

Original Article

The analysis of 8-year data (2002-2010) of the tumor cases based on the pathology records of Abant İzzet Baysal University medical faculty department

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Abstract: Aim: Cancer is one of the most significant health problems throughout the world. An important aspect of measures against cancer is to determinate the extension and prevalence of the cancer. Understanding characteristics and behavior of cancer is the key issue in providing preventive steps and developing proper strategies in the concept of early diagnosis and treatment. The objective of this study was to determine the regional cancer incidence and cancer types based on the pathology records of Department of Pathology, Medical School, Abant İzzet Baysal University. Secondly. The aim was to discuss the properties of these cases with other similar reports both from Turkey and the world. Materials and methods: All pathology records of the cases were evaluated who diagnosed at The Department of Pathology, Medical School, Abant İzzet Baysal University between December 20, 2002 and December 31, 2010. The results were classified according to year, age, sex and organ systems. Statistical analyses were carried out using Open Office version 3.1 and PSPP 0.7.2. The duplication of data was particularly prevented by excluding the multiple records in the case of more than one biopsies of the same cancer in the same patient. Results: Totally 18654 pathology records were analyzed. The ratio of positive cases was 24.18% (4510/18654) of including all benign and malignant tumors. Among them 1984 (43.99%) were male and 2526 (56.01%) were female. On the other hand, malignant tumors constituted 33.35 % (1504/18654) of all cases and the percentage of male and female patients were 67.81 % (1020/1504) and 32.19 % (484/1504) respectively. The occurrence of malignant tumors was mostly seen between 60 and 69 age group, while the predominant age period was between 50 and 59 when considering both benign and malignant patients. Male patients had cancers mostly after 60 age group and the predominant period was between 60 and 69 ages. Considering the female patients only, they had more cancers between 10 and 60 age group than males, and the most prevalent period was between 40 and 49 years. The prevalence of both benign and malignant tumors with respect to their origin were skin(30.15%), female genital tract (21.57%) and gastrointestinal system (12.92%). Considering only the malignant tumors, the distribution was as skin (21.07%), male genital tract (17.82%) and gastrointestinal tract (14.96%). On the other hand, the order of cancers was skin (31.29%), gastrointestinal tract (17.69%), male genital tract (14.81%) in male patients, while it was as female genital tract (38.50%), skin (29.30%), gastrointestinal tract (9.20%) for the female patients. Conclusion: Due to our datas, our results are similar to the results in Turkey and the World. The reason of the lower incidence of some tumors such as lung tumors which are much higher in Turkey and the world may depend on technical inadequacy due to our faculty's being a newly established one.

Keywords: Bolu, cancer, statistical distribution

Introduction

The cancer registry system ("cancer registry") is created in order to gather information on cancer cases in society. The source of the information collected from hospitals, clinics, labora-

tories, oncology centers, diagnostic centers and other health care units. In addition to these; deaths reports, forensic medical records, health insurance records of or specific research and screening programs are evaluated as a source of information about cancer cases. In

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Table 1. The distribution of tumors according to 10 age group and sex

Age groups	women n%	men n%	total n%	malignant n%
0-9	16 (0.63%)	10 (0.50%)	26 (0.58%)	0 (0.0%)
10-19	103 (4.08%)	59 (2.97%)	162 (3.59%)	12 (0.80%)
20-29	286 (11.32%)	115 (5.80%)	401 (8.89%)	19 (1.26%)
30-39	360 (14.25%)	147 (7.41%)	507 (11.25%)	51 (3.38%)
40-49	653 (25.85%)	197 (9.93%)	850 (18.85%)	117 (7.76%)
50-59	541 (21.42%)	365 (18.40%)	906 (20.08%)	266 (17.65%)
60-69	300 (11.88%)	515 (25.96%)	815 (18.08%)	452 (29.99%)
70-79	214 (8.47%)	426 (21.47%)	640 (14.19%)	437 (29.00%)
80-89	48 (1.9%)	145 (7.31%)	193 (4.27%)	144 (9.56%)
90 and over	5 (0.2%)	5 (0.25%)	10 (0.22%)	6 (0.40%)
total	2526	1984	4510	1504

this framework, on both diagnosis and diagnostic methods, as well as information on the cancer patient are collected [1].

In the community to plan the cancer control activities and in order to effectively maintain, to set right goals and to select effective tools some information must be obtained such as cancer incidence of community, private groups, risk levels, types of cancer prevalence, incidence and mortality rates. The first condition required to compile information, scientific and systematic activity should be carried out [1].

In this study, the reports of the patients are evaluated in Department of Pathology between 2002-2010 years who had definitive diagnosis as benign and malignant tumors in order to determine the incidence of tumors at Bolu and also to determine common tumor types, to evaluate age and gender characteristics and to compare these findings with Turkey and the world so that these work can help to other detailed studies (Table 1).

Materials and methods

Our study was a retrospective study with patients, between 20 December 2002 and 31 December 2010 at 8-year period who diagnosed as benign or malignant tumors (cytological phenomena and interpreted issued reports excluded) at The Department of Pathology. There were 4510 tumor patients in 18,654 cases and analyzed according to age, gender, systems and benign or malignant tumor. These distributions has been entered into the program Open. org 3.1 and 0.7.2 PSPP. In order to

avoid erroneous data; the same names in the similar systems belonging to the same tumor type was converted into a single data from multiple data. Finally, these data are converted to numbers and percentages and organized as tables. Also in our study, the WHO classification is used on the classification of tumors [2-11].

Results

Totally 18,654 biopsies from the files were screened retrospectively in The Department of Pathology between 20 December 2002 and 31 December 2010. During this period a total of 4,510 cases reported as benign or malignant tumors (24.18% of total biopsies).

According to our study, a total of 4510 patients diagnosed with tumors, 1984 (43.99%) cases were men, 2,526 (56.01%) cases were identified as women. Considering only the malignant, total of 1504 cases, 1020 cases (67.81%) were men, 484 (32.19%) cases were women. In 452 cases (29.99%) 60-69 age group was seen as the most frequent age range of cancers. When we look at gender differences in terms of age groups; the most common malignant tumor in men was seen in 335 (32.84%) cases in the age range 60-69 and without distinction of benign or malignant in 515 (25.96%) cases in the age range of 60-69. In malignant tumors in 116 (23.97%) women cases 60-69 and 70-79 age ranges were in the first place with same numbers. Women without distinction of benign or malignant 40-49 age range was is in first place with 653 (25.85%) cases.

Tumor distribution according to systems, skin (33.37%), female genital tract (21.57%) and gastrointestinal tract (12.92%) was in first three. In the first three ranks for men was skin (34.32%), gastrointestinal tract (17.69%) and male genital tract (14.82%). In the first three ranks for women was located as female genital tract (38.50%), skin (32.62%), gastrointestinal tract (9.18%). If exclusion sex specific types of cancer, the most significant difference between both sexes was seen in respiratory system and urinary tract tumors frequency. The male to female ratio of incidence of these tumors (M/F)

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Table 2. The distribution of tumors according to systems and sex

Systems	(n%) women	(n%) men	(n%) all
Skin	824 (32.62%)	681 (34.32%)	1505 (33.37%)
Male genital tract		294 (14.82%)	294 (6.51%)
Digestive system	232 (9.18%)	351 (17.69%)	583 (12.92%)
Üriner Sistem	42 (1.66%)	213 (10.74%)	255 (5.65%)
Respiratory and mediastinal	24 (0.95%)	172 (8.67%)	196 (4.34%)
Female genital tract	973 (38.50%)		973 (21.57%)
Breast	131 (5.19%)		131 (2.90%)
Hematopoietic and lymphoid system	23 (0.91%)	46 (2.32%)	69 (1.52%)
Soft tissue	124 (4.87%)	112 (5.64%)	236 (5.23%)
endocrine System	59 (2.34%)	19 (0.96%)	78 (1.72%)
Oral Cavity and Salivary Glands	60 (2.38%)	52 (2.62%)	112 (2.48%)
Other	34 (1.9%)	44 (2.22%)	78 (1.72%)
Total	2526	1984	4510

are 10.7 and 5:07 respectively, this ratio is quite high. In contrast to the respiratory tract and urinary tract tumors, the endocrine system tumors were higher than in women and female-male ratio (F/M) was 3.10 (**Table 2**).

Malignant cases when evaluated by sex, 1020 cases were male and 484 cases were female. when evaluated patients receiving only the malignant; skin, male genital tract and digestive system was at first three. for men followed as male genital tract (26.27%), urinary tract (18.24%), and skin (18.14%) for the first three ranks. for women was located as skin (25.83%), male genital tract (16.94%) and digestive system (16.53%).

Distribution of organs in the first five ranked as skin (24.32%), uterus (19.20%), colorectal (11.9%), prostate (6.23%) and bladder (4.32%). In cases of malignant, skin (18.31%), prostate (17.12%), bladder (11.21%), colorectal (6.71%), lung (5.57%) are listed respectively.

When we examine the distribution of tumors according to organs in men; skin (23.19%), prostate (14.16%), colorectal (12.65%), bladder (8.57%), lung (4.03%) is in the form and when we look at malignant cases, this ranking: prostate (25.29%), bladder (14.51%), skin (14.51%), lung (7.65%), stomach (5.88%) is in the form. In women according to the organs we examined the distribution as uterus (32.66%), skin (28.19%), colorectal (6.33%), breast (27.5%), stomach (2.06%). Also female malignant tumors are in the form as skin (07.21%), breast

(14.67%), uterus (12.60%), colorectal (7.64%), stomach (20.6%).

Discussion

Increased incidence of tumors in a certain age and also shows a reduction in a certain age. According to the data of National Cancer Institute program, "Surveillance Epidemiology and End Results" (SEER) cancer was most frequently seen in 40-49 (16.00%) ages between in the years 1999-2001 [12]. In our study 60-69 age range was the most range of cancer and also malignant cases were seen mostly at the same age group (29.99%). In a study of Kuzey, 40-49 age group (20.75% of 984 cases) were seen as most often in cancer group. In the same study when only malignant cases were considered 60-69 age range (27.79% of 577 cases) was seen as most cancer group where as followed with 70-79 age range (25.00%) and the 50-59 age range (21.38%). If we take a look at the few studies in Turkey; in the study of Aydin et al. [14], the cancer was most commonly seen in 60-69 age range (28.41%); in the study of İzmirli et al. [15] again in the 60-69 age range (27.30%), compared to the study of Yalçın et al. [16] in the age 65 and over (33.40%), compared to the study of Alici et al. [17] it was commonly seen in the 51-60 age range (23.80%).

According to our study the most common cancer seen in the 60-69 age group of males and in 40-49 age group of females. The study of Kuzey [13] also showed that most common

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Table 3. The distribution of malignant cases according to systems and sex

Systems of malignant	(n%) all	(n%) men	(n%) women
Skin	310 (20.61%)	185 (18.14%)	125 (25.83%)
Male genital tract	268 (17.82%)	268 (26.27%)	
Digestive system	225 (14.96%)	145 (14.22%)	80 (16.53%)
Urinary system	222 (14.76%)	186 (18.24%)	36 (7.44%)
Respiratory and mediastinal	156 (10.37%)	139 (13.63%)	17 (3.51%)
Female genital tract	82 (5.45%)		82 (16.94%)
Breast	72 (4.79%)	1 (0.1%)	71 (14.68%)
Hematopoietic and lymphoid system	53 (3.53%)	37 (3.62%)	16 (3.31%)
Soft tissue	28 (1.86%)	15 (1.47%)	13 (2.87%)
Endokrin Sistem	22 (1.46%)	5 (0.49%)	17 (3.51%)
Oral Cavity and Salivary Glands	21 (1.40%)	12 (1.18%)	9 (1.87%)
Liver and Bile Duct	11 (0.73%)	8 (0.78%)	3 (0.62%)
Bone and cartilage	8 (0.53%)	6 (0.59%)	2 (0.41%)
Nervous system	14 (0.93%)	10 (0.98%)	4 (0.83%)
Exocrine Pancreas	3 (0.20%)	1 (0.1%)	2 (0.41%)
Other	15 (1.99%)	2 (0.19%)	7 (1.24%)
Total	1504	1020	484

cancer seen in the 60-69 age group of 550 (11.60%) males and in 40-49 age group of 683 (14.40%) females. Haydaroglu et al. [18] stated that in women in the 30-39 age group and the 40-49 age group the incidence of cancer is higher than that of men (Table 3).

According to our study most of the cases were women (56.01%). In the study of Kuzey [13] of 4,740 cases there was 2204 (46.49%) men among 2536 (53.51%) women. Considering only the malignant cases from the 1409 total there was 2,076 (67.80%) men and 667 (32.20%) women. But looking at other Turkey datas; cancer is most commonly seen in men. According to studies looking at the incidence rates of cancer in men are: in the study of Aydin et al. [14] with a 53.8% ratio, in the study of İzmirli et al. [16] with a 60.97% ratio, in the study of Yalçın et al. [16] with a 54.4% ratio, in the study of Alici et al. [17] with a 56.6% ratio, in the study of Özekinci et al. [19] with a 60.97% ratio, in the study of Ecirli et al. [20] with a 59.3% ratio, in the study of Bayram et al. [21] with a 54.4% ratio, in the study of Karakök et al. [22] with a 62.8% ratio cancer is mostly seen in men. Who results in 2008 also supported that the cancer is more common in men with a rate of 53.80%.

As seen in our study the first 3 ranks for tumors are as skin, female genitaltract, gastrointestinal tract. If we consider only malignant cases

followed by skin, male genital tract and digestive system. In the study of Kuzey [13] the first 3 ranks of tumors were as skin (21.40%), female genital tract (20.90%), gastrointestinal tract (14.40%). Looking only at malignant cases followed by skin (20.80%), respiratory system (17.30%) and digestive system (17.20%). Haydaroglu et al. [18] have been reported the incidence of malignant tumors as lung (16.80%), gastrointestinal tract (12.00%) and breast cancer (11.60%). Aydin et al. [14] reported the ranking in malignant tumors as skin (22.19%), digestive system (17.50%) and respiratory system (11.17%). Alici et al. [17] reported the values of the Van region for malignant tumors as the digestive tract (56.60%), breast (9.46%), lung (6.43%). Özekinci [19] detected the incidence of malignant tumors at the region of Diyarbakir and ranking was digestive system (18.10%), genito-urinary tract (16.40%) and skin (14.40%).

in our study, tumor distribution according to systems in the first three ranks for men was skin, gastrointestinal tract and male genital tract and when only the malignant patients evaluated; male genital tract, urinary tract and skin for the first three ranks. In the study of Kuzey [13] in the first three ranks in men were skin (23.18%), digestive system (17.80%) and the respiratory tract (16.30%), when only the malignant considered the male genital tract

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(23.30%), respiratory system (23.10%), skin (17.10%) in the form of a dispersion. In America, The American Cancer Society 2007 according to estimated data [23] for men ranking (basal cell and squamous cell skin cancers are excluded) as male genital tract (29.74%), digestive system (19.21%) and respiratory system (16.57%). Haydaroglu et al [18] detected that at Izmir and its surroundings the most common cancer in men ranking as lung (27.50%), gastrointestinal tract (13.70%) and head and neck cancer (12.60%). Also Aydin et al. [14] reported that at Mersin and its surroundings the most common cancer in men ranking as skin (22.45%), respiratory tract (17.92%), gastrointestinal tract (17.82%). Özekinci [19] detected this ranking at Diyarbakir as respiratory tract (19.20%), gastrointestinal tract (17.50%) and genitourinary tract (16.20%). Bayram and colleagues [21] stated for the Van region ranking as digestive tract (39.60%), urogenital system (16.40%) and the respiratory tract (13.00%).

When we look at women in the first 3 ranks there are female genital tract, skin and digestive system. When evaluated according to the malignant cases, skin, female genital tract and digestive system are the first three places of cancer. In the study of Kuzey [13] in the first 3 ranks there are female genital tract (39.00%), skin (19.79%) and digestive system (11.35%), when considered with malignant cases the cancer ranking was as skin (28.48%), digestive system (20.54%) and breast (14.69%). In America, The American Cancer Society in 2007 according to estimated data [23] for women ranking (basal cell and squamous cell skin cancers are excluded) have been identified as breast (26.32%), digestive tract (18.26%), respiratory system (15.8%). Haydaroglu et al. [18] their ranking was as breast (26.20%), female genital tract (20.00%), gastrointestinal tract (14.30%). Aydin et al. [14] stated as breast (22.49%), skin (22.20%), gastrointestinal tract (17.10%). Özekinci [19] stated as digestive tract (18.80%), genitourinary tract (16.80%), skin (14.70%). Bayram et al. [21] gave a ranking as digestive tract (41.40%), urogenital tract (10.10%) and breast (9.40%).

In our study, distribution of organs according to benign and malignant tumors the first five ranked as skin, uterus, colorectal, prostate and bladder. In cases of malignant, skin, prostate,

bladder, colorectal, lung are respectively. In the study of Kuzey [13] organ involvement order as skin (21.40%), uterus (15.20%), soft tissue (10.10%), colorectal (8.40%), prostate (6.60%) tumors. In cases of malignant tumors were observed as skin (20.76%), prostate (15.11%), lungs (10.82%), stomach (8.42%), bladder (7.26%). 2005 data of Turkey [25] according to incidence rates per hundred thousand ranking was as lungs (30.13%), prostate (24.33%), skin (18.90%), bladder (18.00%), stomach (9.90%). American Cancer Society (World) according to 2007 estimated data [23] global cancer ranking was shaped as lungs (12.60%), breast (10.60%), colorectal (9.50%), stomach (8.60%), prostate (6.30%) tumors. For America ACS according to 2008 data [24], this was formed as lungs (15.00%), prostate (13.00%), breast (12.69%), colorectal (10.35%), non-Hodgkin's lymphoma (4.60%) [23-25]. When we look at other series in Turkey; Izmir, et al. [15] have set the ranking as lung (22.10%), breast (15.20%), colorectal (8.60%), stomach (6.00%), thyroid (4.00%). Ecirli et al. [20] have given ranking as lung (18.20%), stomach (9.20%), central nervous system (8.80%), blood (8.30%), colon (7.70%). Kandiloglu et al. [26] were detected as skin (16.49%), bladder (12.50%), larynx (11.2%), uterus (9.56%), breast (8.67%).

in men; skin, prostate, colorectal, bladder, lung were most seen organs of tumor and when we look at malignant cases, this ranking as prostate, bladder, skin, lung, stomach. In the study of Kuzey [13] in men found as skin (23.18%), prostate (14.24%), soft tissue (11.07%), colorectal (10.11%), lung (9.3%). In cases of malignant prostate (22.30%), skin (16.80%), lung (14.50%), bladder (9.60%), stomach (8.44%) was in the form [13]. According to data from 2005 in Turkey [25] as seen in the first five organs of cancer in men were as lung (52.73%), prostate (24.33%), skin (20.00%), bladder (16.39%), stomach (12.99%). According to data of ACS 2007 World [23] global cancer distribution in men the first five organs are lung (16.76%), prostate (11.83%), stomach (10.45%), colorectal (9.52%), liver (7.60%). According to data of ACS 2008 [24] in men and for America cancer distribution were identified as prostate (25.00%), lungs (15.00%), colorectal (10.00%), bladder (7.00%), non-Hodgkin's lymphoma (5.00%). In other studies conducted in Turkey by Izmirli et al. [15] distribution of cancer in

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men were identified as lung (36.10%), stomach (7.20%), colorectal (8.80%), larynx (4.1%) and NH lymphoma (4.00%). Ecirl et al. [20] were given the ranking as lung (25.10%), stomach (10.50%) in the blood (8.40%), central nervous system (7.90%), colon (7.60%). Kandiloğlu et al. [26] detected as bladder (20.80%), larynx (20.00%), skin (17.80%), prostate (7.20%), stomach (4.70%).

In women according to the organs we examined the distribution as uterus, skin, colorectal, breast, stomach. Female malignant tumors are in the form as skin, breast, uterus, colorectal, stomach. In the study of Kuzey [13] in women cancer seen in uterine corpus (28.35%), skin (19.79%), soft tissue (9.22%), breast (8.20%). In malignant cases ranking as skin (28.48%), breast (14.69%), colorectal (10.19%), uterus (9.74%), stomach (8.39%). In Turkey according to 2005 data [25] in women, the most common tumors are breast (35.47%), skin (17.80%), thyroid (8.44%), lung (7.20%), stomach (6.80%). According to 2007 estimates of ACS [23] global distribution of cancer in women, the first five organs are breast (22.76%), cervix (9.70%), colorectal (9.52%), lung (7.70%), stomach (6.56%). According to 2008 estimates of ACS [24] America distribution of cancer in women were identified as breast (26.00%), lung (14.00%), colorectal (10.00%), uterus (6.00%), NH lymphoma (4.00%). In other studies conducted in Turkey by Ecirl et al. [20] in the distribution of women; datas were given as breast (15.70%), central nervous system (10.30%), blood (8.20%), colon (8.00%), lung (7.60%). Izmirlı et al. [15] gave ranking as breast (33.40%), colorectal (8.30%), thyroid (6.90%), ovary (6.00%), corpus uteri (5.50%). Kandiloğlu et al. [26] were detected the ranking as uterus (20.40%), breast (18.30%), skin (15.00%), cervix (9.90%), ovary (7.20%).

To summarize our data; without distinction of sex in patients the most common tumors were skin tumors. The most common malignant tumors were again skin tumors in patients. The most common tumors in males were skin tumors but the prostate tumors were observed as most malignant tumors. In women, the most common was uterine tumors, skin tumors were found as most malignant in cases. As a result, our results of our study are remarkable, when compared with similar studies in Turkey and the

world. In the world and our country less frequent occurrence of certain tumors, can be established to a new faculty of medicine and the elements connected to the lack of technical equipment.

Disclosure of conflict of interest

None declared.

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