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A Multifactorial Epidemiological Analysis Of Cancer Patients At A Tertiary Care Hospital In South India

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ABSTRACT:
Cancer incidence has been increasing throughout world including India in the recent years.the present study is focussed on studying epidemiology of cancer in teritary care hospital,south India. district i n South India . This is retrospective study conducted at Mahatma Gandhi Memorial (MGM) Hospital , Warangal , Andhra Pradesh, India from June 2010 to June 2011. We analysed the patients admitted during this study period, all possible information regarding age, gender, demographic data , cancer type, site and stage -wise cancer, treatment , follow-up period were gathered and analysed statistically. A total of 236 patients , of mean age 49.45 years (SD: 11.27), including 52.33% male and 47.67% female were admitted during the study period. The most predominant age group was 41 -60 years . Among male, tongue cancer (11.92%) and among female breast cancer were more predominant (17.86%). The sub -types of cancers , histopathological variants , stage wise presentation, treatment administered and follow-up periods were explained in detail .This study explains the proportion of various cancers cases in south Indian population and provides a source of information, which help public health planners , administrators , healthcare system, and general public in the primary prevention and early detection of cancer which helps in detecting the cancer early .

Key words: Prevalence, Treatment, Histopathology, Administrators , Prevention

INTRODUCTION

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Cancer occupies second position in the causes of mortality in developing as well as developed countries .[1] Incidence of cancer has been rapidly increasing throughout world in the recent years. There exists a wide variety of reasons behind this including tobacco, alcohol consumption, dietary habits and behavioral factors exposure to pesticides and chemicals, ionizing radiation, infection, hormonal imbalance, decreased immunity, heredity, etc. use of Tobacco , either by way of chewing or smoking accounts for 50% of all cancers in men, sexual practices and dietary practices account for 20 -30 % of cancers . It is estimated that around 2.5 million, with over 8,00,000 new cases and 5,50,000 deaths occurring due to cancer each year in India.[2] India, having multi social habitats and cultural shows that prevalence of cancer different from one area to other. The incidence of gall bladder cancers are more in Northern India, particularly in Delhi and West Bengal, pharyngeal cancers are more in Western India (Mumbai), stomach and Esophageal cancers is more in Southern India, ,.[3,4] Clinical Pharmacology and Clinical epidemiology are two essential areas for integrating the health sciences as well as a source for future trends . From the fast 50 years , larger efforts have been spent for gathering data across hospital, state, countries as to study the impact of cultural factors and environmental on cancer incidence. The past epidemiological reports of cancer have shown that illiteracy and poverty are the major factors for the deaths fromoral as well as cervical cancers. as higher cancer prevalence present in Warangal district in Andhra Pradesh, South India,. We focused to study the cancer epidemiology in this particular area basing on the cancer registries of this tertiary care hospital.

MATERIALS AND METHODS

In order to assess the differences in risk among populations require incidence rates , of which the data is derived from population based cancer registries , which aim to record information on all newly occurring cases in a particular population. We collected and analysed data of all patients who were admitted with any type of cancer to Mahatma Gandhi Memorial (MGM) Hospital from June 2010 to June 2011. It is a 1100 -beded government tertiary care teaching hospital in Warangal, Andhra Pradesh, India. It is the referral hospital for cancer patients from Warangal district, other districts like Adilabad, Khammam, Karimnagar and Nalgonda. Total In-patient admissions to the hospital average about 300-350 per day. After diagnosis of cancer, patients are admitted to department of Oncology, which contains 30 beds , four doctors and four nurses . There is a separate Radiotherapy unit with two doctors and two nurses for those patients who require radiation therapy. Present data were gathered retrospectively from medical record case sheets . All hospitalized cancer patients were included. For the patients admitted during this study period, all possible information, gender, regarding age, demographic data, type of cancer, site -wise and stage-wise distribution of cancer, mode of treatment, follow-up period were gathered. Later data from all case sheets were analysed statistically.

RESULTS AND DISCUSSION

Incidence of cancer has been rapidly increasing in recent times . This is mainly because of lifestyle changes, , urbanization, industrialization, exposure to pesticides , population growth and increased life span. In India, the life expectancy has steadily risen from 19 71 (45 years) to 1991 (62 years), which indicates a shift in the socio-demographic profile.[5] Warangal district in Andhra Pradesh, Southern India, is having a large population and many cancer cases each year. Previous studies in this area have shown that the incidence is getting increased [6]. In our present study totally 236 patients were admitted with the diagnosis of cancer. Among them 52.33% male and 4 7.67% female with a mean age of 49.45 years(SD :11.27). Men outnumbered women in all age groups, except the age group 21-40 years. The most predominant age group was 41-60 years. This shows the increased life expectancy.[5] Nearly half of the patients (48.51 %) were aged in between 41 -60 years and there were very few cases in the age groups 0-20 years and >80 years.

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This data is indicated in Table no: 1. Most of the patients were from rural background (88.93) and very few of them were from urban areas (11.06%) as this area is having more rural population. In recent days exposure of agricultural workers to a variety of physical, chemical and biological hazards in the process of cultivating and harvesting crops and/or raising livestock is getting increased [7, 8].

Table 1: Age -Sex distribution

AGE GROUP (Yrs)	TOTAL	MALE	FEMALE
0-20	1 (0.42%)	1 (0.42%)	0
21-40	44 (18.72%)	18 (7.65%)	26 (11.06%)
41-60	114 (48.51%)	60 (25.53%)	54 (22.97%)
61-80	74 (31.48%)	42 (17.87%)	32 (13.61%)
>80	2 (0.85%)	2 (0.85%)	0
TOTAL	235 (100%)	123 (52.34%)	112 (47.65%)

Due to bad habits such as chewing of betel nut, tobacco consumption in the form of chewing or smoking, mouth cancers are common in India. Reverse smoking also causes cancer of hard palate which is also known as reverse chutta cancer.[9] In our study Head and neck cancers are the major type of cancer (42%), including 22.51% oral cavity and 19.11% oropharynx cancers. Among head and neck cancers, tongue cancer is most predominant (11.92%) when compared to others as shown in the Figure no: 1. According to epidemiological investigations , 80 - 90% of all cancers are due to environmental factors among which, lifestyle related factors are the most predominant and preventable [10]. The major risk factors for cancer are tobacco, alcohol consumption. Tobacco consumption, either by way of chewing or smoking accounts for 50% of all cancers in men. Studies have shown that appropriate changes in lifestyle and social habits will reduce the mortality and morbidity caused by cancer [11]. This indicates the need for initiating primary and secondary prevention measures for control and prevention of cancers mainly head and neck cancers [12]. Breast cancer accounts for 17.86 %, and it is the most predominant one among women. Women above 45 yrs are more prone to Cervical, Breast, Ovarian cancers and as the most predominant age group in our study was 41-60 years, these type of cancers more like other studies [13]. Gynaecological cancers accounts for 11.05% including cervix, uterus and ovary. Cancers of gastro-intestinal tract (10.61%) are also recorded in this population. This can be attributable to dietary habits .

The interesting findings of the present study are the Histopathological subtyping are varieties of reasons that can suspect a cancer, but the exact diagnosis is confirmed by histological examination of the cancerous cells from a biopsy or on postpoerative histopathology. The tissue diagnosis indicates the type of cell that is proliferating, its histological grade. This information is useful for assessing the prognosis and choosing the modality of the treatment. We studied all the histopathological reports of our patients and found that squamous cell carcinomas (56.69%) as predominant as represented in Figure No. 5. However data of some patients was not available (13.19%).Till today very few authors presented this histopathological data in the area of South India.

At time of diagnosis the stage of disease was recorded. But, data of some patients was not available (66.38%). The most commonly applied staging system for solid tumors is the TNM classification. T represents tumor size ranging from T_1 to T_4, Carcinoma in situ as T_{is} . N is extent and quality of nodal involvement ranging from N_0 to N_3. M represents metastases, depending on their presence or absence M0 or M1 are denoted. Usually a numerical value is assigned to each letter to indicate the size or extent of disease. Majority of the cancers are classified based on extent of the disease as stages I to IV. Stage I is localized tumor, stages II, III are local and

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regional extension, and stage IV denotes the presence of distant metastases . The criteria for classifying disease extent vary from cancer to cancer[14] . Alternative alphabetical systems (stage A, B, C, or D) are also in clinical practice. Most of the patients in our study were in advanced stages like in Stage-III (6.38%). Most of the our patients were in advanced stages (6.38% were in Stage-III).

Modality of treatment depends on the type and stage of the disease. Four primary modalities are employed in the approach to cancer treatment at our hospital are surgery, radiation, chemotherapy, and chemo-irradiation. For most of the solid tumors diagnosed in the early stages , surgery remains the treatment of choice. Among all only 1% of patients underwent surgery, as most of the cancers were detected in advanced stages . Radiation therapy was first introduced in late 1800s , since then it is the best management choice for cancer. In our study most of the patients (60.42%) underwent radiation therapy. Chemotherapy enables systemic circulation and effective in treating primary and any metastatic disease.[15] It is given to 29.36% patients. Both chemotherapy and radiation therapy were given to 9.36 % patients to combat the cancer.

The total duration of treatment varied from 1-18 months. Majority of the patients (57.87%) were treated within six months of the admission. There is also a record of irregular follow -up in 1.27% and no follow-up in 3 1.91% patients. This is primarly because of the impact of emotional stress after cancer diagnosis and economical burden for treatment, especially in a developing country like India. The cancer experience has been found to induce fatigue, [16-18] which will influence the Quality of Life (QoL) in cancer patients and effect the follow -up. The follow-up of male and female patients is indicated in Table No.2.

Table 2: Follow-up

DURATION (Months)	TOTAL	MALE	FEMALE
1-6	136 (57.87%)	69 (29.36%)	67 (28.51%)
7-12	20 (8.51%)	13 (5.53%)	7 (2.97%)
13-18	1 (0.42%)	0	1 (0.42%)
Irregular followup	3 (1.27%)	0	3 (1.27%)
No follow up	75 (31.91%)	39 (16.59%)	36 (15.31%)
Total	235 (100%)	121 (51.48%)	114 (48.52%)

CONCLUSIONS

This study explains in detail about the proportion of various cancers over this south Indian population. The quantities measure the changes in the occurrence and potential impact of primary prevention. This work provides a source of information, which help public health planners , administrators , healthcare team, and general public in the primary prevention and early detection of cancer. As older patients are more, constant and routine assessment of the Quality of Life (QoL) and factors that affect it may help . Most common type among male is cancer of tongue (1 1.91%) and among female is breast cancer (17.8 7%). Establishment of equitable, pain control and palliative care network like hospice can improve the follow-up. Avoiding preventable factors like tobacco and alcohol use, taking healthy diet, maintaining ideal Body mass index (BMI), avoiding sun ray sexposure, vaccination against hepatitis B and human papilloma vaccine against carcinoma cervix, healthy practices and regular screening can prevent cancer.

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