

ORIGINAL ARTICLE

MAGNITUDE AND LEADING SITES OF CANCER IN A TERTIARY CANCER CARE HOSPITAL OF WESTERN MAHARASHTRA

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ABSTRACT

Context: It is observed that cancers are increasingly seen in both genders and all the age groups due to a complex interaction of various risk factors. To implement the Public health intervention measures it is essential to have the baseline data regarding frequency, distribution of cancers in the population.

Aims: To study the magnitude of cancers by obtaining a baseline data regarding the frequency, distribution, leading cancer sites among the patients in a tertiary cancer care hospital of Western Maharashtra.

Study settings: Shri Siddhivinayak Ganapati Cancer Hospital, Miraj

Study Design: Hospital based, Cross sectional study involving retrospective information of patients from 1st March 2005 to 28th February 2006.

Methods and Material: Retrospective, questionnaire study of patients from 1st March 2005 to 28th February 2006. Out of the total 2168 new patients registered, 1891 patients were detected to be malignant and included in the study.

Results: 63.5 % Males and 67% Females in the age group 35-64 years had cancer. The sex ratio percent was 1.01%. Top five Cancer in males in our study were Oral Cavity, Oesophagus, Lung, Larynx and NHL. Top five Cancer in females in our study were Cervix, Breast, Ovary, Oral Cavity and Oesophagus. 27% were TRCs (Tobacco Related Cancers) in males while 9.6% were TRCs in females. 34% cancers were in easily accessible parts of body.

Conclusions: The Tobacco Related Cancers represent the most preventable form of cancer in our society. It was 27% in males and 9.6% in females in our study. Additionally 34% cancers were in easily accessible parts of body. It highlights the possibility of easy and early detection of cancers in the population thus decreasing the cancer burden in the community.

Key-words: Magnitude, Leading sites, Cancer, Western Maharashtra.

INTRODUCTION:

It is observed that cancers are increasingly seen in both genders and all the age groups due to a complex interaction of various risk factors. The prevalence pattern, type of cancers differs in various part of same country¹. This is due to interaction between geological, meteorological, nutritional, cultural and behavioural factors². To implement the Public health intervention measures it is essential to have the baseline data

regarding frequency, distribution of cancers in the population.

Studying the magnitude and patterns of cancer helps in determining clues to the cause of cancer and undertake studies in disease aetiology. Epidemiologic study based on this help in knowing what is happening and what can be done³. The present study was undertaken at Miraj which is in Western Maharashtra.

Another reason to carry out this study is that, the available literature indicates no such study in Western Maharashtra. Thus this study may be considered as a baseline enquiry into the subject.

Objectives:

1. To study the age and gender distribution of cancers.
2. To study the distribution of various cancers.
3. To determine the leading cancer sites in the present study.
4. To comment on TRC (Tobacco Related Cancers).

SUBJECTS AND METHODS

The study was conducted at Shri Siddhivinayak Ganapati Cancer Hospital, Miraj. It is a private hospital run by a trust since 1997 and is one of a leading tertiary care institution for Cancer in Western Maharashtra. It has a significant turn over of patients from Sangli district as well as from adjacent areas within and outside the state of Maharashtra.

The present study is a Hospital based, cross sectional study carried out for the period of one year from 1st March 2005 to 28th February 2006.

Retrospective questionnaire study was conducted on the patients after taking their consent. Out of the total 2168 new patients registered from 1st March 2005 to 28th February 2006, 1891 patients were detected to be malignant and thus included in the study (n=1891). The data was collected in a pre-designed and pre-tested proforma. The data so collected was fed in the computer, analyzed and presented in the form of figures, tables and percentages. Only the data on age, gender and sites involved are analyzed in this study. Statistical analysis included calculation of percentages and proportions.

RESULTS

Table 1.1: Sex-wise distribution of New cases of Cancer (2005-2006)

	No. of Case (%)
Total Cases	1891 (100)
Male	950 (50.23)
Female	941 (49.77)
Sex Ratio ^s %	101

^s Number of male patients per 100 female patients

Table 1.2: New Cases of Cancers by Broad Age Groups (2005-2006)

Sex	Age Groups				
	0-14 (%)	15-34 (%)	35-64 (%)	65+ (%)	All Ages
Males	53 (5.6)	105 (11)	603 (63.5)	189 (19.9)	950
Females	38 (4.1)	128 (13.6)	629 (66.8)	146 (15.5)	941
Total	91 (4.8)	233 (12.3)	1232 (65.1)	335 (17.7)	1891

Out of the 1891 patients the relative proportion of male patients were 50.23% and female patients were 49.77% while the sex ratio percent was 101. The minimum age of the patient was 3 months and the maximum age of the patient was 100 years.

63.5% males and 66.8% females belonged to age group 35-64 years. Almost 2/3rd of cases occurred in this age group. Males predominate in the age group 0-14 and above 65 years, while females predominate age group 15-34 years (reproductive age group). However, the frequency of cancers reduced at the extreme of ages in both the sexes.

In males Oral Cavity (13.2%) was the leading site of cancer followed by Oesophagus (4.9%), Lung (4%), Larynx (3.9%) and NHL (3.4%). Top five male cancers accounted for 279 cases from

total male cases of 950. The proportions of these cancers were 29%.

In females Cervix (22.1%) was the leading site of cancer followed by Breast (13.1%), Ovary (5.8%), Oral Cavity (3.7%) and Oesophagus (3.7%). Top five cancers in females accounted for 454 cases from total female cases of 941. The proportions of these cancers were 48%.

The table depicts leading sites of cancers in broad age groups (0-14, 15-34, 35-64 and 65 and above years of age). In age group 0-14 Lymphoid Leukemia and Eye were the leading sites in males, while Lymphoid Leukemia and Bones were the leading sites in females. In age group 15-34 Myeloid Leukemia and NHL were the leading sites in males, while Cervix and Breast were the leading sites in females.

Table 1.3: Leading Sites of and Rank (R) of Cancers (2005-2006) in Males and Females

Sites	No. of Case (%)	R
In Male		
Oral cavity ⁺	125 (13.2)	1
Oesophagus	47 (4.9)	2
Lung	38 (4)	3
Larynx	37 (3.9)	4
NHL	32 (3.4)	5
Rectum	19 (2)	*
Stomach	17 (1.8)	*
Hypopharynx	10 (1.1)	*
Prostate	5 (0.5)	*
Myeloid Leukaemia	4 (0.4)	*
Total	334 (35)	
All Sites	950 (100)	
In Female		
Cervix	208 (22.1)	1
Breast	123 (13.1)	2
Ovary	55 (5.8)	3
Oral Cavity ⁺	35 (3.7)	4
Oesophagus	33 (3.5)	5
Rectum	11 (1.7)	*
Stomach	10 (1.1)	*
Lung	10 (1.1)	*
NHL	8 (0.85)	*
Larynx	5 (0.53)	*
Total	498 (53)	
All Sites	941 (100)	

* Rank not within first five + Includes Cancers of lips, Tongue, gum, Floor of mouth, Cheek, Palate

In age group 35-64 Oral Cavity and Lung were the leading sites in males, while Cervix and Breast were in females. In 65 and above age group Oral Cavity and Oesophagus were the leading sites in males, while Cervix and Breast were in females. Its worthwhile to take a note that from 15-34 years age group onwards Cervix and Breast predominates the leading sites in females.

Table 1.4: commonest cancers in different age groups

Age groups	Sex	Most Common Cancers (%)
0-14 (n=91)	Males (n=53)	Lymphoid Leukemia (5.6) Eye (3.8)
	Females (n=38)	Lymphoid Leukemia (10.5) Bones (7.9)
15-34 (n=233)	Males (n=105)	Myeloid Leukemia (3.8) NHL (3.8)
	Females (n=128)	Cervix (24.2) Breast (18.8)
35-64 (n=1232)	Males (n=603)	Oral Cavity (15.1) Lung (5.7)
	Females (n=629)	Cervix (22.7) Breast (11.4)
65+ (n=335)	Males (n=189)	Oral Cavity (15.9) Oesophagus (10)
	Females (n=146)	Cervix (23) Breast (18.5)

Table 1.5: Comparison of leading sites of Cancer found in various study

Rank	Males			Females		
	Current Study	Mumbai HBCR 2004-2005	Barshi PBCR 2004-2005	Current Study	Mumbai HBCR 2004-2005	Barshi PBCR 2004-2005
1	Oral Cavity	Oral Cavity	Hypopharynx	Cervix	Breast	Cervix
2	Oesophagus	Lung	Oesophagus	Breast	Cervix	Breast
3	Lung	NHL	Larynx	Ovary	Ovary	Oesophagus
4	Larynx	Hypopharynx	Mouth	Oral Cavity	Oral Cavity	Ovary
5	NHL	Oesophagus	Stomach	Oesophagus	Gall bladder	Lung

5 Leading cancers in males in our study were: Oral Cavity, Oesophagus, Lung, Larynx and NHL. Whereas, it was Hypopharynx followed by Oesophagus for Population Based Cancer Registry (PBCR), Barshi⁴, it were Oral Cavity and Lung for Hospital Based Cancer Registry at Mumbai⁶.

5 Leading cancers in females in our study were: Cervix, Breast, Ovary, Oral Cavity and Oesophagus. Whereas for PBCR, Barshi it was

Cervix, Breast⁴ and Breast, Cervix for HBCR at Mumbai⁶.

Out of the 950 male cases, 27% were TRCs, similarly out of 941 female cases 9.6% were TRCs.

DISCUSSION

Cancer is predominantly a disease of middle and old age⁵. Almost 2/3rd of all cases among

males and females in our study occurred in the age group 35-64 years, comparable to the findings at all the Hospital Based Cancer Registries for 2004-2006 in India⁶. In our study we found the male female ratio to be almost equal (1.01).

Table 1.6: Tobacco Related Cancer (TRCs)*

Sites	Male (n=950)(%)	Female (n=941) (%)
Oral Cavity ⁺	125 (13.2)	35 (3.7)
Pharynx	9 (0.9)	8 (0.9)
Oesophagus	47 (4.9)	33 (3.5)
Larynx	37 (3.9)	5 (0.5)
Lung	38 (4)	4 (0.4)
Urinary Bladder	3 (0.3)	2 (0.2)
Total	259 (27)	89 (9.6)

Sites of Cancer included in TRCs (Tobacco Related Cancers): Lips, tongue, mouth, Pharynx, Oesophagus, Larynx, Lung and Urinary Bladder. (Source: International Agency for Research on Cancer monographs (IARC), 1987).

+ Includes Cancers of lips, Tongue, gum, Floor of mouth, Cheek, Palate

In the present study top 5 cancer sites in males were Oral Cavity, Oesophagus, Lung, Larynx and NHL. Based on IARC cancer monographs, 1987 Oral Cavity, Oesophagus, Lung and Larynx are Tobacco Related Cancers. In our study it constitutes 27% of all cancer in males. Tobacco use is a major cause of cancers of Oral Cavity, Lung, Pharynx, Oesophagus and Larynx⁷⁻¹¹. In 2004, IARC (IARC 2004) in a newer monographs states, that, there is sufficient evidence to establish a causal association between cigarette smoking and cancers of the nasal cavities and nasal sinuses, stomach, liver, kidney, uterine cervix and myeloid leukaemia apart from the sites in earlier monograph of 1987⁶. It represents the most preventable form of cancer in our society. NHL also finds place in first five leading sites in Mumbai HBCR. It is 2nd leading site in 15-34 age groups among males in the present study. NHL is more common in developed countries.

Top 5 cancer sites in our study were Cervix, Breast, Ovary, Oral Cavity and Oesophagus. Cervix together with Breast constituted 1/3rd of all cases among the females. Cancer of Cervix is more common in developing countries⁵. Early marriage, age of 1st pregnancy, multiple

pregnancies, decreased genital hygiene, sexual behaviour influence the cancer of cervix^{12,13}. WHO has recommended screening of every woman between 35-40 years of age for cancer cervix¹⁴. Breast cancers also find place in top 5 sites in Mumbai HBCR and Barshi PBCR. The survey of literature reveals that development of Breast cancer in many women appears to be related to female reproductive hormones. Many Epidemiological studies have consistently identified a number of risk factors, each of which is associated with increased exposure to endogenous estrogens¹⁵⁻¹⁷. Tobacco Related Cancers in females (Oral Cavity and Oesophagus) were 9.6% of all the cancers among them.

Leukaemias were leading among childhood cancers (0-14) among males and females. It also occupies the 1st place among the childhood cancers at all the HBCRs⁶ (2004-2006).

34% cancers were in easily accessible parts of body. It highlights the possibility of easy and early detection of cancers in the population thus decreasing the cancer burden in the community.

Limitation of the present study: This being the first study of its kind in the south-western Maharashtra, it was imperative that a cross sectional study was done than going for in-depth probing of any specified parameter.

CONCLUSIONS

The Tobacco Related Cancers represent the most preventable form of cancer in our society. It was 27% in males and 9.6% in females in our study.

Additionally 34% cancers were in easily accessible parts of body. It highlights the possibility of easy and early detection of cancers in the population thus decreasing the cancer burden in the community. This study also reinforces the fact that about 1/3rd of all cancers are preventable and further 1/3rd are potentially curable if diagnosed sufficiently early.

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