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Original Articles

Institution Based Tumor Registry from Punjab: Five Year Data Based Analysis

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Introduction

The incidence of cancer is steadily increasing in developing countries. At present the distribution of cancers between the developing and the developed countries are similar.1,2 It is estimated that by 2020, approximately 75% cancers will be prevalent in developing countries. However there are marked differences in distribution of different cancers in different regions of the world.2,3 Several well recognized environmental factors contribute to different types of cancers including racial, socio-economic and cultural variations.4,5 It is important that statistics regarding relative frequencies of cancer are available before undertaking proper public health measures.

Actual cancer incidence data has never been available for any population in Pakistan except for the recently established Cancer Registry in Karachi (KCR) Karachi South.6 Relative frequencies of different cancers have been reported sporadically by some radiotherapy centers7 and from the Armed Forces Institute of Pathology (AFIP) from Rawalpindi.8 Referral bias may significantly influence the findings reported in these studies.

Punjab is the second largest province with a population of 1,524,563 according to the census conducted in 1998, in which Lahore is the largest district with a population of seven million. Epidemiological data from Punjab is scarce despite the fact that Lahore has four major tertiary care hospitals which are the major referral centers for evaluation and treatment of cancer patients .Jinnah Hospital Lahore is one of the major referral centers for diagnosis and treatment of cancer. We cover an area of approximately10,000 square kilometers.

We report a five year institution based tumor registry data from a single tertiary care hospital in Lahore, Punjab. This data along with previous reports may provide a more balanced estimate of the incidence of different cancers in different regions.

Materials and Methods

A retrospective analysis to determine frequencies of different cancers presented to Jinnah Hospital were performed between January 1997 to December 2001 on all patients who were 15 years or older.

Jinnah Hospital is a 1100 bedded hospital associated with Allama Iqbal Medical College.

All major medical and surgical facilities are available. Modern radiological services including ultrasonography, CT scans, mammography are available. The institution functions as both primary and tertiary care facility. Patients coming here belong to all socio-economic classes.

A tumor registry performa which included demographic data as age, sex, duration of symptoms and disease stage at presentation was used.

In all patients with histologically confirmed diagnosis of cancer, tumor registry forms were filled on first visit of the patient and updated thereafter. All cancers were coded according to international classification of Disease-oncology (ICD-10). Patients were divided into 10 year age groups intervals.

Statistical Analysis

The data was computerized using Microsoft Access and Excel Database. Cases were numbered according to Medical registration number and primary key was applied on them (facility provided in Microsoft Access database) so that duplication of cases was avoided. All the statistical analysis was done by using SPSS version 10.0.

Results

A total of 5100 cancers were registered in our ward during the five year period from January 1997 to December 2001. Male cancers accounted for 47.7% and female cancers 52.3% of the total cases. Table 1 depicts principal cancer sites by their ICD-10 coding. Percentage of cases by sites and their frequency distribution according to sex is seen in Figure. The median age at presentation for males and females was 50 and 45 years respectively.

In males the five most frequent malignancies were leukemias, followed by non-Hodgkins lymphoma, lung cancer (ICD-10 C34), colorectal cancer (ICD-10 C18) and hepatocellular carcinoma (ICD-10 C22). In females breast cancer was the most common cancer accounting for 38.5% followed by ovarian cancer 13.6%.
Tables 2 and 3 compare our data with AFIP showing that hematological malignancies are most common cancers in males in northern Punjab. Breast cancer has consistently being reported as most common female cancer.

Discussion

Few population based cancer registries are available in developing countries.1 Major reasons include lack of resources and trained personnel. According to economic survey of Government of Pakistan 2001-02 the total outlay on health sector in Pakistan is only 0.7% of GNP. Another reason is that cancer epidemiology and treatment is not a priority due to overwhelming burden of infectious diseases.9 Unlike Karachi there is no population based tumor registry in Punjab. We are presenting our data on cancer incidence in Punjab in the form of institutional based tumor registry to determine relative frequencies of different cancers in our region. It is the first five year tumor registry to be prepared from Punjab in more than a decade. We realize it has geographical and time constraints but it is the only source, which can provide essential clinical, administrative and educational information on cancer frequencies and other demographic data.

The AFIP monograph published in 1985 on cancer incidence in Northern Pakistan quotes hematolgical malignancies as the most common cancers in males. We report similar data from our hospital where leukemia incidence is 23.6% followed by non-Hodgkin's lymphoma 15.1%.The relatively higher incidence reported by us may partly be due to referral bias because of our interest in hematological cancers. However indiscriminate use of organophosphates has been linked to higher incidence of leukemias.10 Use of pesticides is frequent in Punjab as it is an agro based economy. The high incidence of NHL in our population maybe partly due to referral bias but similar observation has been made by AFIP8 as seen in Table 3. Similar figures are reported from certain parts of Africa.3 Although exact reason for this high frquency of NHL is unknown, higher incidence of malnutrition

and infections may play an etiologic role.11-13 Unlike the northern data from KCR and other institutional cancer registries from southern Pakistan indicate lung and oral cancers to be the most common cancers observed in males. Environmental factors contributing to these cancers in southern Pakistan are due to common use of betel nut and tobacco.6

Lung cancers are 7.5% of male cancers and rank as the third most common malignancy. The slightly lower incidence may be related to the fact that tobacco consumption has only recently increased in the developing countries.14 The lower incidence is probably the hiatus between the initiation of smoking and development of lung cancer. Lung cancer is now steadily increasing and we expect it to be the number one cause of cancer in the next decade as tobacco abuse is rising in younger population.

Colorectal cancer accounts for 6.7% of male tumors. It has been reported infrequently from other developing countries.3 The lower frequency maybe related to economic development and industrialization. Dietary factors may also influence the incidence of this cancer. The increased incidence of liver cancer is due to a high prevalence of hepatitis Band C infections.15,16 Vertical transmission of viral infections are common in developing countries. Secondly aflatoxins are commonly found in stored grains and this is a potent carcinogen which affects the growing liver in children.17

The incidence of prostate cancer is low accounting for only 3.8% of our male population where as it is the number one malignancy of males in USA. The most likely explanation for this is lower life expectancy and no screening.

In females breast cancer is the commonest cancer observed representing more than one third of female cancers and about one fourth of all malignancies. It is the highest incidence reported form any Asian country, except Jews in Israel.3,6 Median age of presentation is 45 years, a decade earlier than reported in western population. Advanced breast cancer accounts for 43.7% of cases.

Ovarian cancer is the second most common cancer observed with a median age of 47 years, which is a significantly younger age than reported in western literature. This is consistent with data reported from AFIP.8 The KCR6 has shown ovarian cancer as third most common malignancy after oral cavity cancer. As discussed previously high prevalence of betel nut and tobacco chewing in females has contributed to the relatively high incidence of oral cavity cancer in southern Karachi. Hematological malignancies are also commonly observed in females. Gall bladder accounts for 4.8% of female malignancies and is the commonest cancer of gastrointestinal tract in this group. The reason of high incidence of gall bladder cancer may be related our peculiar life style, high fat intake and frequent gall stones. Higher incidences of gall bladder cancer is also reported in other studies of Asian populations in United Kingdom19 and USA.20 High rates also observed in Hispanics.21

The incidence of cervical cancer incidence is lower than in the USA and India. Muslims have a lower incidence of cervical cancer than non-Muslims22 which maybe due to circumcision in males.

In conclusion retrospective analysis of malignant tumors at our institution suggest a pattern similar to that reported from AFP which covered a span of almost 40 years. In developing countries like ours where reliable cancer estimates are not available, estimates have to rely upon cancer frequency data from institutions. These estimates are of limited value as there may be problems in extrapolating the results from general population to various forms of selection bias. Nevertheless 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

and future research.

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