

# A Study of Prevalence of Cancer in Male Sex Population in Rewa Region (M.P. State)

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## ABSTRACT

**Introduction:** Cancer is an abnormal growth of a mass or a tissue which is uncoordinated in comparison of normal tissue and it persist in the same excessive manner even after the removal of the stimuli which causes the changes, it is curable, if diagnosed at early stages. Due to its high mortality and morbidity rates, its not wrong to call present era as the era of cancer. It has become a global problem which is affecting the people and causing death throughout the world. There is no previous report available on the frequency and types of cancer occurring in the Rewa region. Hence keeping this thing in mind an attempt has been made in the proposed study to find out the frequency pattern of cancer associated lesions encountered in Rewa division to grow the public health importance of cancer.

**Material and methods:** The proposed study is a retrospective study, performed in the department of pathology, S.S Medical College, Rewa. The study includes malignant tumours which was encountered during 1980 to 1989. These malignant lesions were diagnosed with the help of their histopathological features and after that the analysis of the data was performed with respect of age, sex and site of the cancer lesions of the subjects to seek the relative frequency of these lesions. As this medical institute is biggest in the area and having histopathological facilities in the whole Rewa region.

**Results:** In this proposed study, the highest number of cancer cases in male sex were recorded in sixth decade of life that was having 27.91% followed by Seventh decade having a percentage of 23.7. Most of the cancer cases in male sex were observed between 41 to 70 years of age group. The present study is having a kind of similarity with the observations made in other parts of the country.

**Conclusion:** Because of the absence of the specialized facilities, many cancer cases were referred to other cancer hospitals having specialized facilities from the OPD and by the private practitioners. In spite of many sources of errors and limitations, the data gathered from hospital records were found to be important to have an idea of circumstances and frequency of cancer prevalence in Rewa region which would be useful for the studies to be done in future.

**Keywords:** Incidence, Male, Cancer, Oral, Penis, Socio-Economic Condition, Improved Health Services.

out of every five deaths is due to cancer, while in India, it has become one of those top ten reasons which is responsible for the high mortality and morbidity rates in adult population. Around 5 lakhs people develop cancer every year in India. In a survey, it was estimated that annually there are around 5.9 million new cases of cancer were diagnosed out of which 2.9 million cases were diagnosed in the developed countries and around 3 million of the cases in the developing countries.<sup>2</sup> The study of laws and factors governing the occurrence and distribution of disease and disorder in a population is defines as Epidemiology. The factors responsible for the study of epidemiology includes the characteristics of the population, causative agencies, biological, social and physical environment.<sup>3</sup> To formulate the etiological hypothesis, evaluation of hospital records, biopsy material and post-mortem findings can be useful. At this stage of knowledge population based registries are most reliable source of information.

The no. of cases at specific sites sometimes provide clues for the possible etiology by demonstrating trends of increase or decrease over the time period and contrast between one geographical area and another communities.<sup>4</sup> A population based study of a disease combines complete reporting of all cases diagnosed in a defined population with effective follow-up of all reported cases and evaluation of survival rates following different types of treatment. Unfortunately, studies regarding cancer provide reliable mortality and morbidity statistics are not covering the major parts of the country.<sup>5</sup> Government Medical Institutes is an easy asses to a large proportion of population. Therefore the material received in pathology department of medical institutes can be consider as a representative of a real incidence". Registry of Cancer cases is not existing in Rewa division. There is no previous report available on the occurrence and types of cancer in this area. So, keeping this thing in mind, an attempt has been made in this study to find out the frequency pattern of cancer associated lesions encountered in this region to grow public health importance of cancer. Rewa is known as the "land of white Tigers" it is one of the main city of Madhya Pradesh, India. This city covers an area of around 6314 sq. km, in which the major fraction are grazing lands and forests. It has

## INTRODUCTION

Cancer is an abnormal growth of a mass or a tissue which is uncoordinated in comparison of normal tissue and it persist in the same excessive manner even after the removal of the stimuli which causes the changes, it is curable, if diagnosed at early stages.<sup>1</sup> Due to its high mortality and morbidity rates, its not wrong to call present era as the era of cancer. It has become a global problem which is affecting the people and causing death throughout the world. After cardiovascular diseases, cancer is the second leading cause of deaths, in the west, where one

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an estimated population of around fifteen lakhs, having male to female ratio of 1:0.93 and population density of 246 per km<sup>2</sup>. About 80% of the population resides in rural areas who are mostly poor in socio-economic conditions. The literacy rate in this region is about 33%.<sup>6</sup> The medical facilities in this area are limited. A medical college hospital is situated in the Rewa city which does not have the facility for Cobalt therapy. The proposed study is based on the histopathological reports of malignant tumours, which is collected from the records of the pathology department over a period of ten years (1980 to 1989). The data is fairly representative of the overall incidence of cancer in the region because it is the only central referral point of encountered cancer cases in the whole division. Leukemia has not been included in the present study because of the very less frequency of it in this region.

This study has certain aims and objects with inclusion of the incidence and trend of cancer in Rewa region, to retrieve the difference in cancer incidence in various anatomical sites of body and to evaluate the incidence of cancer in male sex with respect to their ages.

## MATERIAL AND METHODS

The proposed study is a retrospective study, performed in the department of pathology, S.S Medical College, Rewa. The study includes malignant tumours which was encountered during 1980 to 1989. These malignant lesions were diagnosed with the help of their histopathological features and after that the analysis of the data was performed with respect of age, sex and site of the cancer lesions of the subjects to seek the relative frequency of these lesions. As this medical institute is biggest in the area and having histopathological facilities in the whole Rewa region, this became the main referral centre of cancer patients of this division, so this hospital has the maximum no. of cancer cases from adjoining parts of the Rewa city. The data during ten years (1980-1989) for this study were collected systematically from the records entered in the histopathology section of the hospital. This study shows the incidence of cancer which is recorded year wise and the total no. of biopsies of included years were studied. This study evaluate the relative frequency of carcinoma and sarcoma and cancer of different anatomical sites in male patients. At the end this study will also hint the leading sites of the cancer in Rewa region. The Statistical analysis of the collected data was performed by using SPSS version17.0 software.

### Coding system

The coding system incorporated by W.H.O (9<sup>th</sup> revision) having code numbers (140 to 202) has been used to classify these data.

## STATISTICAL ANALYSIS

Microsoft office 2007 was used for the statistical analysis. Descriptive statistics like mean and percentages were used for the data interpretation.

## RESULTS

After the collection of the data observations were recorded which was based on the analysis of the biopsy reports of the surgical specimens submitted for the histopathological studies in the Department of pathology during the period of 10 years (1980 to 1989). The facts were monitored in the presented

retrospective study have been incorporated under the following headings: the no. of cancer cases with respect to total number of biopsies studied during the period, frequency of cancer cases in different age groups, distribution of cancer cases in male sex, no. of cancer cases of various anatomical sites of the body with relative frequency in males to record leading sites of cancer. The table 1 shows indices of cancer year wise distribution of cases that involves 10 years (1980-1989) cases which reveals that the total no. of biopsies studied in this period was 35,256 in which cancer cases were 1657. Table 2 shows the relative frequency of carcinoma and sarcoma in the given time period which shows that the total no. of carcinoma were 1470 and the total no. of sarcoma were 187 and total malignancy cases were 1657. Table 3 shows the indices of cancer in various age groups where the age groups were categorized in 9 groups which includes 0-10, 11-20-21-30, 31-40, 41-50, 51-60, 61-70, 71-80 and 80 onwards. In this study the higher no. of cases in males were found in the age groups of 51-60 that was total of 244 cases having 27.9% of total population. Table 4 indicates the indices of cancer of different anatomical sites which includes total number of 874 male patients that shows the maximum no. of cases belongs from oral cavity region which was noted down as 95 cases in males having 10.86%. Table 5 shows the leading sites of cancers in male in which the most leading site of cancer found was oral cavity in this study which was having 125 male

Year	Total No. of Biopsies studied	Cancer cases	Percentage
1980	3231	130	4.02
1981	2350	133	5.65
1982	2845	137	4.81
1983	3000	207	6.90
1984	3401	184	5.41
1985	3741	222	5.90
1986	4000	168	4.07
1987	3737	176	4.70
1988	4465	145	3.24
1989	4526	155	3.42
(10 years 80-89)	35,296	1657	4.68

**Table-1:** Incidence of cancer-year wise Distribution of cases

Type	No. of cases	Percentage
Carcinoma	1470	88.71
Sarcoma	187	11.29
Total malignancy	1657	100

**Table-2:** Showing relative frequency of carcinoma and sarcoma

S. No.	Age group in year	In male	Percentage
1	0-10	21	2.40
2	11-20	38	4.34
3	21-30	37	4.23
4	31-40	88	10.06
5	41-50	174	19.90
6	51-60	244	27.91
7	61-70	208	23.79
8	71-80	55	6.71
9	81 Onwards	9	1.02

**Table-3:** Incidence of cancer in various age groups

S. No.	ICD Code No.	Sites	Total no. of cases (Male)	%
1	140	Lip	21	C
2	141	Tongue	59	6.75
3	142	Major Salivary gland	7	0.8
4	143	Gum alveolus	29	3.31
5	144	Floor of mouth	1	0.11
6	145	unspecified parts of mouth such as cheek	95	10.86
7	146	Oropharynx	24	2.74
8	147	Nasopharynx	4	0.45
9	148	Hypopharynx	27	3.08
10	149	Other ill defined sites within 141-148	-	-
11	150	Oesophagus	20	2.28
12	151	Stomach	15	1.71
13	152	Small Intestine, Duodenum	6	0.68
14	153	Colon	10	1.44
15	154	Rectum, Rectosigmoid Junction and anal canal	26	2.97
16	155	Liver, Intraphepatic bile duct	32	3.66
17	156	Gall Bladder, Extra hepatic bile duct	3	0.34
18	157	Pancreas	-	-
19	158	Peritoneum and Retroperitoneum	4	0.45
20	159	ill defined sites in 150-158	-	-
21	160	Nasal cavity, middle ear, accessory sinuses	23	2.63
22	161	Larynx cricoid (Epiglottis) vocal cord	24	2.74
23	162	Lung, trachea and bronchus	3	0.34
24	163	Pleura	1	0.11
25	164	Thymus, heart, mediastinum	-	-
26	165	other ill defined sites within 160-164	1	0.11
27	170	Bone and articular cartilage	43	4.9
28	171	Connective, soft tissue	35	4.0
29	172	Skin (Melanin	7	0.80
30	173	Skin (Others	69	7.89
31	174	Female breast	-	-
32	175	Male breast	-	-
33	179	Uterus nonspecific	-	-
34	180	Cervix Uteri	-	-
35	181	Placenta	-	-
36	182	Body of uterus (Corpus uteri)	-	-
37	183	Ovary and other associated uterine	-	-
38	184	other unspecified Parts female organs(vulva and vagina)	-	-
39	185	Prostate	63	7.20

Cont...

S. No.	ICD Code No.	Sites	Total no. of cases (Male)	%
40	186	Testis	21	2.40
41	187	Penis, other male genital organs	75	8.58
42	188	Urinary bladder	14	1.60
43	189	Kidney and other urinary organs	9	1.02
44	190	Eye, lachry glands	4	0.45
45	191	Brain	-	-
46	192	unspecific part of CNS	-	-
47	193	Thyroid gland	2	0.22
48	194	Other endocrinal glands	1	0.11
49	195	other ill defined sites	1	0.11
50	196	Lymph node 33 secondaries and Unspecified	33	3.77
51	197	Secondaries respiratory and Digestive	-	1.02
52	198	Secondaries other specified site	9	0.11
53	199	unspecified site	1	0.11
54	200	Lymphosarcoma and reticulo	20	2.28
55	201	Hodgkin's Disease	20	2.28
56	202	other lymphoid an histocytic tissue	-	-
Total	140-202		874	52.74

**Table-4:** Incidence of cancer of different anatomical sites (with relative frequencies in Males)

S. No.	ICD Code	Sites	No. of case in males	Percentage
1	143-145	Oral cavity	125	14.28
2	187	Penis	75	8.58
3	173	Skin (Excluding Melanoma)	69	7.89
4	185	Prostate	63	7.20
5	141	Tongue	59	6.75

**Table-5:** Showing leading sites of cancer in males

patients followed by the cancer of penis (8.58%), skin cancer (7.89), prostate cancer (7.20%) and cancer of tongue (6.75%).

## DISCUSSION

The most recent estimation says that, for 1990 the total no. of 8.1 million new cases, were recorded in developed and developing countries. which represents an increase of about 37% from the first estimate which was done around 15 years ago in 1975. A rate of growth of around 2.1% per year has been noticed which is faster than that of the world population (1.7% per year). In the same year (1990), an estimation was done in which 5.2 million death occurred due to cancer out of those about 55% of those deaths occurred in developing countries. There is some discrepancies exist in the incidences of cancer cases worldwide which is based on the mortality rate. In the present scenario lung



**Figure-1:** Common sites of cancer in males sex population. as observed in the present

cancer is the main variant of cancer in the world, whether it is considered in terms of numbers of incidences (1.04 million) or mortality rates (921,000) it is a highly lethal disease. Stomach cancer is second leading type of cancer having the incidence of around 789,000 cases and mortality rate around 628,000. Although breast cancer is the third most common variant of cancer overall incidence of 796,000, it ranks fifth as a cause of death because of its relatively favorable prognosis the ratio of mortality to incidence is about 40% for this variant. Cancers of the colon and rectum having a prevalence of 783,000 cases and the mortality rate is about 437,000 and the prevalence of cancer of liver cases is approximately 437,000 which causes around 427,000 deaths. The average percentage of survival in Europe is 8 which is almost similar to that of developing countries. The most important cause of lung cancer includes tobacco smoking.<sup>7</sup> The estimated proportion of lung cancer cases which is caused by tobacco smoking in different areas has been compared with that in nonsmokers from several large cohort studies.<sup>8</sup> In our study it was shown that the the lung, trachea and bronchus cancer involves 0.34% of male population. Recently, Helicobacter pylori has been recognized and IARC12 has accepted H. pylori as a human carcinogen, based on ecological correlation studies such as the EUROGAST study<sup>9</sup>, and with several cohort studies. Our study shows that the stomach cancer involves 1.71% of the, male population. The combined odds ratio from the aforesaid studies is 2.1.<sup>10</sup> H. pylori is assumed to have an indirect action because it provokes gastritis, which is a precursor of gastric atrophy, metaplasia, and dysplasia. An increase risk of incidence occurs among first-, second-, and third-generation.<sup>11</sup> Certain reproductive factors and less certainly diet is considered one of the causative factor for breast cancer.<sup>12</sup> Colon cancer and rectal cancer are kind of a similar in their geographical distribution, in high-risk populations, the ratio of colon cancer to rectal cancer is 2:1 or more especially in cases of females. In a survey it was mentioned that in India rectal cancer is even slightly more common. These large geographic differences probably represent the effects of environmental exposures and mainly dietary habits. That the risk of colon cancer is quite labile to environmental change has been evident from the various studies.<sup>13,14</sup> Our study shows 1.44% cases of colon cancer and 2.97% of cases were belongs to cancer of rectum.

The major risk factors for liver cancer worldwide is a infection with the hepatitis viruses (hepatitis B and C) and consumption of foods contaminated with aflatoxin these viruses confer a 20-fold increased risk of liver cancer.<sup>15</sup> In this study liver cancer occupy 3.66% of the male population. A considerable differences in prostate cancer incidence reflect different diagnostic practices. Asymptomatic prostate cancers can be detected in the tissue which is obtained during prostatectomy or at autopsy. This should be registered as “incident” cancers, and the extent of such practices can greatly influence the rate of record maintainance.<sup>16,17</sup> Prostate cancer occupy 7.20 % of the total studied male population in the proposed study. In U.S. the diagnosis of prostate cancer screening with prostate specific antigen has led to an enormous increase. In developed countries Tobacco smoking and alcohol consumption are the major causes of cancers of the mouth and pharynx, whereas tobacco chewing is another risk factor of cancer of mouth in some developing countries. All over the world esophageal cancer is the eighth most common cancer having a incidence of 316,000 in 1990, and the sixth most common cause of death from cancer, with mortality rate around 286,000. Cancer of the esophagus is the fourth site which can be characterized by very poor survival together with the liver, pancreas, and lung cancers. Ten percent of patients survive at least 5 years in the United States and 5% in Europe.<sup>18</sup> In this study cancer of the esophagus occupy 2.28% of the total male population. The present study shows that the leading sites of the cancer are tongue(6.75%), oral cavity(14.28%), prostate(7.20%), penis(8.58%) skin(7.89%)

## CONCLUSION

1657 cancer cases were recorded, out of total no. of 35,296 biopsies studied during 1980-1989 giving an over all frequency of 4.68%. As this study was not based on the population based registered cancer cases, the crude annual rate of frequency (per 100 thousand population) in the Rewa region could not be determined. Further, in the present study, sarcoma was less common while carcinoma was found to occur 8 times commoner, their relative frequency being 11.29% and 88.71% respectively. In the proposed study, highest number of cancer cases in male sex were recorded in sixth decade of life having a percentage of 27.91, followed by Seventh decade which is having 23.79%. Maximum no. of the cancer cases in male sex were observed between the age of 41 to 70 years. out of total 100%, 52.74% cases of cancer were found in male sex. In this study, in Males, the incidence of cancer was noted to be highest in oral cavity (14.28% cases) which is found similar to that reported from Gwalior. Incidence of oral cancer is found comparable to that reported from Andhra Pradesh Gujarat, Kerala, Rajasthan, Tamil Nadu, Uttar Pradesh and Orrissa. The frequency of skin cancer observed in this study is found kind of similar to that of reported cases from Uttar Pradesh, Maharashtra and Manipur.

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