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Original Article

Hospital-Based Cancer Registry

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Abstract

Background :. To determine the frequency of different types of malignancies in different gender and age groups, presenting at a surgical unit.

Methods: In this observational study cancer patients of both genders were included to determine frequencies of different malignancies that presented to a surgical unit. All the patients with age greater than 12 years and being admitted in surgical unit 1 with the diagnosis of malignancy, were included. The variables recorded included age, sex, address, diagnosis, biopsy, date of biopsy, treatment timeline, stage at presentation, final outcome and referral to other care units. Data was entered and analyzed using the statistical package for social sciences (SPSS) software, version 22.

Results: A total of 150 malignant tumours were analyzed. There were 50 (33.3%) male patients and 100 (66.7%) females. Malignant tumours of breast 67 (44.7%) and esophagus 16 (10.7%), were found to be the most common whereas malignant melanoma (0.7%), submandibular tumours (0.7%), and parotid tumours (0.7%), were least common. The most common malignancy in males were of stomach (16.0%) and rectum (16.0%), whereas in females it was the breast malignancies (67.0%). Dividing the age distribution of the patients into 15-year bands, the peak age-category was 41-60 years (46.0%), while only 3 (2.0%) patients were above 80 years.

Conclusion: Cancer trends were found to be similar as that of other studies in Pakistan with a few differences. Data management is sub optimal. There is a dire need of integrated system of Cancer Registry.

Key Words: Cancer, cancer incidence, hospital-based data, breast cancer, gastrointestinal cancers, cancer registry, Pakistan

Introduction

Cancer is on rise globally, accounting for 14.1 million new cases of malignancy worldwide; this global burden is expected to grow to 21.7 million new cancer cases by 2030. For a country like Pakistan in which cancer toll is on rise integrated system of Cancer Registry is need of the day. As per the current approximates from the International Agency for Research on Cancer (IARC), the cancer agency of the World Health Organization, 14.1 million new cases of malignancy were reported worldwide, of which economically developing countries, containing about 82% of the world's population, shared the burden of 8 million cases.[1]By 2030, the global burden is expected to grow to 21.7 million new cancer cases and 13 million cancer deaths simply due to the growth and aging of the population.[1,2]GLOBOCAN 2012 reveals that the most commonly diagnosed cancers worldwide were those of the lung (1.8 million, 13.0% of the total), breast (1.7 million, 11.9%), and colorectum (1.4 million, 9.7%) while the most common causes of cancer death were cancers of the lung (1.6 million, 19.4% of the total), liver (0.8 million, 9.1%), and stomach (0.7 million, 8.8%). [3,4]

Pakistan, located in south central Asia, ranks seventh in the world with respect to population. Paucity of strategically planned national policies, which helps to fight with epidemics, diseases, and other catastrophe, is a big dilemma. Pakistan, like other developing countries of the region, is facing a double incidence of diseases with a huge prevalence of cancers and an increase in risk factors' profile and occurrence itself. In developed countries, incidence of malignancy is derived from population based statistics collected by tumor registries. However, in developing world there is non availability of such extensive data secondary to almost nonexistence of such institutions .[5] A few epidemiological studies have been reported by cancer registry staff in Pakistan and data are available for Karachi, Quetta, Punjab andHyderabad.[6] However, the proportion of mortality due to cancers at national level cannot be estimated accurately, despite it being the third leading non-transmissible cause of death. Also, there are no statistics on survival rates (5 and10year), important when describing the epidemiology of any malignancy. [7]

Although there are some limitations of our institution-based study but it is the main source, which can provide necessary clinical, administrative and educational report on incidence of malignancy and can provide a basis for building an extensive cancer care strategy.

Patients and Methods

This is an observational analysis of the cancer patients of both genders of to determine frequencies of different malignancies that presented to Surgical unit 1 of Holy Family hospital from1st Jan. 2016 to 31 Dec. 2016.All the patients with age greater than 12 years and being admitted in surgical unit 1 with the diagnosis of malignancy, in the year 2016, were included. Patients with age less than 12, those with strong suspicion of malignancy on history and examination but no tissue diagnosis and patients who were lost on follow up were excluded. The variables recorded included file number, patients' name, age, sex, address, diagnosis,biopsy, date of biopsy, treatment timeline, stage at presentation, final outcome and referral to other care units. Data was entered on structured Proforma. The statistical package for social sciences (SPSS) software, version 22, was used to conduct the analysis and descriptive results were presented. For continuous variables, mean, standard deviation, and range were computed. Counts and percentages were presented for categorical variables. The Institutional Review Board was informed about the study and exemption from full review, granted as the study was retrospective in nature and information being presented was without any personal identifiers

Results

In this one-year study period (from January 2016-Deccember 2016), atotal of 150 malignant tumors were analyzed.

Tabe-1: Percentage of various malignancies

Malignancy	Percentage
Hepatobiliary	14.6%
Upper GI tract	16%
Lower GI tract	16%
Breast	44.66%
Thyroid	6.66%
Miscellaneous	2%

Table-2: Distribution of various malignancies

Type of Malignancy	AGE GROUP					GENDER	
	0-20	21-40	41-60	61-80	>80	MALE	FEMALE
Gastrointestinal							
Esophagus	0(0%)	5(9%)	7(10.1%)	3(14.3%)	1(33%)	7(14%)	9(9%)
Stomach	0(0%)	3(5.5%)	4(5.8%)	1(4.8%)	0(0%)	8(16%)	0(0%)
Colon	1(50%)	2(3.6%)	5(7.2%)	2(9.5%)	0(0%)	7(14%)	3(3%)
Rectum	0(0%)	3(5.5%)	3(4.3%)	2(9.5%)	1(33%)	8(16%)	1(1%)
Anal canal	0(0%)	3(5.5%)	0(0%)	0(0%)	0(0%)	0(0%)	3(3%)
Carcinoid	0(0%)	2(3.6%)	0(0%)	0(0%)	0(0%)	1(2%)	1(1%)
Hepatobiliary							
Gall bladder	0 (0%)	0(0%)	1(1.4%)	2(9.5%)	0(0%)	1(2%)	2(2%)
Periampullary	0(0%)	0(0%)	1(1.4%)	2(9.5%)	1(33%)	3(6%)	1(1%)
Head of pancreas	0(0%)	0(0%)	2(2.9%)	5(23.8%)	0(0%)	5(10%)	2(2%)
Body and tail of Pancreas	1(50%)	0(0%)	2(2.9%)	0(0%)	0(0%)	1(2%)	0(0%)
Cholangiocarcinoma	0(0%)	0(0%)	2(2.9%)	0(0%)	0(0%)	0(0%)	2(2%)
Hepatocellular carcinoma	0(0%)	0(0%)	5(7.2%)	0(0%)	0(0%)	4(8%)	1(1%)
Thyroid							
Papillary	0(0%)	2(3.6%)	1(1.4%)	0(0%)	0(0%)	2(4%)	1(1%)
Follicular	0(0%)	3(5.5%)	2(2.9%)	0(0%)	0(0%)	0(0%)	5(5%)
Anaplastic	0(0%)	0(0%)	2(2.9%)	0(0%)	0(0%)	0(0%)	2(2%)
Miscellaneous							
Submandibular	0(0%)	1(1.8%)	0(0%)	0(0%)	0(0%)	1(2%)	0(0%)
Parotid	0(0%)	1(1.8%)	0(0%)	0(0%)	0(0%)	1(2%)	0(0%)
Malignant melanoma	0(0%)	1(1.8%)	0(0%)	0(0%)	0(0%)	1(2%)	0(0%)
Breast	0(0%)	29(52.8%)	34(49.3%)	4(19%)	0(0%)	0(0%)	67(100%)

There were 50 male and 100 female patients. It was found that overall malignant tumours were more frequently diagnosed in females 100 (66.7%) as comparedto 50 (33.3%) males. Male to female ratio was.Overall, malignant tumors of breast 67 (44.7%) and esophagus 16 (10.7%), were found to be the most common whereas malignant melanoma 1 (0.7%), submandibular tumors 1 (0.7%), and parotid tumors 1 (0.7%), were least common (Table 1). The most common malignancy in males were of stomach 8 (16.0%) and rectum 8 (16.0%), whereas in females it was the breast malignancies 67 (67.0%).Dividing the

age distribution of the patients into 15-year bands, the peak age-category was 41-60 years (46.0%), while only 3 (2.0%) patients were above 80 years (Table 2). Out of the total 150 malignant tumors, only one case was seenin pediatric age group (< 15 years), and that was carcinoma of body and tail of pancreas. Hepatobiliary malignancies 22 (14.6%) were most common in 41-60 years age group. Similarly, 22.6 % of the malignant breast tumors were in the age range of 41-60 years. Likewise, 19 (12.6%) gastrointestinal malignancies were found out in the same age group. 21 to 40 years of age group, carried most of head and neck malignancies 8 (5.3%).

Discussion

According to WHO approximation for 2011, cancer now causes a larger number of deaths than all coronary heart diseases. [8]In low and middle income countries (LMCs), cancer accounts for nearly five million deaths annually, accounting for 10% of their death count[9].In our study,66.7% were female patients while 33.3% were male compared to 54.08% male and 45.92% female patients in a study conducted in 2013 at Hazara division, Pakistan.[6] In our study, the average age for the highest number of diagnosed cases was 41-60 years, followed by 21-40 years. Whereas cancer incidence being reported in Punjab by Masood et al, during time period 1984-2014, had maximum number of male patients in age group 51-60 years, followed by 61-70 years while maximum female patients in age category 41-50 years, followed by 51-60 years. [10]

In our study, amongst male patients,colorectal carcinoma accounted for highest percentage(30.0%) followed by carcinoma of stomach (16.0 %), esophagus (14.0 %),and head of pancreas (10.0%).Whereas annual cancer registry report being issued by Shaukat Khanum in 2015, reported cancer of colon, rectum and anus (9.35%) to be most common in males while carcinoma of esophagus constituted for 6.34% of the total cases and carcinoma of stomach 5.35% of the total cases.[11] As per our study, most common malignancies in females were breast cancer (67.0%) followed by carcinoma of esophagus (9.0%) and thyroid malignancies (8.0%), while according to cancer patterns (2010–2015) from a pathology based cancer registry of the largest government-run diagnostic and reference center of Karachi, breast cancer was the most frequently recorded malignancy (49.5%) in females followed by lip and oral cavity (11.2%) and esophagus (5.6%).[12]

Among endocrine malignancies, thyroid carcinoma is the most common and constitutes almost 1% of all malignancies.[13]In our study, thyroid carcinoma accounted for 6.6% of the total malignancies. It is one of the most frequently diagnosed cancers in females, ranking as the seventh most common female malignancy.[14]In our study thyroid carcinoma was found out to be the third most common female malignancy, accounting for 8.0% of the total female malignancies.

In Pakistan[13],papillary thyroid carcinoma constitutes 69-71% of all thyroid malignancies making it most common thyroid cancer followed by follicular carcinomas(11.6-13%) while in contrast to this, on our surgical floor follicular carcinoma was found out to be the most common thyroid malignancy (50.0%) followed by papillary thyroid carcinoma (30.0%) and anaplastic carcinoma (20.0%).

According to WHO figures, more than 1.2 million people are diagnosed with breast cancer worldwide every year.[15]Breast cancer is more common in Pakistani population as compared to the Western population.[16] One in every nine Pakistani women suffers from breast cancer which is one of the highest incidence rates in Asia.[17] Recently, Shaukat Khanum Memorial Cancer hospital reported incidence of breast cancer to be 21.5% among all and 45.9% among female patients.[18] Whereas in our study a higher incidence was reported, constituting 44.7% among all and 67.0% among female patients.

A multicenter matched case control study on 297 cases, conducted at Karachi in 2013[19] reported Invasive Ductal carcinoma to be the most frequently found breast malignancy 240 (81.1%)followed by Invasive Lobular 7 (2.4%) , Invasive Medullary 11 (3.7%) and tubular along with mucinous and inflammatory carcinoma 16 (5.4%), this trend is similar to that of our study in which it came out to be 54 (80.6%), 2 (3.0%), 1 (1.5%) and 10 (14.9%) respectively. In their study histology was unknown in 11 (3.7%) patients while in our study there was no such patient in whom histology was unknown or missing.

In a 10 year study on clinic pathological profile of breast cancer conducted by Koker e al in Pakistan in 2012, the highest percentage of patients (35.0%) were found to have stage 3 breast disease which is in accordance with the results of our study in which 32 (47.7%) patients had stage 3 disease. [20] In our study, stage 1 disease was found out to be in 2 (2.9%) patients while stage 2 and 4 in 23 (34.3%) and 10 (14.9%) respectively.Similar trend was observed in their study with proportion being 10%, 32% and 23% respectively.

In our study, GIT malignancies were more common in males (64.58%) as compared to females (35.42%).

Tumor registry data analysis gave the similar results with higher prevalence in males (59.5%) than females (40.5%).[21]Amongst upper gastrointestinal malignancies, the incidence of esophageal carcinoma was slightly higher in females (56.25%) in comparison to males (43.75%). Karachi Cancer Registry Data reported an equal incidence of esophageal carcinoma among both genders (3.7%).[22] As per our study, no female was found with gastric carcinoma, with males accounting for 100% of gastric malignancy. In contrast to this, Bhurgri et al suggested an identical risk for both sexes, the male: female ratio being 1. [23] Amongst lower gastrointestinal malignancies, colorectal carcinoma was the most common malignancy among both genders with males accounting for 78.95% and females for 21.05%. Similar results were reported in a study conducted at Armed Forces Institute of Pathology, Rawalpindi. [24] On our surgical floor, anal canal carcinoma was found in females only while carcinoid carcinoma was found with an equal frequency in both genders. Upper gastrointestinal malignancies were more common between 41-60 years of age, which is similar to the results reported by Alidinaet al.[25] Amongst lower gastrointestinal malignancies, colorectal carcinoma was most frequent in adults ranging from 41-60 years. Similar results were reported by Karachi Institute of Radiotherapy and Nuclear Medicine.[26] However, anal canal and carcinoid carcinoma was more common in the younger age group (21-40 years).

Based on results of a hospital-based registry in Pakistan, hepatobiliary cancers were found to be the most common malignancy in adult males and represented 10.7% of all cancers.[27] In our study hepatobiliary malignancies were found out to be the second and fourth most common malignancies in males (28.0%) and females (8.0%), respectively, constituting 14.6% of all malignancies. In a nine year data analysis of cancer patients done by Hanif et al, liver malignancies were reported to be more common in males (63.6%) of age group 46-60 years while gall bladder malignancies were found to be more common in females (77.6%) of same age group.[28] Similar trend was found out in our study population with incidence being 28.5% and 25.0%, respectively. The only difference between these two study populations was gall bladder malignancies being more common in 61-80 years of age group in our study population. As per GLOBOCAN 2012[29]approximates, pancreatic cancer, seventh leading cause of cancer related death,accounts for 4.0% of all deaths with incidence and mortality being correlated with increasing age and male gender. Likewise, in our study pancreatic cancer was found out to be more common in male patients of 61-80 years of age.

Conclusion

1.Carcinoma breast was the commonest in females , while carcinoma stomachand rectum were commonest in males, on surgical floors

2.There is a dire need of integrated system of Cancer Registry. However, in the absence of population based registries, where standardized incidences and mortality figures are not available, studies like ours may provide useful information that can be utilized for health planning in future research

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