature. Most vaginal leiomyomas are asymptomatic, but depending on their size and location, vaginal leiomyomas can cause different clinical presentations.

Case report: A 49-year-old woman without symptoms was presented due to sonographically visible abdominal cystic structures. MRI was performed for further evaluation, and it showed an anteverted Uterus, which was slightly twisted to the left. The myometrium was inhomogeneous and hypointense myoma masses were found. The largest of these, approximately 33 mm in diameter, was in the left posterolateral part of the corpus. In addition, there was another lesion on the left lateral wall of the vagina, extending to the cervix with a vertical continuity of 46 mm, which was observed on all sequences as hypointense with no contrast enhancement. The diagnosis of vaginal leiomyoma was suggested. Since the patient was without symptoms, she did not want an operation.

Discussion: Vaginal leiomyomas are benign mesenchymal tumors of the vaginal wall that are rarely seen. These masses can occur anywhere in the vagina and range in diameter from 0.5 to 15 cm. They usually present as smooth, firm, round masses on the anterior vaginal wall. Sometimes they can be misdiagnosed as urethral diverticula or paraurethral cyst [1]. Vaginal leiomyomas are usually seen in women between the ages of 35 and 50 [2]. Usually the tumor is single, and mostly small and slow growing. Since these lesions are usually estrogen dependent, they can grow rapidly during pregnancy or regress after menopause. They can be symptomatic or asymptomatic related to the size and location of the lesion. Symptoms include dyspareunia, vaginal discharge, bleeding, or urinary retention [2]. Prior to surgery, ultrasonography and MRI can be used as tools to assess the characterization, extent, and involvement of the mass [3]. Fibroid excision or enucleation via a vaginal approach is often curative and is recommended to relieve symptoms and exclude malignant histology. However, for large tumors, an abdomino-perineal approach may be preferred.

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CROSS-SECTIONAL ANALYSIS OF PATIENTS UNDERGOING ONCOLOGICAL (18)F-FDG PET/CT SCAN

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Abstract

Objective: 18F-fluorodeoxyglucose (18F-FDG) positron emission tomography combined with computed tomography (PET/CT) is a non-invasive diagnostic nuclear medicine imaging method which the management of the oncologic patients. The aim of this study is to present the cross-sectional analysis of patients who underwent oncological 18F-FDG PET/CT examination.

Method: The retrospective investigation, cross-sectional analysis of 221 18F-FDG PET/CT scans of oncologic patients with diabetic and non-diabetic between January 2022 and July 2022 was performed. The patients with undergoing 18F-FDG PET/CT scan were examined in terms of cancer diagnosis, gender, body mass index, fasting blood sugar, comorbidities (such as diabetes mellitus and hypertension).

Results: This is a retrospective study of 221 oncologic patients (female: 121; average age: 56.4 years, and male: 100; average age: 59.54 years) were analysed. The most common site of primary tumor detected by 18F-FDG PET/CT was breast (n = 69), which was followed by gastrointestinal tract (n = 69), lung (n=36), lymphoma (n=23), uterus and ovary (n=10), skin and soft tissue (n=9) and skeletal system and prostate (n= 5). The 221 patients who underwent 18F-FDG PET/CT scans, 68 (28.5%) had a diagnosis of diabetes mellitus and they were using oral antidiabetic drugs. Fasting blood glucose levels were 141.63±23.01 mg/dl patient with diabetes mellitus and 112.74±9.48 mg/dl patient with non-diabetes mellitus (p<0.01). When body mass index was compared according to cancer diagnoses in all groups: breast (19.93±28.69), gastrointestinal tract (24.29±35.32), lung (20.89±29.61), lymphoma (29.88±43.52), uterus and ovary (27.67±40.22), skin and soft tissue (24.81±35.76), head and neck (17.44±24.77) and skeletal system and prostate (31.41±45.66).

Conclusions: As a result of the study, it was observed that fasting blood sugar was higher in diabetic patients than in non-diabetic patients. This suggests that blood sugar regulation is not well performed in diabetic oncologic patients. While the body mass index was low in patients with breast and lung cancer, it was higher in patients with skeletal system and prostate cancer.

Keywords: *(18)F-FDG, PET/CT, Cross-Sectional Analysis, Fasting Blood Glucose, Body Mass Index*

THE IMPORTANCE OF PSYCHOTHERAPY IN ONCOLOGY PATIENTS: A CASE OF TRYPANOPHOBIA (FEAR OF NEEDLES)

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Abstract

Trypanophobia (Fear of Needles) is characterized by intense anxiety and accompanying avoidance behaviors and is defined as blood-injection-injury phobia [1]. People with blood-injection-injury phobia may experience serious health problems by delaying the recommended medical procedures and their routine control visits [2]. Cognitive Behavioral Therapy (CBT), especially exposure techniques, is among the most effective psychotherapy methods in the treatment of needle phobia [3,4].

Case: SA was 44 years of age, was married, a mother of 2 children, primary school graduate, housewife. In addition to being diagnosed with Type II diabetes about 7 months earlier, she was diagnosed with malignant melanoma 2 months earlier and subsequently she began to receive interferon treatment. The patient, who was not able to have insulin injections due to fear of needles, was also unable to have interferon injections. As a result, she was experiencing irregularity in blood sugar and could not adhere to her oncological treatment regularly. Despite a psychotropic medications, the patient, whose fears of needles did not abate, was referred to the psychotherapy. At the first interview, the patient was identified not to receive an injection by herself, could not even look at the injection, and screamed and passed out. Injection-related avoidances were defined together with the patient, and exposure stages were planned. In addition, the patient was taught stretching exercises and was asked to try to use these techniques as homework. The stages of exposure were planned as follows: with the use of imagination techniques during the therapy session, to be able to look at injection at the time when it is performed , to be able to look at the direction of the procedure at home while her husband is injecting insulin, to be able to look at and touch the injector, to look at and touch an injector at home in the environment where the injector is present, experiencing injecting a selected object with the injector to continue this practice at home, to experience self-injection, to continue this practice at home. At the end of these stages, the patient voluntarily had injection of insulin herself i, subsequently started to inject interferon to herself. Psychotherapy methods can be very effective in terms of compliance with treatment in oncology patients.

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III. INTERNATIONAL CANCER DAYS

THE EXPRESSION OF KI67, COX2 AND INOS BIOMARKERS AMONG TRANSITIONAL CELL CARCINOMA SUDANESE PATIENTS AND ITS ASSOCIATION WITH SMOKING (2022)

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Abstract

Background: Bladder cancer (BC) BC is the 7th most common cancer worldwide. Cigarette smoking is the principal known cause of bladder cancer.

Ki-67 or MKI67 (Marker of Proliferation) is a protein that in humans is encoded by the MKI67 gene (antigen identified by monoclonal antibody Ki-67 The expression of the Ki-67 protein is strictly associated with cell proliferation.

Inducible nitric oxide synthase (INOS) is one of three key enzymes generating nitric oxide (NO) from the amino acid l-arginine. INOS-derived NO plays an important role in numerous physiological and pathophysiological conditions. the role of INOS during tumor development is highly complex, and incompletely understood.

COXs are the primary enzymes responsible for prostaglandin production. The isoform COX-1 is normally expressed in many tissues and organs and plays an important role in maintaining physiologic functions. COX-2 is the other isoform that can be induced by various stimuli, including inflammation, growth factors, and cytokines produced by tumor cells.

Objectives: this study was aimed to determine the expression of KI67, INOS and COX2 among patients with bladder transitional cell carcinoma and its relation to smoking.

Methods: This retrospective descriptive study was conducted as a hospital-based cases study conducted in

Sudan University of Science and Technology during the period from September 2021 to June 2022, aimed to reveal the expression of KI67, INOS and COX2 in patients with bladder transitional cell carcinoma and its relationship to smoking. A total Thirty-three paraffin embedded block, previously diagnosed as bladder transitional cell carcinoma were selected for this study.

Results: It was found that the expression of COX2, INOS and KI67 biomarkers is associated with smoking among patients with transitional cell carcinoma compared with non-smokers, the biomarker expression among study population were 39% for COX2 and

42%,100% for INOS and KI67 respectively. The patients' ages ranged from 44 to 85 years old, with mean age 36 years' old. The patient's data were collected, and the obtained results were analyzed using the Statistical Package for Social Sciences (SPSS), version 20.

Conclusion: COX biomarkers and INOS have the best expression of TCC disease in smokers, and this thing can be used in many diagnostic services.

Keywords: *KI67 Marker, INOS Inducible Nitric Oxide Synthase, COX2, Transitional Cell Carcinoma Diseases*

BREAST CANCER, HOME CARE AND TELE HEALTH

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Abstract

Breast cancer is among the first five most common types of cancer in women in Western Asia, Central and Eastern Europe and America while it is the most common type of cancer in women in Turkey (47.7/100.000) [1]. The American Cancer Society (2022) states that the incidence of invasive female breast cancer increases by approximately 0.5 % each year since the mid-2000s [2]. According to the data provided by International Agency for Research on Cancer, nearly 2.3 million new breast cancer cases were reported in 2020. This data shows that one out of every eight diagnosed cancer cases indicate breast cancer [3]. As in many types of cancer, breast cancer is one of the preventable and curable diseases in case of early diagnosis. Being diagnosed with breast cancer adversely affects physical, social, and mental health as well as reduces quality of life. Patients and their families have to cope with this devastating disease and its effects. Many women spend most of the time at home beginning from the diagnosis of the disease to the end of the treatment process. At this point, "Home Health Services" occupies an important place in general health services for the patients diagnosed with breast cancer. In addition, with the technological developments, telehealth applications can be used by integrating them into home health service delivery. It may be possible to reach to the patient/individual by health professionals, offer reliable information / service to the individual / family / society in a quicker way, to meet the needs of the individuals, to improve health and the quality of life provided that home health services are integrated with tele-health applications. At the same time, being in continuous contact with the professionals they can seek support from, and consult can also contribute to the reduction of the burden perceived by the caregivers.

Introduction

Breast cancer is an important public health problem prevailing worldwide, and one of the major causes of cancer-related deaths in women. Breast cancer is among the first five most common types of cancer in women in Western Asia, Central and Eastern Europe and America while it is the most common type of cancer in women in Turkey (47.7/100.000) [1]. The American Cancer Society (2022) states that the incidence of invasive female breast cancer increases by approximately 0.5 % each year since the mid-2000s [2]. According to the data

provided by International Agency for Research on Cancer, nearly 2.3 million new breast cancer cases were reported in 2020. This data shows that one out of every eight diagnosed cancer cases indicate breast cancer [3]. As in many types of cancer, breast cancer is one of the preventable and curable diseases in case of early diagnosis. Many studies in the literature have shown that many women cannot benefit from early diagnosis / screening services offered within the scope of national cancer screening programs that are accessible and free, although the effect of early diagnosis / screening on prognosis is known, on account of many factors such as women's lack of knowledge (disease symptoms, screening programs, clinical or self-breast examination), financial problems, inadequacies in accessing health services, fear of pain, shame, beliefs that the privacy will be ignored [4.5-15]. However, if early diagnosis is made, screening programs are used, awareness about the disease is increased, mortality rates can be reduced when treatment programs are applied at the right time, and women's survival time can be increased [2]. In a study conducted on women diagnosed with breast cancer, it was determined that only 26.2% of women regularly performed breast self-examination, and 14.8% had mammography before diagnosis [16]. In another study, the rate of having mammography was found to be 27.0% [17]. In addition, it is stated that in some low/middle-income countries, lack of awareness of breast cancer may cause an average of 29 months of delay in medical care, which may lead to diagnosis at more advanced stages [18]. Therefore, the importance of public health education in raising awareness cannot be denied [19].

Being diagnosed with breast cancer adversely affects physical, social, and mental health as well as reduces quality of life. Patients and their families have to cope with this devastating disease and its effects. Many women spend most of the time at home beginning from the diagnosis of the disease to the end of the treatment process. At this point, "Home Health Services" occupies an important place in general health services for the patients diagnosed with breast cancer. Home health services refer to examination, analysis, treatment, medical care, follow-up, and rehabilitation services given to individuals who need to receive home health care due to various diseases in a way that includes social and psychological counseling services in their home and within their family environment [4,20]. The incidence of cancer and chronic diseases, the increase in complications due to these diseases, the development of medical care services and the increase in survival rates have increased the need for home health services [21]. Owing to the home care services provided by many health professionals such as physicians, nurses, pharmacists, and dietitians for the women diagnosed with breast cancer, the treatment and care needs of individuals can be met in their residence, thus contributing to the economic development of the countries since it is a cost-effective model [20,22]. In this context, telehealth applications are used in many countries by integrating them with home health services, and many clinical / non-clinical services and advanced technological applications are provided to people in various remote locations by using information and telecommunication [4].

III. INTERNATIONAL CANCER DAYS

World Health Organization defines tele-health as an initiative aimed to integrate telecommunication systems and technology into the studies to protect and improve health mostly in public health disciplines [4]. Based on this definition, the tele-health can be deemed as an important medium that enables establishment of communication from both the provider to the patient and from the provider to the provider (via telephone and video), asynchronously (via patient portal messages, e-consultation), virtual intermediates (i.e., chat boots) and wearable devices. [23]. Developments in internet access and connectivity around the world have increased the delivery of telehealth services. In addition, the availability and provision of information and communication technologies such as electronic messaging, teleconferencing, digital surveillance, telephone or web or video conferencing via mobile phones or computers has also increased [4]. Video conferencing is increasingly used in telehealth delivery as it allows effective and reliable real-time communication between patients and healthcare professionals. Visual assessment provides visual cues that are essential for sharing clinical information regarding clinical surveillance and treatment plan [24]. However, telehealth is reported to be cost-effective in improving access to health services in rural areas and chronic conditions by improving patient monitoring and adherence to treatments [25]. It is stated as a safe method in terms of continuous follow-up of patients with telehealth applications and no side effects. In addition, it has positive contributions such as ease of information transfer, strengthening of interpersonal relationships with healthcare professionals, and providing evidence-based information and symptom management to patients [26, 27, 28, 29]. One study mentions that, from a societal perspective, telemammography is cost-effective compared to mammography screening in a low/middle-income country and may be a way to improve access to healthcare in remote areas. [25]. The active use of tele-health in home care contributes to reducing hospitalization rates and costs, increasing independent activities at home, improving quality of life and general health conditions [30]. The relevant literature reveals that tele-health applications can be used for patient education and psychosocial counseling as well as meeting the care needs of the individuals [31,32,33]. However, in a study, it is pointed out that tele-health applications safely reduce home visits by 45 % in home care services [34]. As a matter of fact, it is possible to "ensure the continuity of care" with home care services provided by tele health services [30,35,36,37]. In addition, since the continuity of communication between clinicians, caregivers and patients is ensured, the incidence of adverse and unexpected events that may be encountered during home care can be minimized [30].

Telehealth services are also developing in the field of oncology. Telehealth provides safe and appropriate care by reducing physical contact in health care facilities, especially for cancer patients who are at risk of death due to the possibility of contracting Covid-19 in recent years [38]. The use of telehealth by an interdisciplinary team makes it easier to provide quality and continuous service to people affected by cancer and to receive appropriate treatment in their home environment [38]. Similarly, mobile applications, short message service (SMS), web-

based platforms, and exercise telehealth interventions that provide connectivity between cancer survivors can increase compliance and satisfaction with the disease, decrease clinical, psychological, and social symptoms, facilitate access to palliative care services in the home environment, and in general. Contributes to the improvement of quality of life [39]. Today, more efforts are being made to improve the telehealth application in the treatment of breast cancer patients, as in many types of cancer. Especially with the effect of the coronavirus pandemic, there have been major disruptions in the provision of health services in recent years. This situation has led to an increase in the demand for telehealth services at home, and telehealth has become an important communication tool between the patient and the health care provider. Two telehealth fields that have grown significantly since its inception; telerehabilitation and teleoncology. These two areas ensure continuity of care for breast cancer patients [40]. Telerehabilitation is a telehealth field that enables individuals / patients to reach healthcare professionals faster by using information and communication technologies and aims to provide rehabilitation services [41]. Breast cancer patients need telerehabilitation interventions that can facilitate the healing process during / after treatment. Telerehabilitation enables individuals to meet their care needs in the comfort of their homes, facilitates access to healthcare professionals, and reduces the need for face-to-face rehabilitation, especially when resources (personal and financial) are limited [42]. In the literature, there are studies reporting that internet-based telerehabilitation services improve quality of life and reduce pain after surgical interventions for the breast [40]. Teleoncology, on the other hand, is a tele-health field used for diagnosis (pathology and laboratory), therapy (symptom management, remote chemotherapy control and radiation oncology), palliative care and cancer prevention. In teleoncology, teleconsultations are used. Asynchronous or synchronized applications are very useful for symptom management and adherence to treatment plan and lifestyle changes in the home care setting [43].

Conclusions

The evidence from studies demonstrates the effectiveness of using telehealth applications across various platforms in the ongoing care of breast cancer patients, resulting in improved clinical, psychological, and social patient outcomes. In summary, the use of home health services together with telehealth applications can be a practical technological approach for the continuity of medical care for patients diagnosed with breast cancer. All in all, it may be possible to reach to the patient/individual by health professionals, offer reliable information / service to the individual / family / society in a quicker way, to meet the needs of the individuals, to improve health and the quality of life provided that home health services are integrated with tele-health applications. The role of the nurses in the care team is central in the provision of these services. The nurses attempt to directly serve in many roles such as caring, training, consulting, and supporting while providing home care services. However, when tele-health applications are integrated into these services, the independence of the patients is

supported, the patients undertake active responsibility in their own care, the care burden on the caregivers is reduced and the job satisfaction is increased. For this reason, efforts should be made to expand telehealth applications integrated into home health services for the support of breast cancer patients diagnosed, in the process of treatment or in need of post-treatment rehabilitation, training and counseling needs, and to enrich service models. Up-to-date guidelines on the ethical use of telehealth support in home care should be created for health professionals and health institutions, and the findings obtained from research should be used to make forward-looking plans.

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NEGATIVE EFFECT OF ORAL ANTIDIABETIC DRUG USE ON ONCOLOGICAL (18)F-FDG PET/CT SCAN

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Abstract

Objective: The aim of the present study was to evaluate the negative effect due to colonic activity increase on 18F-fluorodeoxyglucose positron emission tomography combined with computed tomography (18F-FDG PET/CT) in oncologic patients with diabetes mellitus using oral antidiabetic drugs.

Method: The retrospective investigation, cross-sectional analysis of 221 18F-FDG PET/CT scans of oncologic patients with diabetic and non-diabetic between January 2022 and July 2022 was performed. The diagnostic accuracy for colonic activity involvements were assessed for 18F-FDG PET/CT scan with diabetic and non-diabetic patients.

Results: The 221 patients who underwent 18F-FDG PET/CT scans, 68 (28.5%) had a diagnosis of diabetes mellitus and they were using oral antidiabetic drugs. The colonic activity involvement was observed in 46 (73.01%) of 63 diabetic patients using oral antidiabetic drugs. However, colonic activity involvement was observed in 28 (17.7%) of 158 non-diabetic patients (p<0.01). It was observed that this colonic activity involvement led to difficulties in lesion detection, especially in patients with a diagnosis of colorectal cancer.

Conclusions: Since colonic activity uptake is high during 18F-FDG PET/CT scanning in patients using oral antidiabetic drugs, this negative effect should be considered especially in colorectal cancer screening.

Keywords: *(18)F-FDG, PET/CT, Oral Antidiabetic Drugs, Colonic Activity Involvement*

POSTER PRESENTATIONS

NURSING CARE IN ALL DIAGNOSIS ADULT PATIENTS ACCORDING TO GORDON'S MODEL OF FUNCTIONAL HEALTH PATTERNS: A CASE REPORT

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Abstract

Introduction: Acute Lymphoblastic Leukemia (ALL) is an aggressive neoplasm of immature lymphoid cells. It constitutes 5% of all adult lymphoid malignancies [1]. Besides being a medical-physical disease, cancer is a complex disease that brings along many mental and psychosocial problems [2]. Such a complex disease process requires systematic nursing care. Nursing theory and models form a scientific basis for nursing practices, making nursing care systematized [3]. In this study, it was aimed to provide nursing care of a 40-year-old female patient with a holistic perspective based on Gordon's Functional Health Patterns Model (FSOM).

Method: S. K.'s nursing care plan was developed in line with Gordon's FSOM, and NANDA (North American Nursing Diagnosis Association) nursing diagnoses developed by Gordon and classified under 13 headings related to human health and life process.

Results: The use of Gordon's (FSOM) in the planning of nursing care, it guided the nurse in recognizing S.K.'s biopsychosocial and spiritual needs as a whole and contributed to the patient's receiving care for all these areas. It has been observed that S.K. can cope with the symptoms of the disease in general, there is a decrease in the severity of fatigue, albeit a very small amount, and an increase in the quality of sleep and the level of hope.

Conclusion: It was concluded that Gordon's FSOM is appropriate to collect systematic and holistic data from the patient and to provide nursing care.

Keywords: *Acute Lymphoblastic Leukemia, Functional Health Patterns Model, nursing care, NANDA*

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HERBAL TREATMENT ALTERNATIVES IN BREAST CANCER

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Abstract

Breast cancer (BC) is one of the most common types of cancer with high mortality rates among women and the use of herbal remedies offer advantages of low cost and easy accessibility is rapidly becoming widespread as an alternative or in addition to existing treatments [1,2]. Plants originated many phytochemicals can be used in various stages of BC due to their significant effects of the antioxidant, anti-inflammatory and modulating the carcinogenic signaling pathways [3,4]. Between them, apigenin, berberine, curcumin, curcumol, ellagic acid, ursolic acid, luteolin, epigallocatechin, genistein, gingerol, icaritin, licochalcone E, noscapine, oxymatrine, piperine, pterostilbene, resveratrol, sulphorafane and thymoquinone has been reported to have a role in inhibiting BC stem cells, which is known as the main cause of treatment resistance [1]. The anti-metastatic effects on BC of some plants extracts have been proven by studies (e.g., the *in vivo* test results of single extract of *Camellia sinensis, Centipeda minima, Curcumae radix, Oldenlandia diffusa* and *Toxicodendron vernicifluum Stokes*) [5]. On the other hand, the *Cimicifuga recemosa* has been revealed synergistic effects for BC patients when given in combination with other chemotherapeutics and the *Camellia sinensis*, *Echinacea purpurea* and *Panax ginseng* has been recommended for the prevention of the BC [6]. Furthermore, since plants have a complex chemical mixture of pharmacologically active compounds, they are amenable to offer multiple effects such as both tumor reduction and pain management [2]. A wide range of published studies including research from isolation of phytoactive compounds to their clinical trials have presented the potential of herbal medicines for prevention and therapy in BC. In this study, the last decade literature on herbal remedies was searched through web databases and selected evaluations were presented to draw attention to the potential of plants for future BC treatment alternatives.

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THE EFFECTS OF AGENTS USED IN CHEMOTHERAPY AFTER TRANSURETHRAL RESECTION ON RECURRENCE AND PROGRESSION IN BLADDER TUMORS

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Abstract

Epirubicin and Gemcitabine are intravesical (IV) agents used to prevent and/or delay recurrence and progression in bladder cancer after transurethral resection (TURB).To compare patients who were diagnosed with bladder cancer who did not receive any early single-dose chemotherapy and those who received IV Epirubicin or Gemcitabine for early single-dose chemotherapy in terms of recurrence and progression.116 patients were followed up for 48 months with the diagnosis of non-invasive bladder cancer. The patients were divided into three groups those who received Epirubicin or Gemcitabine as IV chemotherapeutic agents and those who did not receive any IV chemotherapy. Patients were compared according to risk groups, and it was not found statistically significant in terms of recurrence and progression.

In the low-grade patient group, 35.7%, 42.9%, and 21.4% recurrence, 16.6%, 12.1%, and 4.3% progression were detected, respectively. In the high-grade patient group, 58.8%, 50%, and 69.2% recurrence, 5.9%, 16.6% and 7.7% progression were detected, respectively. Patients were compared according to the degree of invasiveness, and it was not found statistically significant in terms of recurrence and progression. IV chemotherapeutics delay or prevent recurrence and progression, especially in low-grade and low-risk patient groups, and must be administered in the early postoperative period.

DETERMINATION OF PHENOLIC COMPOUNDS THAT MAY BE FOUND IN SEPAL AND SEPAL STEM OF *Diospyros kaki* TREE FRUITS BY HPLC ANALYSIS

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Abstract

Persimmon (*Diospyros kaki* L.) is a fruit native to China but is grown in warm regions all over the world (CRDO, 2011). Persimmon (*Diospyros kaki* L.) is a species of plant native to China that is traditionally used for many medicinal purposes, including the treatment of paralysis, frostbite, and burns, and stopping bleeding (Matsuo and Ito, 1978).

Persimmon, which is a winter fruit, is very beneficial for human health. Between the years 2021-2022, the stalks of the date fruits bought from the market in February-March, excluding the fleshy part, were removed and dried, and methylene extraction was performed at a ratio of 1:10. Methylene was evaporated in the evaporator and the extraction was analyzed in Aksaray University Central Laboratory. DAD detector (278nm), Agilent Eclipse XDB-C18 (250*4.60mm) 5 micron and mobile phase A: 3% acetic acid, B: methanol was used in the device used for phenolic analysis. In the analysis conditions, the column temperature is 30(°C).

16 kinds of phenolic compounds were investigated. These compounds; 3-Hydroxy Benzoic Acid, 4- Hydroxy Benzoic Acid, Benzoic Acid, Catechin Hydrate, Chlorogenic Acid, Coffeic Acid, Epicatechin, Gallic Acid, Hesperidin, P-Coumaric, Quercetin, Rosmarinic Acid, Sinnapic Acid, Syringic Acid, t-Cinnamic Acid, t-Ferrulic Acid. None of these compounds were found in the sepal and sepal stems of the persimmon fruit.

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SEM EVALUATION OF HYDROGEN PEROXIDE, AMMONIA AND HERBAL NATURAL PRODUCT USED FOR HAIR DYES IN COSMETIC *In Vitro* ON HAIR MATERIALS

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Abstract

It is seen that the decision to change hair color without any age or gender difference in society has become complicated and hair dyes, one of the cosmetic products, are widely used. This situation can cause many health problems. Some recent studies have linked hair colouring to an increased risk of certain cancers (breast cancer). The factor causing this effect is not only the dyestuff, but also the oxidation substances such as hydrogen peroxide and ammonia in the dye. At the same time, hydrogen peroxide oxidizes the amino acid called methionine, which forms the hair, and as a result, it causes hair whitening by disrupting the substance called tyrosinase, which is necessary for the black color of the hair, at the cellular level. In this context, it is important to research natural and herbal products without toxic effects that can be used as an alternative to chemicals such as hydrogen peroxide and ammonia in hair dyes that are widely used today [1,2].

In this study, the potential of the natural product obtained from pineapple peel to be used as an alternative to the use of hydrogen peroxide and ammonia was investigated. In this context, the natural product obtained from hydrogen peroxide, ammonia and pineapple peel in the laboratory was treated with real hair samples under different conditions. The exposed hair samples were examined by scanning electron microscopy (SEM). In the results obtained, it was observed that especially hydrogen peroxide and ammonia caused significant deterioration on the hair surface and these deteriorations increased depending on the exposure time. It was determined by SEM images that the natural product we used did not cause significant deterioration on the hair surface.

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COMPUTATIONAL ANALYSIS OF SYNTHESIZED IMIDAZOLE DERIVATIVES AND ANTICANCER STUDIES

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Abstract

Cancer is a disease that grows and multiplies uncontrollably in the body, and many factors can cause cancer formation. There are many types of cancer, which is one of the diseases with the highest mortality rate. Different treatment modalities can be followed for each type of cancer. In this study, 4 synthesized imidazoles were analyzed computationally. The properties of these compounds, which were optimized at the M062X /6-31+G (d) level, were investigated in detail. The molecular electrostatic potential maps of the investigated compounds, the contour plot of the HOMO and LUMO boundary molecular orbitals were examined. Apart from these computational analyses, the anticancer properties of the compounds were investigated using molecular docking. Their activity against lung cancer was investigated by interacting with the 4ZXT protein of MAPK1, and the molecular structure of the studied compounds is represented in Fig 1.
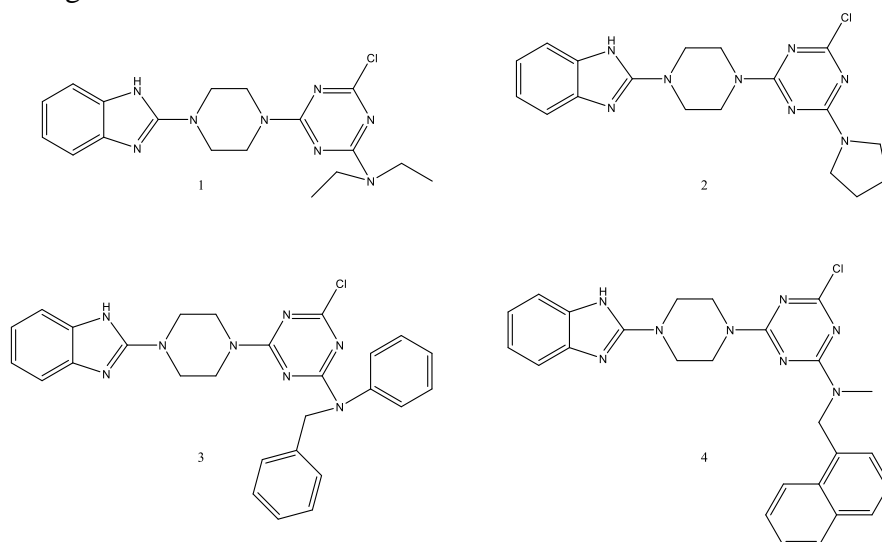
Fig 1. Molecular structures of imidazole derivative compounds.

MOBILE PHONE USE AND THYROID CANCER

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Abstract

Aim: Thyroid cancer is the most common endocrine system malignancy, and its incidence is noticeable by all medical departments dealing with thyroid gland diseases. The increase in the incidence of thyroid cancer, and the serious increase in the use of mobile phones in parallel, raises the question of whether electromagnetic radiation (EMR) plays a role in the etiology of thyroid cancer. Our aim in this study is to evaluate the relationship between the use of mobile phones and thyroid cancer.

Methods: This study included 66 patients who were decided to receive radioactive iodine therapy for differentiated thyroid cancer and 27 volunteers who did not have a nodule in the thyroid gland. Questionnaire questions about mobile phone use were prepared before the research. In addition, questions about the use of water and salt, which are thought to be effective for thyroid disease, were included in the survey questions. In addition to these, the patients were also asked whether there was the use of a microwave oven, which is a source of electromagnetic radiation.

Results: Two of our patients included in the study were not using mobile phones. 6 patients were not using smartphones. In the study population, the median daily phone call time was 3 hours, and the median telephone use time was 10 years. 88.2% of the patients stated that they did not use headphones for long-term use, while 3.2% stated that they used headphones occasionally. 78 (83.9%) of the patients had a wifi device at home. While 75.3% of the patients who had wifi devices at home left their devices running during sleep, only 8 patients (8.6%) turned off their wifi devices. Among the individuals using smartphones, 64% of the people who did not turn off their phones during sleep were in the patient group, while 27 patients (36%) were in the healthy group. The relationship between the characteristics of mobile phone use

between the patient group and the group of healthy volunteers without thyroid nodules, as well as the characteristics of salt and drinking water use of patients, is given in Table 1.

Discussion and Conclusion: Radiation is divided into two groups as ionizing and non-ionizing radiation according to the effects it has on the tissue. Mobile phones are also a source of non-ionizing radiation. It is known that those exposed to high doses of ionizing radiation have an increased risk of developing thyroid cancer. In our study, the vast majority (68.2%) of those using smart mobile phones were in the patient group (p=0.058). As a result, we think that we should become more aware of internet addiction and mobile phone use in our daily lives.

Table 1. Life habits of patients

Demographic Characteristics		Patients n (%)	Healthy Volunteers n (%)	*p* value
Do you turn off the phone while sleeping?	Yes	10 (100)	0 (0)	0.022
	No	48 (64)	27 (36)	
Is there wifi in the house?	Yes	52 (66.7)	26 (33.3)	0.037
	No	14 (93.3)	1 (6.7)	
Is there a wifi device in the bedroom?	Evet	14 (93.3)	1 (6.7)	0.033
	Hayır	50 (65.8)	26 (34.2)	
Do you turn off the wifi device while sleeping?	Yes	5 (62.5)	3 (37.5)	0.110
	No	47 (67.1)	23 (32.9)	
	No devices	14 (93.3)	1 (6.7)	
Do you use a microwave oven?	Yes	17 (63)	10 (37)	0.227
	No	49 (74.2)	17 (25.8)	
What type of salt do you use?	Rock salt	16 (80)	4 (20)	0.035
	Iodinized table salt	18 (54.5)	15 (45.5)	
	Mixed	32 (80)	8 (20)	
What do you use as drinking water?	Fresh water	13 (72.2)	5 (27.8)	0.016
	Bottled water	15 (75)	5 (25)	
	Fountain Water	17 (94.4)	1 (5.6)	
	Purification Water	13 (48.1)	14 (51.9)	
	Mixed	8 (80)	2 (20)	

INVESTIGATION OF THE PROTECTIVE EFFECT OF VITAMIN D IN HYDROGEN PEROXIDE INDUCED BREAST CANCER CELL LINE

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Abstract

Breast cancer is the most common type of cancer among women and is an important cause of cancer-related death in women [1]. Oxidative stress is the condition that occurs with the increase of oxygen radicals in the body and can lead to carcinogenesis by changing the expression of cancer-related genes that cause transformation due to mutations [2]. It has been reported that hydrogen peroxide (H_2O_2) is associated with DNA damage, mutations and genetic instability and can induce cell proliferation, apoptosis resistance, increased angiogenesis and invasion and metastasis [3]. In this study, the breast cancer cell line (MDA-MB-231) was induced with H_2O_2 at certain concentrations (10-700μg/ml) and incubated for 24 hours. In addition, varying concentrations of vitamin D (50-700 µg/ml) were applied to MDA-MB-231 cells induced by H_2O_2, and its effect on cell viability was investigated.

Keywords: *Breast cancer, H_2O_2, Vitamin D, Oxidative stress*

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PROSTAT CANCER AND OBESITY

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Abstract

Introduction: Obesity and aggressive prostate cancer are two important clinical conditions because of the prevalence and obesity increases the aggressiveness of prostate cancer. In this study, our aim was to investigate obesity rates at the time of diagnosis in patients who underwent Ga-68 PSMA PET/CT.

Methods: 104 patients with newly diagnosed prostate cancer who underwent Ga-68 PSMA PET/CT between 2021 and 2022 for staging were included in this study. The patients' height and weight, pathology results and PSA values, which were recorded routinely before PET/CT, were obtained from Nuclear Medicine patient files. The formula [mass (kg) / height2 (m)] was used to calculate the body mass index (BMI). According to the PSA values and Gleason score of the patients, intermediate and high-risk patients were included in the study.

Results: The median age of the patients was 70.5 (range:40-87 yrs) at the time of diagnosis and 67 (64.4 %) patients had metastases at the time of diagnosis. Of the patients, 15 (14.4%) were in the intermediate risk group and 89 (85.6%) were in the high-risk group. Of the patients, 33 (31.7%) were normal weight, 45 (43.3%) were overweight, and 26 (25%) were obese. There was no significant difference between prostate cancer risk groups and BMI (p=0.126).

Conclusion: As a result, the weight of the majority of the patients in our study was above normal. However, there was no significant difference between overweight and obese and prostate cancer risk groups. However, considering all the literature information, being overweight increases the risk of cancer, and attention should be paid to dietary habits.

TARGETED THERAPY FOR LUNG CANCER

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Abstract

According to the World Health Organization (WHO) report, lung cancer is the most common type of cancer that causes death among cancer types all over the world, and it causes approximately 1.6 million deaths worldwide each year. Despite all the advances in treatment, it still has a poor prognosis. Targeted therapies have become a standard lung cancer treatment. Drug nanocarriers have great potential in cancer treatment with their controlled and sustained drug release properties. These nanocarriers can provide passive or active targeted drug delivery, but since passively targeted nanocarriers provide slower and low-level drug accumulation in tumor tissues, they are exposed to these nanocarriers for a long time in healthy cells as well as cancer cells. In this study, current drug targeting techniques, drug delivery systems and drug targeting applications for lung cancer are mentioned. The acceleration of developments in drug targeting studies is promising for the treatment of important diseases that cannot be controlled.

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