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MALIGNANT TUMORS;
FREQUENCY AT SARGODHA, A SINGLE CENTRE, RETROSPECTIVE STUDY

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ABSTRACT… As in most developing countries, incidence of cancer is also increasing in Pakistan. It is important that information on the frequency and epidemiology of malignant tumors be updated, as it is the basis of future health planning for the population at risk. This retrospective study was carried out to find the prevalence of various cancers in the population of Sargodha district (central Punjab, Pakistan) and to compare the regional and international studies, so as to plan and develop the oncology setup of Sargodha Medical College on a rationalized basis of disease prevalence. Data from July 2010 to June 2013 was retrieved from the department of statistics of the hospital and variables of interest were collected and analyzed using SPSS 10.0. It was observed that the most frequent cancer in our patients was breast cancer (n=172) while carcinoma of lungs was the most frequent carcinoma in male population (n=24). However our observations were a bit different from the international studies published on the subject, the probable reason being the availability of treatment facility and easier access in the nearby districts of Faisalabad and Lahore where many patients still go directly. More over the illiterate and poorer faction of the society does not come to the hospitals for management of the disease but rather go to the quakes and faith healers to relieve them of their sufferings. It is concluded that the department of clinical oncology should arrange cancer awareness programs for the general population to avoid delays in getting consultation, as at present they report to the hospital when the disease is quite advance and surgery is often not possible. Our study also revealed a somewhat different pattern of malignancies in our community raising a need for further studies to evaluate the reasons for this changed pattern in relation to various etiological factors.

Key words: Cancer frequency, tumor frequency, Sargodha, Pakistan

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OBJECTIVE

The present study was undertaken to find the frequencies of various malignant tumors prevalent in the district of Sargodha from July 2010 to June 2013 in both genders and to find the commonest ten tumors in the study periods.

METHOD

All the data available form July 2010 to June 2013 was retrieved from the statistics department of our teaching hospital. Variables of interest like patient's identification, gender, age, residence and disease along with its stage and histopathology report where available was compiled. All cases were indexed by medical record number, name, age, gender, site of tumor and histopathology. These variables were analyzed using SPSS version 10.0. Primary solid malignant tumors and Hematology Malignancies as well as recurrent and metastasis tumors were included. The patients were stratified according to their gender and site of the tumor. We studied the frequency by age and sex of different malignant tumors seen among these patients. Commonest tumors found amongst the patients seen at our facility were identified as were the tumors commonly affecting the two genders. Overall prevalence of various tumors was calculated, their

distribution in the two genders was calculated and average age at presentation was found. The inclusion criteria for the study was all the patients who reported to the department irrespective of their disease, its stage or recurrence.

RESULTS

During the period under study a total of 482 cases of various cancers were seen at clinical oncology department, District Headquarter Teaching Hospital Sargodha, fig 1.

RESULTS

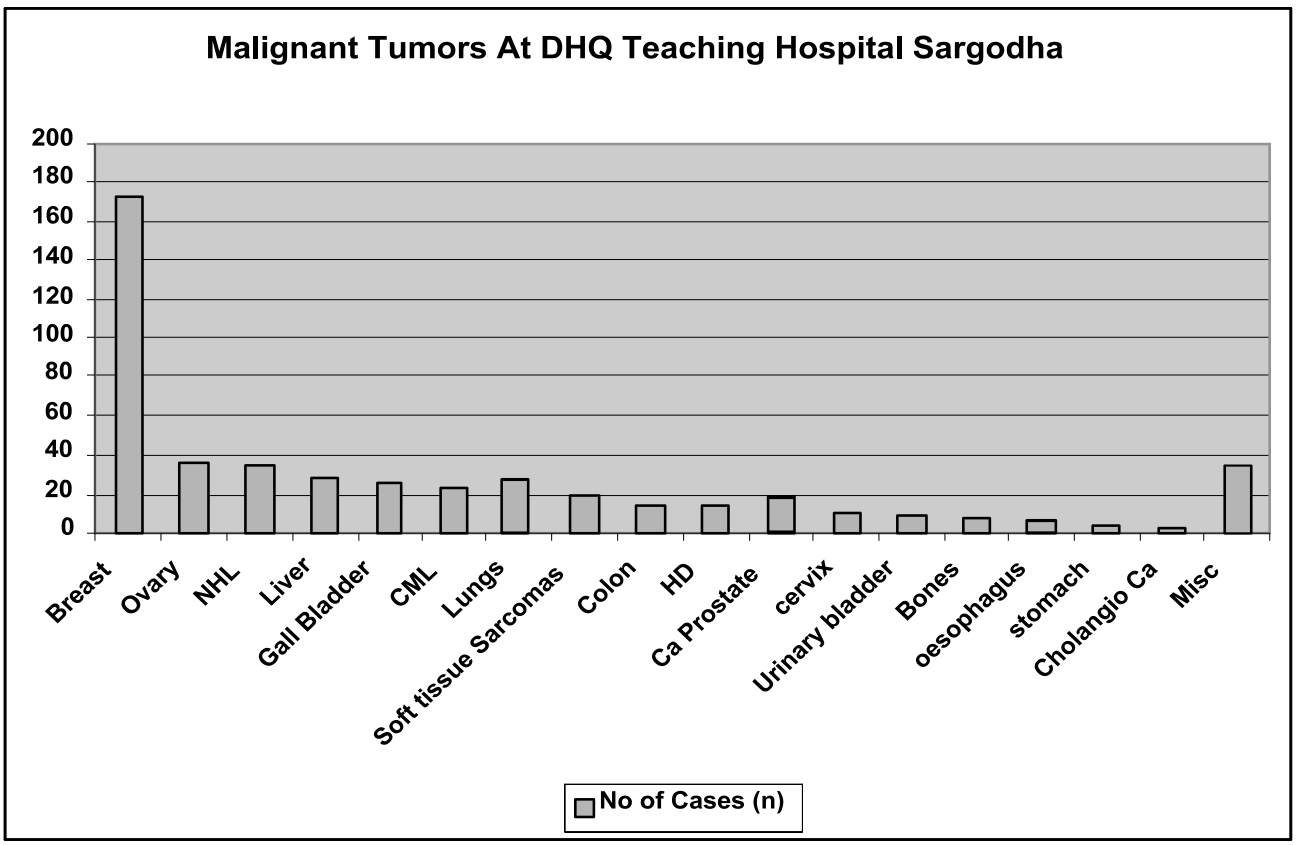

Fig-1. Cancer patients seen according to disease at District Headquarter Teaching Hospital Sargodha.

Gender distribution was 186 males and 296 female with a male to female ratio of 1:1.5.

All patients were from Sargodha district and its periphery, fig 2.

Most common cancer seen in the department was breast cancer (n=172) of which 168 were females and 4 were male patients. The most frequently seen cancer in the males was lung cancer (n=24).

Average age of our patients was 49.97 years (range 10-92 years).

The commonest tumors in males and females are shown in Table -I. However tumors of Bone, esophagus, stomach and cholangio-carcinoma are less frequently seen in our study.

DISCUSSION

Statistics on disease occurrence in a given population are essential to any program so as to

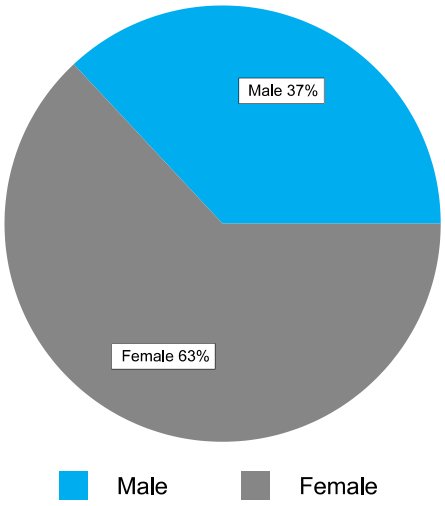

Fig-2. Male to female ratio of the cancer patients observed at District Headquarter Teaching Hospital Sargodha.

rationalize the provision of facilities to control the disease, as it lets us know the magnitude of the problem, the population at risk, loss of working hour's and its impact on quality of life and mortality etc. the current study was conducted keeping in view the same objectives. The purpose of this study was collection of basic data of all the cancer patients in the dependant population and to determine the prevalence of various cancers so as to rationally improve the facilities available at the center.

The department of clinical oncology and radiotherapy was established at Sargodha Medical College and Teaching Hospital, Sargodha in 2010. This study covers the period from the start of the department to date i.e. past 3 years (July 2010 to June 2013). The study includes all the patients who reported to the department irrespective of the cancer they were suffering, its stage or weather they had been treated earlier or not, but one patient was included once only.

Cancer is a pathology which rings the bell of fear and impending death for the patient. There are over 200 different known cancers that affect

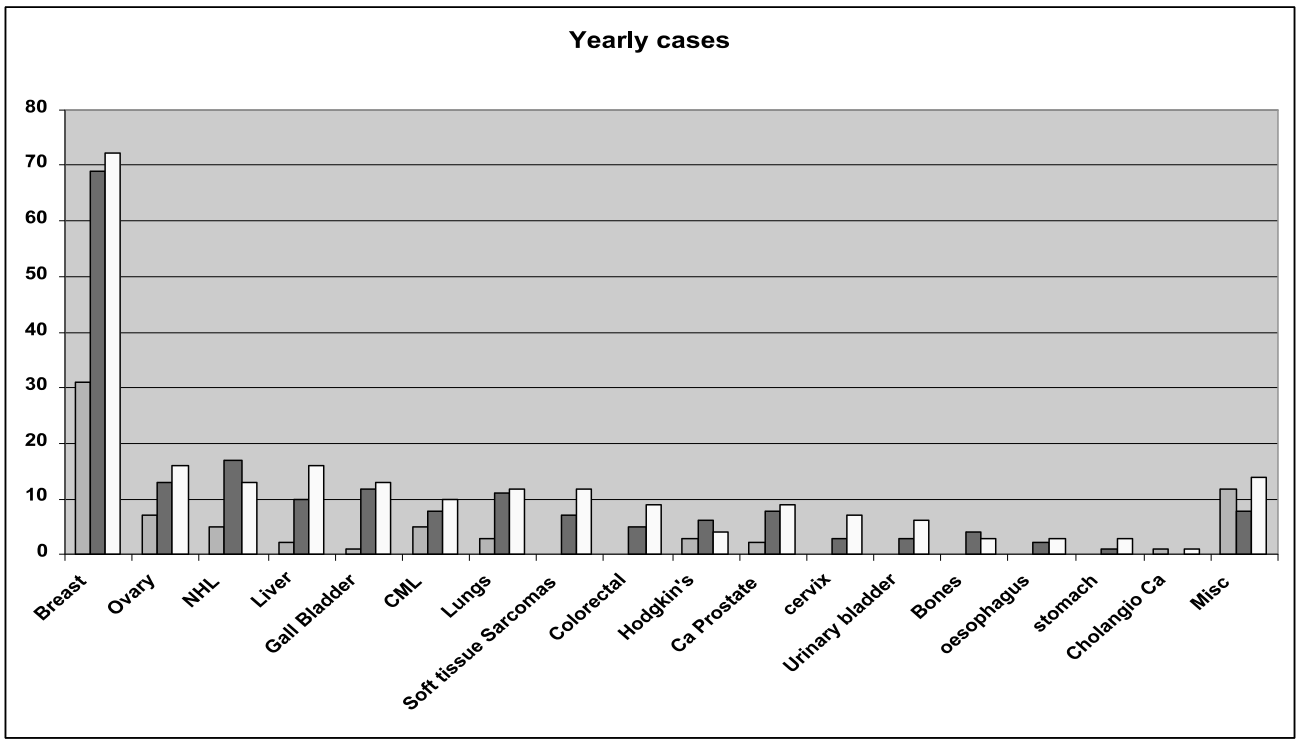

Fig-3. Yearly cancer cases seen according to disease at District Headquarter Teaching Hospital Sargodha.

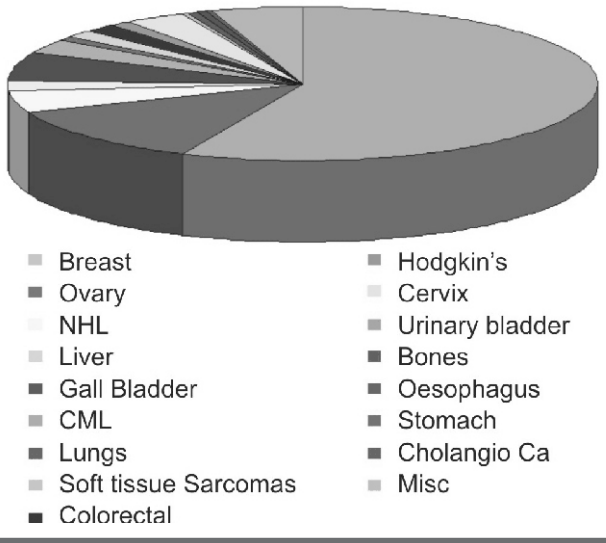

Fig-4. Tumors seen in female patients at District Headquarter Teaching Hospital Sargodha

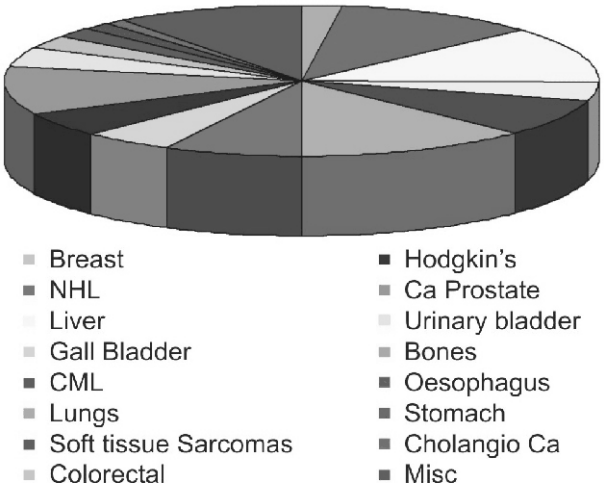

Fig-5. Tumors seen in male patients at District Headquarter Teaching Hospital Sargodha

humans[1] all of which are not lethal and with the advancements in various fields of medicine, life expectancy and cure rates are improving steadily. There is no single definition that can describe all cancers. They are a large family of diseases which form a subset of neoplasms, which show some features that are suggestive of malignancy. A neoplasm or tumor is a group of cells that have undergone unregulated growth, and will often form a mass or lump, but may be distributed diffusely[2,3].

Organ	Male	Female	Total
Breast	4	168	172
Ovary	-	36	36
NHL	21	14	35
Liver	22	6	28
Gall Bladder	8	18	26
CML	14	9	23
Lungs	24	2	26
Soft tissue Sarcomas	14	5	19
Colorectal	9	5	14
Hodgkin's	10	3	13
Ca Prostate	19	-	19
Cervix	-	10	10
Urinary bladder	8	1	9
Bones	5	2	7
Oesophagus	4	1	5
Stomach	3	1	4
Cholangio Ca	2	-	2
Misc	19	15	34

Table-I. Tumor cases seen at District Headquarter Teaching Hospital Sargodha along with gender distribution according to site

The causes of cancer are diverse, complex, and only partially understood. Many things are known to increase the risk of cancer, including tobacco use, dietary factors, certain infections, exposure to radiation, lack of physical activity, obesity, and environmental pollutants[4]. Further research is required to fully understand the role of these factors and to remove /rectify them so as to reduce the risk. The incidence of cancer is also rising as more people live to an old age and as mass lifestyle changes are occurring in the developing world[5]. Cancer is an important cause of death in societies where life expectancy is more, it is estimated that almost half of the Canadian population (41% female and 46% males) will develop cancer in their life time[6,7].

Very few patients were seen during the initial part of our study but the number has grown steadily over the years as the awareness about the existence of the facilities is increasing. Fig 2 shows year wise number of cancer cases seen in our department.

Over all, the most common tumor, which we have seen in our department is breast carcinoma (n=172) out of which four were male, table-I, although carcinoma of bladder surpasses the carcinoma of breast according to the Cancer incidence and mortality statistics reported by the American Cancer Society[8]. The reason for this high figure seams to be the high prevalence of the disease but it alone cannot account for such a high number of cases, the other possible reasons which we investigated were spread of information from patient to patient and referral / information given by other doctors about the availability of the department. Although radiotherapy and chemotherapy are an expensive treatment modality and there is no comprehensive program of health insurance for general public to cover its expenses, but still it is subsidized/ free (due to charity / donations) for the deserving patients, at our centre.

Breast cancer remains the commonest cancer in females table-I, a trend also noted in the west. According to Canadian Cancer Statistics 2013, breast cancer is the most common cancer affecting the female population of Canada (26.1%)[9]. Carcinoma of Breast (crude incidence rate of 22.6) is also the most frequently occurring carcinoma amongst the female population of Delhi, India, followed by carcinoma of cervix (crude incidence rate of 12.4), according to Cancer incidence and mortality report[10]. The second most common cancer is ovarian carcinoma where as carcinoma of cervix is the fifth common cancer amongst the female population, in our study. This trend might be related to various social, cultural, environmental, life-style related habits and many other factors. However the stage of the disease at presentation is higher in our population than in the developed countries, because of lack of general awareness programs, no mass screening programs or openness of the society to such diseases. In fact cancer as a whole is considered as a taboo disease in our society and the patient and his family try to hide this information from their relatives and neighbors even more so the doctors. They try to treat it by themselves and often go to faith healers during the early stages of the disease but once cancer reaches its terminal stages the patient is brought to the hospitals as a last resort with a hope of cure.

The second frequently seen cancer amongst the female patients was carcinoma of ovaries (n=36) fig 3. This seams to be more frequent due to the reason that it too is a disease of the female and the awareness about the centre was spread amongst the same gender as breast carcinoma. Ovarian tumors, lymphoma, hepatoma and gall bladder tumors acquire a higher position in the rank of commonest tumors amongst the female population of Sargodha district. Comparatively Gall bladder cancer is more frequent while cervical cancer was less commonly reported / observed at our department amongst the female patients.

The most frequent tumor found amongst the males was carcinoma of lungs (n=24) and only two cases were found in the females. Carcinoma of lungs (crude incidence rate of 7.7) is also the most frequently occurring carcinoma amongst the male population of Delhi, India, followed by carcinoma of prostate (crude incidence rate of 5.6), according to Cancer incidence and mortality report[11]. Similar trend is also observed in the developed world, according to Canadian vital statistics (CVS) 2009, 27.2% of its cancer deaths amongst male patients are due to lung cancer[12]. The predominant risk factor in our patients was use of tobacco (cigarettes / hukka) by the male population and environmental pollutants. The details of frequency of other diseases are shown in table-I. Although Carcinoma of the prostate is the most common tumor in men in the United States, with an estimated 238,590 new cases and 29,720 deaths expected in 2013[8] similar trend being observed in the Canadian male population with 24.1% being affected by the disease[9] carcinoma of prostate occupies the place of the most commonly

diagnosed tumor among males in the western world, this was not the case in our population the reasons when explored were that most of the surgeries performed for prostatism were open prostatectomies done by under trained doctors and some times by technicians. The resection specimen was never submitted for histopathology at the time of surgery or it was handed over to the patient's attendants who did not bother to send it for the histopathology. Thus after a few years the patients either died or reported with metastatic disease. The disease is histologically evident in as many as 34% of men in their fifth decade and in up to 70% of men aged 80 years and older[13,14].

Fig 4 shows tumor found in males strata of our patients. The tumors seen were liver cancer, Hepatocellular carcinoma (HCC) occurs more frequently in men than in women. The high male to female ratio of 78.57% and 21.43% noted in our study. The risk factors for HCC include viral infection, however, the most important risk factor for HCC is infection by hepatitis B (HBV) and hepatitis C (HCV) viruses along with it cirrhosis, has been recognized as an important risk factor for HCC. The prevalence of hepatitis due to HBV and HCV is on an increase that too is due to lack of awareness and unprotected use of needles and other equipment by quaks.

Carcinoma of gall bladder has a very low incidence worldwide[15] but is frequently seen in the Indian sub-continent, the incidence of gallbladder cancer in north and central India is very high and it is the commonest gastrointestinal cancer in women[16]. A similar trend was noted in our study where it was amongst the top ten malignancies observed. This increase in incidence is associated with gall stones, porcelain gallbladder, polyps and persistence of infection leading to chronic inflammation[17]. More over Salmonella Typhi, along with other bacteria, has been found to be associated with this carcinoma[18].

Renal cell carcinoma is amongst the top ten malignancies in United States[8] and the European countries[19]. According to Chow W-H et.al. approximately 92 percent of kidney cancers develop in the renal parenchyma,[20] and approximately 90% of these cancers are renal cell cancers[18]. Relatively small number of cases are seen in India[21] where 328 cases were studied over a period of nine years. Very few cases were seen at our centre during the study period. The number of cases seen at our centre might be low due to general trend of referral of patients to big centers by the treating physicians.

CONCLUSIONS

This study was carried out to determine the prevalence of various tumors and common malignancies in both sexes in Sargodha district, whether there is any change in the pattern of tumor predominance and to compare these results with other regional / neighboring countries and internationally, regarding the tumors prevalence. As in most developing countries, incidence of cancers is also increasing in Pakistan. Cancer pattern observed at Sargodha is a bit different from other parts as it is mainly an agricultural community and our environment is exposed to pesticides and other chemicals used in agriculture in addition to other factors. However the exact relation is to be determined and would require further studies.

It is essential that updated information on the frequency and epidemiology of malignant tumors be available through registration of cancer patients and the data be analyzed regularly to note any changing trends. This will be beneficial in future health planning of the population at risk.

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