

Frequency of Malignant Tumors : Reported at a Public Sector University Hospital A Five Year Data Based Analysis

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ABSTRACT

Objective: To determine the frequencies of common malignant tumors in relation to the variables of age, sex, histology and site of tumor.

Study design: A cross sectional study.

Place and Duration of Study: The study was conducted at the Department of Pathology Dow Medical College Dow University of Health Sciences Karachi from January 2006 to December 2010.

Materials and Methods: The specimens and relevant data was collected from pathology report forms by examining 5 μ m thick slides prepared from paraffin blocks and staining with H&E and special stains e.g. PAS, Giemsa, Trichrome, and histopathological diagnosis was confirmed by microscopy. Statistical analysis was done on SPSS (Ver 16).

Results: A total of 461 cases of malignant tumor were included from January 2006 to December 2010. Adenocarcinoma were 227 (49.2%). Squamous cell carcinoma with 190 cases (41.2%) were followed by Basal cell carcinoma 18 cases (3.9%). The most common sites of malignancy were Oral cavity with 102 cases (22.1%), Breast 96 cases (20.8%) followed by Cervix 40 cases (8.7%).

Out of 461 cases, 171 were male (37.1%) and 290 (62.9%) were female.

Conclusion: As in most developing countries, incidence of cancers is increasing in Pakistan. It is empirical that updated information on the frequency and epidemiology of malignant tumors be carried out. This will be beneficial in future health planning of the population at risk.

Key Words Malignant tumors, squamous cell carcinoma, adenocarcinoma, frequencies

INTRODUCTION

An accurate assessment of the cancer problem in most developing countries like Pakistan remains a difficult exercise¹. According to WHO estimates Pakistan should have 175000 new cancer patients annually². But due to lack of proper cancer registry the above data cannot be confirmed. Such being the burden of the disease it is empirical that statistical analysis should be available³. Pattern of malignancies varies around the world⁴. Even within the country different patterns are seen in different regions⁵. Variations can be a result of recognized environmental factors⁶. These include racial, socio-economic and cultural variations⁷. The era of molecular biology and oncology has enlightened us with a better understanding of cancers⁸. Valuable epidemiological leads regarding etiology of a variety of cancer can also be inferred by statistical evaluation⁹. Characteristic site specific distribution of cancer in different ages and sexes is also contributory to the changing trends of incidences of various types of cancers¹⁰.

The purpose of this study was to describe the frequency and pattern of different malignant tumors being reported at a public sector teaching hospital. Further, the results of this study can provide data for epidemiological interest and help compare the local data with other parts of the country and elsewhere.

MATERIALS AND METHODS

The study was conducted during five years from January 2006 to December 2010, at the Department of Pathology Dow Medical College Dow University of Health Sciences Karachi. Department of Pathology receives cases from Civil Hospital Karachi and Lyari General Hospital Karachi, which are tertiary care hospital. A total of 461 cases of were included in the study with their proformas displaying information regarding name, age, sex and site of the lesion.

The paraffin fixed specimens after gross examination were sectioned. 5 μ m thick slices were prepared from each paraffin block and were subjected to Haematoxylin and Eosin stain. With special stains e.g; PAS, Giemsa and Trichrome used when and where required. The slides were seen under scanner (X10), low power (X40) and high power (x100) magnifications of the compound microscope. Statistical analysis was done on SPSS 16.

RESULTS

A total of 461 cases of malignant tumor were included. Out of 461 cases of malignant tumor 171 were male (37.1%) and 290 (62.9%) were female, with a mean age of 48.21 (+/- 1.39 S.D) table1. the commonest histopathologic type of malignant neoplasms were

adenocarcinoma 227 (49.2%) Squamous cell carcinoma with 190 (41.2%) followed by Basal cell carcinoma 18 (3.9%). The commonest sites of malignancy was Oral cavity with 102 (22.1%), Breast 96 (20.8%) and Cervix 40 (8.7%). The frequencies of all malignant tumors is shown in table 2. The distribution of malignant tumors according to sex and site given in table 3

Table No.1: Gender Distribution of all Malignancies

Gender	Number	Percentage (%)
Male	171	37.1
Female	290	62.9
Total	461	100

Table No.2: Distribution of all malignant tumors in both sexes

Diagnosis	Male	Female	Total
Squamous cell carcinoma	96	94	190
Basal cell carcinoma	12	06	18
Adenocarcinoma	45	86	131
Invasive ductal carcinoma (adenocarcinoma)	00	83	83
Intraductal carcinoma	00	13	13
Transitional cell carcinoma	02	01	03
Osteosarcoma	02	00	02
Chondrosarcoma	00	01	01
Seminoma	03	00	03
Small cell carcinoma	01	00	01
Malignant Brenner tumor	00	01	01
Dysgerminoma	00	02	02
Choriocarcinoma	00	02	02
Soft tissue sarcoma	06	01	07
Lymphoma	04	00	04

DISCUSSION

Cancer is still one of the major health problem worldwide.¹¹ the era of modernization has also predisposed to a large number of risk factors leading to increase incidence of frequency of cancers.¹² according to WHO reports with an increase of upto 10 million new cases worldwide, half of it occurs in developing regions of the world.¹³

This study was conducted to give a baseline regarding the pattern of malignancies evaluated at Pathology Department of Dow medical college Dow University of health Sciences, which caters Civil Hospital, Karachi's second largest public hospital, and Lyari general hospital.

The results of our study showed that malignancies were frequent in females (63%) than in males (37%), probably because of large number of breast cancers and carcinoma of cervix in this group. This is similar to studies carried out in Yemen in 2006¹⁴ and Nizamuddin *et.al.*¹⁵

Table No.3: Tumor distribution according to site

Site of tumor	Male	Female	Total
Oral cavity	62	40	102
Breast	00	96	96
Cervix	00	40	40
Esophagus	26	09	35
Skin	18	10	28
Colo-rectal	08	12	20
Ovaries	00	19	19
Metastatic	02	14	16
Prostate	15	00	15
Stomach	07	07	14
Thyroid	02	12	14
Uterus	00	13	13
Gall bladder	04	04	08
Soft tissues	05	01	06
Vulva/vagina	00	05	05
Testis	05	00	05
Bone	04	01	05
Liver	02	02	04
Ileo-caecum	01	03	04
Lymphoma	04	00	04
Urinary bladder	02	01	03
Parotid gland	02	01	03
Pancreas	02	00	02
Total	171	290	461

The tumor of oral cavity, 102 cases (22.1%) was the commonest malignancy according to the site. The incidence is much higher than those from other parts of the world¹⁶. World wide the incidence of oral cancer is further increasing, rendering the problem as a considerable component of the global burden of disease. This might be attributed to heavy consumption of betel quid (pan), catechu, lime, tobacco mixed with flavoring agents (mawa, maenpuri, khaini)⁷. A very popular material used in the lower socio economic population of Karachi¹⁷. Squamous cell carcinoma (22.1%) being the major histopathological diagnosis with a male 62 cases (60%) predominance as compared to females 40 cases (39%).

In this study the maximum number of cancers in females were breast cancers, 96 cases (20.8%), the majority being Invasive Ductal Carcinomas NOS, 83 cases (86%). The frequency of breast cancers was three times higher as compared to a study in India and USA¹⁸. Incidence of breast cancer in Pakistani female is highest for any Asian population¹⁹ except for Jews in Israel. The enormous importance of breast cancer related to mortality and morbidity accounts for a better understanding of its molecular pathogenetic mechanism and etiological linkage with environmental factors other than genetic implications.²⁰

Carcinoma of cervix (8.9%) was next common malignancy in females, with squamous cell carcinoma

being the major type. These results are similar to study in India²¹. The high incidence may be due to lack of awareness, screening facilities and early marriages with multiple pregnancies²².

Pattern of gastro-esophageal, intestine, liver and gallbladder ranked in descending order of frequency as esophageal cancer was (7.6%), this is similar to a study in Iran²³. Esophageal carcinoma of the upper third were more common, being related to environmental risk factors, tobacco, alcohol and use of spicy food. Colorectal cancers 20 cases (4.3%) and Gastric cancer 14 cases (3.0%), is similar to other studies²⁴.

Skin cancer (6.1%) with basal cell carcinoma of the eyelid 18 cases (64%) is similar to study^{25,26}.

The incidence Ovarian cancers (4.1%), is low as compared to western countries²⁷. Majority were adenocarcinomas, 2 cases of dysgerminomas and 1 case of malignant Brenner were also diagnosed.

Among the male genital system prostate cancer (3.3%) were seen which is similar to studies²⁸. There were 3 cases (0.7%) of Seminomas.

Thyroid gland (3.0%) again presented as being more common in females, these results are in accordance with other studies²⁹.

Our study also revealed high frequencies of metastatic tumors 16 cases (3.5%). Majority of these tumors were diagnosed as adenocarcinomas (well differentiated). Metastatic tumors are an important challenging area in pathology³⁰. In the absence of a known clinically primary site, routine microscopy and special stains may give a clue to the cell lineage but immunohistochemical evolution remains the key in determining the tumor origin³¹. Knowledge of metastasis is very important regarding treatment strategies and prognosis.

The frequencies of other tumors as shown in table 2, reveals, sarcomas of which soft tissue sarcomas constitute (1.5%) and osteosarcoma (0.4%) chondrosarcoma (0.2%).

CONCLUSION

The data presented in this study is not representative of community prevalence rates. They may be higher as compared to those reported in this study. The study aimed at providing a baseline data which can help in development of tumor registry, epidemiological studies and population screening program and awareness of masses.

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