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Epidemiology of Patients with Cancer in Seventh Tir General Hospital from 1992 to 2005

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Abstract

Background: Population based research contributes to our understanding of cancer at many levels. For health program planning and policy making it is important to have information about the incidence of the common cancers in the population. Descriptive epidemiologic studies measure the occurrence of cancer and other health-related factors in relation to person (e.g. age, sex, race, social class, and behavioral factors), place, and time. The aim of the present study was to present the demographics of common cancers in a referral hospital in Tehran the capital city of Iran.

Patients and Methods: In a cross sectional study existing files of patients with diagnosis of cancer in our center in a 13 years period were reviewed. Evaluation of the age, sex, primary site, histology, stage of disease and treatment were recorded. The results were analyzed using SPSS software version 11.5 and depicted in tables and graphs.

Results: One thousand and two patients with cancer (esophagus, gastric, colon, breast, lung, and lymphoma) aged 11 to 110 years at diagnosis were assessed. The Male/Female ratio was 509/493. Common cancers in the male population were esophagus, stomach, colon, and lung cancers and in the female population were breast, esophagus, gastric and colon cancers. The most common cancer in this center was esophageal cancer. Cancer was more common in females below the age 60 years and in males after the age 60. In our hospital patients were often admitted with advanced stage of the disease.

Conclusion: Increasing the public knowledge and awareness about cancers, importance of early diagnosis, available therapeutic modalities and high cure rate will help to improve survival of cancer in developing countries.

Key Words: Epidemiology, prognosis, incidence, survival, cancer.

Introduction

Cancer is the second common cause of mortality and morbidity in developed countries but this is significantly decreasing due to effective therapies and reliable diagnostic methods for prediction and obviation of predisposing factors; though some of cancers have increased because of changes in nutrition and life style [1-6].

Cancers of genitalia, breast, gastrointestinal system, urinary system and lymphomas are the 6 most common malignancies in the West [2-10]. In total cancers bring about 9% of deaths in the world and they outstand as the second cause of death (19%) after cardiovascular attacks in developed countries [9-11]. It is estimated that 5 million deaths out of overall 50 million deaths a year are directly attributed to cancers [10-13].

WHO (2000) asserted that cancer induced deaths would be annually increasing as many as 8 million cases [13-16]. The incidence of cancer is 289.3/100000 and 181.9/100000 in developed and underdeveloped countries respectively [14-17]. It seems that cancer incidence will be increasing due to elevated life expectancy and pervasive changes in the life style and environment [14-20]. The overall economic damages of cancer have been appraised as 156 billion U.S dollars; 56.4 billion dollars of such damages were medically induced, 15.6 billion dollars were attributed to patient absence from

Table 1: The prevalence of cancer types based on the age and gender.

	SEX			AGE			
	Male	Female	M/F	Mean	±SD	Min	Max
Colon	82	60	1.36	55.48	35.95	16.00	95.00
Appendix	5	0	5.00	40.00	27.87	21.00	78.00
Stomach	116	51	2.27	62.44	35.76	23.00	93.00
Esophagus	125	91	1.37	61.68	37.87	16.00	90.00
Anus	6	3	2.00	57.00	39.65	21.00	86.00
Lung	66	22	3.00	61.35	38.76	23.00	83.00
Breast	4	219	0.01	50.22	36.73	23.00	83.00
Lymphoma	100	45	2.22	45.74	52.63	11	110
Short bowel	5	2	2.5	58.57	52.89	46.00	99.00

the work and 84.7 billion dollars were pertained to marginal effects of cancer mortality and morbidity [15-22].

Since 1999 the United States began classifying cancer induced deaths using WHO and International Agency for Research on Cancer (IARC), as well as Union for International Cancer Control (UICC) criteria. Furthermore cancer prevalence had been measured by epidemiologic principles and S.E.E.R (Surveillance, Epidemiology, and End Results Program) criteria since 1973 showing prostate and breast cancers as the first common cancers in men and women respectively and lung cancer as the second common cancer in both genders [12-17]. Cancers of lung, breast, prostate and colon form more the majority of all cancers in both genders [23-31]. The Central nervous system tumors are important cause of mortality and morbidity in adolescent and young adults [10, 32] . In regard to the shortage of precise studies about cancer in Iran we aimed to study the common cancers between 1992- 2005 in the Seventh Tir hospital, Tehran, Iran. Due to large number of referrals, data compiled at this center can be considered as a reference for some issues related to national health strategies and policies in order to facilitate and optimize medical services for patients with malignancies. Genitourinary cancers remained unstudied due to lack of an urology ward in this hospital and only cancers of lung, breast, colon and lymphomas were studied.

The aim of this study was to survey the epidemiologic parameters such as disease duration, gender, stage of cancer and type of applied therapy using hospital documents.

Patients and Methods

This was an observational, cross sectional study on patients with common cancers such as lung, breast, gastrointestinal and lymphomas in a referral teaching hospital (Seventh Tir Hospital) during 1992 to 2008. Seventh Tir Hospital is one of the main national referral centers for malignancies in Iran. All cancer incidence cases held in the hospital were coded by both morphology and topography according to the third edition of the International Classification of Diseases for Oncology [1,5]. Data from the registry were used to present the data on cancer incidence and survival and the mortality data were extracted from the files. Deaths were coded to reflect the underlying cause of death. A unique checklist was filled for each individual. It contained information about the first symptoms of illness, the date and type of the first diagnosis, method of treatment, dose of chemotherapy drugs

Table 2: The prevalence of various stages of the common cancers.

Disease	Stage					
	I	II	III	IV	Limited	Advanced
Breast	3	62	242	16	---	---
NSCLC Lung	0	9	35	16	---	---
SCLC Lung	---	---	---	---	4	24
NHL	15	58	27	16	---	---
Hodgkin	6	10	11	2	---	---
Esophagus	7	145	42	22	---	---
Stomach	9	31	117	10	---	---
Colon	3	64	67	8	---	---

and radiotherapy as well as the type of surgery. The patients' follow-up was divided into three sections: first admission, after 6 months of treatment and after the end of treatment or death.

The epidemiologic parameters were gathered using in-patient and out-patient hospital files. Data were finally analyzed using SPSS software (version 11.5, SPSS Co, Chicago IL).

Results

Out of 1002 patients, 509 patients (51%) were male and 493 patients (49%) were female. Mean±SD of age was 54.72±37.89 years. The most common cancer types were: esophageal cancer (21.55%), gastric cancer (16.66%), lymphoma (14.47%) and colon cancer (14.17%) respectively. Breast cancer was the most common cancer in women (Table 1). The age group of (61-70 y) including 254 cases (25%) possessed the majority of the cases.

Cancer prevalence differed between the two genders below this age level of 60 years: women showed more cancers because of higher prevalence of breast cancer below this age level. Above this age level men showed more cancers because of higher prevalence of gastro-esophageal, colorectal and pulmonary cancers (Figure 1). The majority of cancers were emerged at the age levels of 80 years (155 cases), 82 years (152 cases) and 77years (143 cases) at which esophagus, stomach, lymphoma and colon cancers were the most common cancers (Figure 2).

Fifty one percent of patients with esophageal cancer were at the stage IIB and 19.5% showed stage III. Forty three percent of the patients with gastric cancer were at the stage IIIA and 27% showed stage IIB. Of the patients with colorectal cancer 36.5% were at the stage IIB and 29% showed stage IIIA. Of the patients with breast cancer 77% were at the stage IIIA and 23% showed stage IIIB. Out of 88 patients with lung cancer, 60 showed Non Small Cell Lung Cancer (NSCLC) with 35% being at stage IIIA and 26.5% at stage IV. Twenty eight patients showed Small Cell Lung Cancer (SCLC) with 56% and 14% developing advanced and limited diseases respectively. Out of 145 patients with lymphoma, 116 ones showed Non Hodgkin Lymphoma (NHL) with 50% being at stage II and 23% being at stage III. Twenty nine patients showed Hodgkin lymphoma with 38% being at stage III and 34.5% at stage II (Table 2).

Standard therapeutic protocols were used for all of patients.

Discussion

Increasing rate of cancers above the age 55 years and specially 61years may be due to poor access of patients to well-equipped hospitals and delayed return of diagnosed patients for follow-up care which is high because of the ignorance of patients and/or their weak economic state [12, 23, 30].

This increasing rate of cancer above 55years old is similar to what other studies have reported [1, 23, 29, 30, 31]. A decreasing rate of cancer has been seen above the age 85years in developed countries which in our study this was seen at 75 years level which may be due to lower life expectancy in Iran [25].

Cancers of lung, colon, lymphoma, stomach and esophagus are the most common cancers based on previous reports but our study showed esophagus, stomach lymphoma and colon cancers as the most

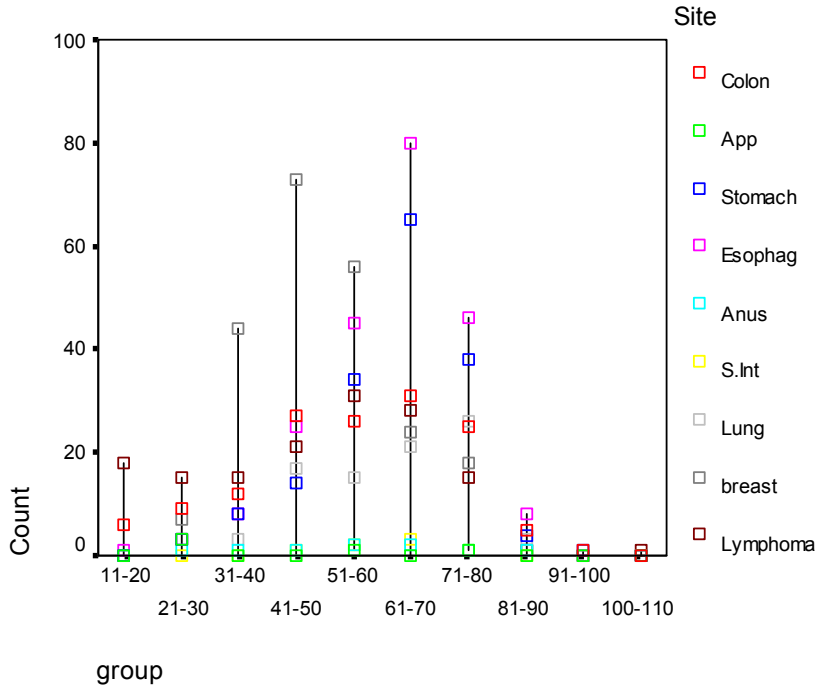

Figure 1: The prevalence of common types of cancer at various age levels.

common types respectively, which alarms the high prevalence of esophagus cancer and indicates the need for better diagnosis and treatment [12, 21, 33, 34].

Based on previous data, cancers of prostate, lung and colon are the most common types of cancer in men and cancers of breast, lung, and colon are the most common in women; but our study highlighted that cancers of esophagus, stomach, lymphoma and colon in men and cancers of breast, esophagus and colon in women as the most common types respectively showing the higher rate of digestive system cancers in Iran. Similar studies have indicated that intestinal lymphoma, NHL and lung cancer are among the most common cancers in Iran [28-29, 34-37].

The incidence of colon cancer was equal in both genders like other studies. The stomach cancer incidence was 2 folds more in men in our study but this ratio is 1.5 in other stuseis. Surprisingly this ratio is about 3 for esophagus cancer in previous studeis but was 1.5 based on our findings which shows a higher rate of esophagus cancer among Iranian women [1,3,14,33,37]. Also lung cancer incidence is equal in both genders in developed societies our findings showed a 3 folds more incidence among men possibly because of significantly higher tendency of Iranian men to smoking and occupational contacts to inhalation carcinogen materials [34-37]. Lymphoma incidence has been reported to be similar in both genders but our study showed it to be 2 folds among men [15,37].

The most common age for esophagus cancer was 50-70 years in our study unlike other studies showing a higher age (60-80 years) [34-36]. Furthermore the most common age for stomach cancer was 55-70 years in our study unlike other studies (65-85 years) [34-36]. The lung cancer was most seen in 50-70 years level in our study similar to other studies. Also the breast cancer was most seen in 42-60 years old level partly similar to other studies (45-60 years) [35-37]. The lowest age for cancer incidence belonged to lymphoma (10-20 years) and a partial increase of incidence after the age of 60 years similar to previous studies was observed [8,18,25,33,37]. The peak of lymphoma incidence was within the age range of 30-65 years while previous studies

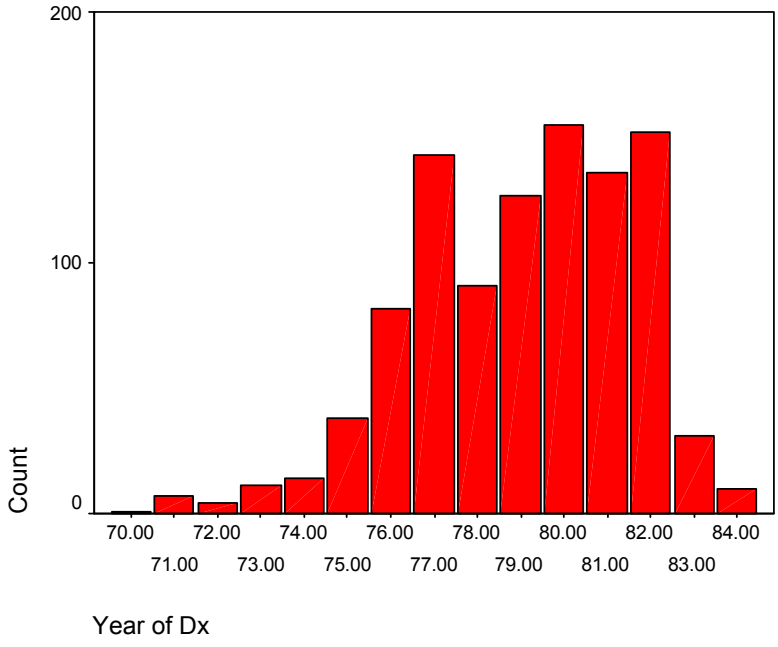

Figure 2: Prevalence of the common cancers at the various age levels.

have shown the age range of 40-60 years [21, 37].

Patients in our study had been diagnosed at higher stages of cancer compared to other studies that might be due to lack of diagnostic equipments and low economic level of patients and disregard for physicians' notices.

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