

## RESEARCH ARTICLE

# Patterns of Cancer: A Study of 500 Punjabi Patients

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### Abstract

The State of Punjab has been in focus because of a perceived increasing rate of cancer. Both print and electronic media have created an impression that Punjab, especially the cotton belt of Malwa Region, has become a high incidence cancer region. Actually the increased number of cancer patients might be at least partly because of increasing population and heightened health awareness and reporting. The purpose of this study is to find out the pattern of cancer amongst patients registered in Mukh Mantri Punjab Cancer Rahat Kosh Scheme (MMPCRKS), under cancer registry at Rajindra Hospital Patiala from the various districts of Punjab. The study covers 500 cancer patients registered under MMPCRKS at Rajindra Hospital Patiala, for free cancer treatment. Information regarding age, gender, religion, method of diagnosis and affected sites was obtained. Results were analyzed statistically. Of the 500 patients, 65% were females and 35% were males. The most affected female age groups were 50-54 and 60-64; while males in the age groups of 65-69 and 60-64 had the highest risk. The leading cancers in females were breast followed by cervix and ovary where as in males they were colon followed by esophagus and tongue. The commonest histological type was adenocarcinoma followed by squamous cell carcinoma. The increasing trend of cancer in Punjab is alarming. Since this study is a preliminary investigation, it could provide a leading role in prevention, treatment and future planning regarding cancer in Punjab.

**Keywords:** Cancer statistics - breast - colon - Punjab

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### Introduction

Cancer prevalence vary not only throughout the world but also between different population groups within the same country. Of the 10 million new cases of cancer diagnosed every year worldwide, over half are from the developing countries<sup>1</sup>. Study of the magnitude and pattern of cancer is the first step in determining clues to the causes of cancer and in having a baseline to plan and assess control measures. Until 1964, information on cancer occurrence in India was available from surveys. Initiation of Population Based Cancer Registry at Bombay in 1964, at Pune in 1973, at Aurangabad in 1978, and at Ahmedabad and Nagpur in 1980, started the availability of data on cancer incidence on a continuous basis. However, the boost for cancer registration in India was in 1982, through initiation of National Cancer Registry Program (NCRP) by Indian Council of Medical Research (ICMR). The NCRP began with three Population Based existing Bombay registry, new registries at (Bangalore and Chennai) and three Hospital based registries at Chandigarh, Dibrugarh and Thiruvananthapuram. The data from cancer registries helps in highlighting the magnitude and common sites of cancer in India, and is useful in planning the National Cancer Control Program. Currently there are 28 PBCRs

and 9 HBCRs working under NCRP, Bangalore.

Over the last few years there have been unauthorized reports of increased occurrence of cancer cases in Punjab, especially Malwa region (Southern Punjab). Hence, "Population Based Cancer Registry" (PBCR) & "Punjab Cancer Atlas" (PCA) Patiala, projects of ICMR were started in June, 2011 & January, 2013 respectively under the auspices of "National Cancer Registry Program" (NCRP) at Pathology Department of Govt. Medical College, Patiala. The main objective of these projects is to assess the magnitude of cancers in the state of Punjab, to provide a framework for assessing the impact of cancer on the community and to prepare strategies for diagnosis and management<sup>2</sup>. The objective of assessing the cancer problem is to aid control of cancer. The community burden, the site pattern and the incidence of disease over time is essential information required for implementing and evaluating cancer control programs.

Government of Punjab is very particular about cancer patients as far as early detection, management and prevention of this disease is concerned. There are various schemes for benefit and welfare of cancer patients like "Mukh Mantri Punjab Cancer Rahat Kosh Scheme" - a scheme from which cancer patients get financial help for their treatment and investigations. Even otherwise

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**Table 1. Showing Gender wise, Area Wise, Religion Wise, Method of Diagnosis, Pathological Diagnosis & Age wise Distribution of Cancer Cases**

	No. of Cases	Percentage of cases
Gender wise		
Males	175	35%
Females	325	65%
Area wise		
Rural	360	72%
Urban	140	28%
Religion wise		
Sikhs	342	68.40%
Hindus	144	28.80%
Muslims	14	2.80%
Method of Daignosis		
Cytology of Primary	93	18.60%
Cytology of Metastasis	20	4%
Histology of Primary	360	72%
Histology of Metastasis	6	1.20%
Bone Marrow	21	4.20%
Pathological Diagnosis		
Adeno Carcinoma	235	47%
Astrocytoma	2	0.40%
Basal Cell Carcinoma	1	0.20%
Chorio Carcinoma	1	0.20%
Germ Cell Tumor	7	1.40%
Glioblastoma	3	0.60%
Hodgkin Lymphoma	4	0.80%
Leukemia	15	3%
Malignant Melanoma	2	0.40%
Medullary Carcinoma Thyroid	1	0.20%
Multiple Myeloma	6	1.20%
Non- Hodgkin Lymphoma	14	2.80%
Non Small Cell Carcinoma	2	0.40%
Oligodendroglioma	1	0.20%
Papillary Carcinoma Thyroid	2	0.40%
Renal Cell Carcinoma	2	0.40%
Small Cell Carcinoma	2	0.40%
Soft Tissue Sarcoma	7	1.40%
Squamous Cell Carcinoma	181	36.20%
Transitional Cell Carcinoma	11	2.20%
Undifferentiated Carcinoma	1	0.20%
Age wise	Males	Females
0-4	0 (0%)	0 (0%)
5-9	1 (0.2%)	0 (0%)
10-14	0 (0%)	1(0.2%)
15-19	2 (0.4%)	1 (0.2%)
20-24	3 (0.6%)	4 (0.8%)
25-29	4 (0.8%)	6 (1.2%)
30-34	5 (1%)	12 (2.4%)
35-39	7 (1.4%)	19 (3.8%)
40-44	14 (2.8%)	37 (7.4%)
45-49	17 (3.4%)	40 (8%)
50-54	24 (4.8%)	56 (11.2%)
55-59	21 (4.2%)	42 (8.4%)
60-64	24 (4.8%)	54 (10.8%)
65-9	28 (5.6%)	29 (5.8%)
70-74	14 (2.8%)	16 (3.2%)
75>	11 (2.2%)	8 (1.6%)

once a person is diagnosed as having cancer, everything (investigations and treatment) is free in all government hospitals of the state.

Our institute caters mainly to Malwa region of Punjab, UT Chandigarh and other states like Haryana & Himachal Pradesh. All types of cancer patients right from neurological, head & neck, oropharynx, gastrointestinal tract, genitourinary tract, lungs, breast, cervix, ovary and

hematological malignancies like leukemias, multiple myeloma & lymphomas are diagnosed & affective treatment is provided.

## Materials and Methods

The study comprises of 500 microscopically diagnosed cancer patients who came to pathology department for verification of their histopathology/cytology/haematology reports. Record of each patient was noted like name, age, sex, religion, residence, date of diagnosis and type of cancer etc. Record was tabulated and analyzed statistically. The measure used in this study is relative frequency. The study period was from August, 2013 to August, 2014.

## Results

Out of the total 500 Cancer cases, males were (175, 35%) and females were (325,65%). Majority of cancer cases, (360,72%) were from rural area & (140,28%) cases were from urban area. Maximum cases (342,68.40%) belonged to Sikh community followed by Hindus (144,28.8%) and Muslims (14, 2.80%). This is because 70% of population of the Punjab is living in villages and Sikhism is the commonest religion followed by people of Punjab.

Among the male and female cancer cases confirmed microscopically, histology of primary (360,72%) was the commonest method of diagnosis followed by cytology of primary (93,18.6%). According to distribution of cancer cases on the basis of pathological diagnosis, Adenocarcinoma (235,47%) was the commonest followed by Squamous cell carcinoma (181,36.2%). Maximum number of cancer cases among males were observed in the age group of 65-69, (28,5.6%) followed by 60-64 (24,4.8%). Among females maximum of cancer cases occurred in the age group 50-54 were (56,11.2%) followed by 60-64 (54,10.8%).

Colon cancer was the most common cancer amongst males followed by Oesophagus, Tongue, Urinary Bladder and Lung. Amongst females Breast was the commonest cancer site followed by Cervix, Ovary, Oesophagus and Endometrium.

## Discussion

Of the 500 cancer patients included for analysis, 325(65%) were females & 175 (35%) were males. The rate of cancer was higher in females than in males in our study.

According to the study by Thakur et al, there were 107 histologically confirmed cancer cases at Talwandi Sabo, out of which 27 (25.2%) were males and 80 (74.7%) were females. There were 71 confirmed cancer cases at Chamkaur Sahib, out of which 25(35.2%) were males and 46(64.7%) were females<sup>3</sup>. In this study also rate of cancer was higher in females than in males.

This is in contrast to the study done by Sambasivaiah et al, in the Rayalaseema region of Andhra Pradesh where cancer rates were higher in males(588, 53.99%) than in females(501, 46.01%) out of total 1089 cancer patients<sup>4</sup>.

In our study cancer rates are comparatively higher in

rural population (72%) as compared to urban population (28%). This is in contrast to the Delhi rural cancer registry. According to the study done by Manoharan et al, in 2004-05, the overall cancer incidence rates in Delhi rural were comparatively very less than Delhi urban<sup>5</sup>.

The difference may be due to the entitlement of MMPCRKS, as mostly rural population come to seek treatment under this scheme. Most of the urban population is not entitled to it as they are employees under various Govt. sectors.

In our study maximum cancer cases were Sikhs. This may be because Punjab is a Sikh dominated state. According to Census of India 2011, maximum people (63.60 %) of Punjab are Sikhs followed by Hindus (34.00%).

In our study maximum cases belong to the districts of Patiala & Sangrur. This is may be because of nearby location of Govt. Rajindra Hospital, which is empanelled under the MMPCRKS and provide free cancer treatment.

The most affected female age groups in our study were 50-54, with 11.2% occurrence and 60-64, with 10.8% occurrence; while males in the age groups of 65-69, with 5.6% occurrence and 60-64 & 50-54, with 4.8% occurrence.

According to the study by Zeb et al, for females, the most affected age group was 41-50, with 8.87% occurrence, and the second most affected age group was 51-60, with 6.88% occurrence. For males, the most affected age group was 51-60, with 12.3% occurrence, followed by 61-70, with 10.32% occurrence<sup>6</sup>.

According to Mehrotra et al, the majority of cases (2,772,88.5%) were above the age of 30, with predominance at 41-50 years of age group (804,25.6%)<sup>7</sup>.

The leading cancers in females were breast (26.8%) followed by cervix (13%) and ovary (4.2%) where as in males were colon (3.6%) followed by esophagus (2.6%) and tongue (2.4%).

According to the previous study done by Sandhya et al, Breast cancer (30.2%) ranked 1st among all cancer cases reported followed by cancer cervix. When gender wise distribution of cancer was considered, stomach cancer (24.7%) ranked 1st among males followed by oral cancer (13.2%) which occupied the second position. In contrast in females breast cancer ranked 1st (38%) and cervix cancer (29.2%) was second in order of occurrence<sup>8</sup>.

According to three report of population based cancer registries, 2009-2011 by ICMR, the leading sites of cancer amongst males in Delhi PBCR for years 2008-2009 were Lung, Prostate and Tongue. The leading sites of cancer amongst females in Delhi PBCR for years 2008-2009 were Breast, Cervix and Gall Bladder<sup>9</sup>.

According to three year report of PBCR by NCDIR-NCRP (ICMR), Bangalore 2009-2011, among males cancers of Lung, Mouth, Oesophagus and Stomach were the leading sites across all the registries. Lung cancer was the leading site in Bangalore registry, Chennai registry, Delhi registry, Kolkata registry, Tripura registry, Kollam registry and Thiruvananthapuram registry. All the PBCRs in Gujrat and Maharashtra states and Bhopal PBCR had Mouth cancer as the leading site of cancer. Cancer of the Oesophagus was the leading site as per registries in

the states of Assam and Meghalya. Stomach cancer was the leading site in registries of Sikkim and Mizoram while cancer of the Nasopharynx was the leadind site in Nagaland registry. Among females cancer of the breast and cervix were the leading site of the cancer in 18 of 25 PBCRs in India. Cancer of the Gall Bladder and cancer of the Oesophagus followed cancer of the Breast as the leading site in Dibrugarh and Kamrup respectively. Lung was the leading site in Manipur and Mizoram. Cancer of the Oesophagus lead the list of cancers in Meghalya. Cancer of the Thyroid followed by cancer of breast in the two PBCRs at Kollam and Thiruvananthapuram<sup>10</sup>

In conclusion, breast cancer was the most common among all the cancers. The most common cancer among males was colon cancer and females were breast cancer. Maximum number of cancer cases was observed between the age group of 50-54. Youngest cancer patient was of 8 years suffering from Hodgkin's Lymphoma. Oldest cancer patient was of 90 years suffering from Acute Myeloid Leukemia. Adenocarcinoma was the commonest histological type of cancer followed by Squamous Cell Carcinoma.

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