



A COMPARATIVE STUDY OF PATTERN OF CANCER IN VINDHYA REGION WITH THAT OF DIFFERENT PARTS OF INDIA.

Dr. Arun Maity*	Associate Professor, Department of Pathology, L.N Medical College & Research Centre, Bhopal, Madhya Pradesh. *Corresponding Author
Dr.K. B. Mishra	Professor & Head, Department of Pathology, L.N Medical College & Research Centre, Bhopal, Madhya Pradesh.
Dr. Ajit Saluja	Professor & Head, Department of Pathology, R.K.D.F. Medical College & Research Centre, Bhopal, Madhya Pradesh.
Dr. U. R. Singh	Professor & Head, Department of Pathology, Professor & Head, S.S. Medical College, Rewa, Madhya Pradesh.
Dr. P. K. Pradhan	Ex- Professor & Head, Department of Pathology, Professor & Head, S.S. Medical College, Rewa, Madhya Pradesh.

ABSTRACT **INTRODUCTION:** Epidemiology is defined as the study of laws and factors governing the occurrence and distribution of disease and disorder in a population. These factors include the characteristics of the population, the causative agencies and the biological, social and physical environment. Incidence of cases at specific sites may provide clues for the possible etiology by demonstrating trends of increase or decrease over time and contrast between one geographical area and another or difference between section of communities. Government Medical Institutes form a system of the health care facilities which is an easy access to a large proportion of population. Therefore the material received in pathology department of medical institutes can be presumed to be representative of a real incidence.

MATERIAL AND METHODS: The present study is based on the histo-pathological reports of malignant tumours, collected from the records of the pathology department over a period of ten years from 1980 to 1989. This institution caters to the needs of the whole of the Vindhya Region and the data thus is fairly representative of the overall incidence of cancer in Vindhya Region.

The present study comprises of a retrospective study of malignant tumours reported during the years 1980 to 1989 in the department of pathology, S.S. Medical College, Rewa. The diagnosis of malignant lesions were made on the histopathological grounds.

Analysis of the data was done to find out the relative frequency of cancer lesions encountered in respective of age, sex and site of the cancer lesion of the patients.

RESULTS: Comparing the common sites of cancer among males, in the present series with that of other parts of the country, oral cavity was reported commonest malignancy in Lucknow (Central U.P.), corresponding to the observation made in present series. Cancer of oral cavity figured in the five commonest malignancies reported, from Gorakhpur (Eastern, U.P.), Nagpur, Poona, Manipur, Uttar Pradesh, Gujarat, Karnataka, Kerala, M.P., Maharashtra, Rajasthan, Andhra Pradesh, Tamil Nadu, Goa, Pondicherry and Orissa.

On comparing the common sites of cancer prevailing in females in the present series with that of other parts of India, cervix was found to be the leading most site of cancer in Assam, Punjab, Visakhapatnam, Bombay, Poona, Manipur, Aurangabad, Lucknow, Gorakhpur, Andhra Pradesh, Pondicherry, Delhi, Goa, Tamil Nadu, Maharashtra, Madhya Pradesh, Kerala, Karnataka, Bihar, Amritsar corresponding to present series observations.

A high incidence of Penile Cancer was observed in present series which is found near similar to that observed in Pondicherry and Punjab.

CONCLUSION: The five common sites of cancer among males observed in the present series are - (1) Oral cavity, (2) Penis, (3) Skin, (4) Prostate, (5) Tongue and the five common sites of cancer among females observed in the present series are - (1) Cervix, (2) Breast, (3) Oral Cavity, (4) Skin, (5) Tongue.

The present study is having a kind of similarity with the observations made in other parts of the country.

KEYWORDS : Comparative Study, Incidence, Oral Cavity, Cervical Cancer, Carcinoma Breast, Penis, Skin.

INTRODUCTION:

Epidemiology is defined as the study of laws and factors governing the occurrence and distribution of disease and disorder in a population. These factors include the characteristics of the population, the causative agencies and the biological, social and physical environment. Incidence of cases at specific sites may provide clues for the possible etiology by demonstrating trends of increase or decrease over time and contrast between one geographical area and another or difference between section of communities.

The study has certain aims and objects to compare the pattern of cancer in Vindhya Region with that of different parts of India and to retrieve the cancer incidence in various anatomical sites of the body in male and female sex.

MATERIAL AND METHODS:

The present study is based on the histo-pathological reports of malignant tumours, collected from the records of the pathology department over a period of ten years from 1980 to 1989. This institution caters to the needs of the whole of the Vindhya Region and the data thus is fairly representative of the overall incidence of cancer in Vindhya Region. As incidence of leukemia is very less in Vindhya Region, hence it has not been included in the present study.

Analysis of the data was done to find out the relative frequency of cancer lesions encountered in respective of age, sex and site of the cancer lesion of the patients.

The Medical College Hospital being the biggest and the only centre having histopathology facilities in the Vindhya Region ultimately remains the main referral centre of the region. Thus it also drains bulk of cancer cases from all parts of Vindhya Region.

The coding system described by W.H.O (9th revision) using code numbers 140 to 202, has been for classifying the present data. Microsoft Office 2007 was used for the statistical analysis. Descriptive statistics like mean and percentages were used for the data interpretation.

RESULTS:

Observations have been recorded based on the analysis of the reports of the biopsies/ surgical specimens submitted for histopathology studies in the Department of pathology during 10 years period, from 1980 to 1989.

The incidence of cancer has been defined as number of cases of cancer diagnosed during a limited period usually of one year per 0.1 million population, including those cases revealed by death

certificates. This is possible only where population based cancer registry is present. Unfortunately there is none in Rewa. Several cities which possess population based cancer registry include Bombay, Bangalore, Madras, Aurangabad and Pune. In Madhya Pradesh only Bhopal has cancer registry which was established in 1986 by ICMR.

Most of the cancer patients in Vindhya Region are being referred to Medical College of Rewa for investigations and confirmation of diagnosis. The figures of the present study compiled from the data obtained from the histopathology section of Medical College, may be taken as a pointer towards the incidence and site pattern around Vindhya Region.

The observations made in present study are being compared with the observations made by various workers, in the State of M.P. and other parts of the country. The observations are discussed under the following headings:-

(1)INCIDENCE OF CANCER IN DIFFERENT AGE GROUPS:

Cancer is mainly disease of old age. In the present study, highest number of cancer (454 cases or 27.39%) were recorded in the fifth decade followed by 6th decade (23.35%). Thus majority of cases (50-75%) were recorded between 51 to 70 years of age group in the present series.

The observations of peak age group of cancer incidence in other parts of the country along with present series figures have - been shown in table No - 1.

Table No. 1 Showing Peak Age Group Of Cancer Incidence Reported In Different Parts Of India And Vindhya Region

Sr.No.	Place	Peakagegroupof cancerincidence
1.	Raipur(C.G.)	51-70
2.	Bhopal(M.P.)	51-70
3.	Amritsar(Punjab)	51-70

Table No. 3 Table Showing Leading Sites Of Cancer In Major Cities Of Central India And Vindhya Region

Sr. No.	Place	Common Sites of Cancer				
		1	2	3	4	5
0.	Bhopal	Oralcavity (19.08%)	FemaleBreast (11.48%)	Nasopharynx (9.19%)	L.M.Secondaries (8.76%)	Cervix (6.57%)
1.	Jabalpur	Cervix (28.62%)	Oralcavity (16.92%)	Nasopharynx (7.19%)	FemaleBreast (5.69%)	Lymphnode (5.13%)
2.	Gwalior	Cervix (17.14%)	Oralcavity (9.30%)	FemaleBreast (17.93%)	Skin (4.85%)	Nasal cavity and Larynx (4.59%)
3.	Indore	Cervix (23.0%)	Oralcavity (20.20%)	Larynx (8.60%)	Tongue (8.20%)	FemaleBreast (6.76%)
4.	Raipur(C.G.)	Cervix (38.73%)	Oralcavity (8.11%)	Larynx (6.30%)	FemaleBreast (5.46%)	Lymphnode (5.03%)
5.	Presentseries	Cervix (13.09%)	Oralcavity (10.79%)	FemaleBreast (9.05%)	Skin (6.33%)	Tongue (5.37%)

Comparing the figures of the present series with that of medical colleges figures of the five cities in Central India, cancer of cervix was reported the commonest malignancy in four cities - Raipur, Jabalpur, Indore and Gwalior, but the observations reported from Bhopal differs where oral cavity was observed the most common site of cancer.

TableNo.4 Table Showing Leading Sites Of Cancer (sex Wise) Reported In Different Parts Of India And Vindhya Region

Sr.No.	Place		LeadingSitesofCancer				
			1	2	3	4	5
1.	Amritsar	Male	Lymph-node (SecondSeries) (9.32%)	Penis (8.54%)	Hypopharynx (8.36%)	Skin (8.27%)	Prostate (6.90%)
		Female	Cervix (35.20%)	Breast (19.11%)	Lymph-node (5.31%)	Esophagus (3.72%)	Skin (3.44%)
2.	AndhraPradesh	Male	Oralcavity	Naso-Pharynx	LymphNode	Oesophagus	Skin
		Female	Cervix	Oralcavity	Breast	Naso-Pharynx	LymphNode
3.	Assam	Male	Pyriiform fossa	Oesoph-agus	Tonsil	BaseofTongue	Skin
		Female	Cervix	Breast	Pyriiform fossa	Oesoph-agus	Tonsil

4.	Guwahati (Assam)	51-70
5.	Lucknow (Central U.P.)	51-70
6.	Gorakhpur (Eastern U.P.)	51-70
7.	Srinagar	51-70
8.	Present Series	51-70

(2) INCIDENCE OF CANCER IN MALES AND FEMALES:

In the present study, out of total number of 1657 cases, 874 (52.74%) cases- were found in males and 783 (47.26%) cases were found in females. Thus the incidence of cancer in males was found higher than that in females, the male, female ratio being 1.16:1 in the present series.

The observation regarding ratio of cancer incidence in males and females, reported from various parts of India along with present series figures are shown in table - 2.

Table No. 2 Showing Male To Female Cancer Ratio, Reported From Various Parts Of India Vindhya Region

Sr.No.	Place	SexRatio Male : Female
1.	Bhopal(M.P.)	1.10:1
2.	Raipur(C.G.)	0.65:1
3.	Amritsar(Punjab)	1.3:1
4.	Guwahati(Assam)	7.8:1
5.	Visakhapatnam	1.04:1
6.	Mumbai	1.01:1
7.	Pune	1.01:1
8.	Manipur	1.2:1
9.	Aurangabad	0.93:1
10.	Lucknow(CentralU.P.)	1.5:1
11.	Gorakhpur(EasternU.P.)	0.5:1
12.	Amritsar	1:1.13
13.	Srinagar	2 : 1
14.	PresentSeries	1.16 : 1

(3) COMMON CANCER SITES PREVALENT IN MALES AND FEMALES IN VINDHYA REGION and IN DIFFERENT PARTS OF INDIA:

Considering the common types of malignancies in both sexes combined, cervical cancers (13.09%) was found to the commonest in the present series, followed by Oral cavity (10.79%), female

4.	Aurangabad	Male	Larynx (10%)	Oesophagus (9.7%)	Lung (8.62%)	Stomach (7.2%)	Tongue
		Female	Cervix (25.2%)	Breast (18.8%)	Esophagus (6.2%)	Stomach (4.7%)	Cheek (4.4%)
5.	Bhopal(M.P.)	Male	Tongue (12.5%)	Lung (10.82%)	Oesoph-agus (8.66%)	Oral Cancer (6.49%)	Stomach (5.19%)
		Female	Breast (22.7%)	Cervix (20.20%)	Bodyof Uterus (5.19%)	Oral cancer (5.42%)	Oesoph-agus (4.93%)
6.	Bihar	Male	Lymphnode	Skin	OralCavity	SoftTissue	Skin
		Female	Breast	Cervix	Lymphnode	Skin	OralCavity
7.	Delhi	Male	Lymphnode	Skin	OralCavity,	Stomach	Naso-Pharynx
		Female	Cervix	Breast	Lymphnode	Skin	OralCavity
8.	Goa	Male	OralCavity	Stomach	Oesophagus	Lymphnode	Penis
		Female	Cervix	Breast	OralCavity	Stomach	Oesophagus
9.	Gorakhpur (EasterU.P.)	Male	Oral Cavity (21.74%)	Lymphoma (11.68%)	Testis (9.10%)	Tongue (5.06%)	Bones (4.72%)
		Female	Cervix (9.0%)	Breast (12.72%)	Vulva (8.28%)	Lower Alveolus (4.26%)	Liver (4.02%)
10.	Gujarat	Male	OralCavity	Skin	Naso-Pharynx	LymphNode	SoftTissue
		Female	Breast	Cervix	OralCavity	Naso-Pharynx Tract	Skin
11.	Karnataka	Male	OralCavity	Naso-Pharynx	LymphNode	Oesophagus	Skin
		Female	Cervix	OralCavity	Breast	Naso-Pharynx	LymphNode
12.	Kerala	Male	OralCavity	Skin	Naso-Pharynx	Eosophagus	Lymphnode
		Female	Cervix	Breast	OralCavity	Skin	Naso-Pharynx
13.	Luckhnow (CentralU.P.)	Male	Cheek (10%)	Tongue (9%)	Hypopharynx (8%)	Brain (7.70%)	Oropharynx (6.67%)
		Female	Cervix (22.98%)	Breast (21.60%)	Cheek (5.70%)	Ovary (4.41%)	Tongue (4.40%)
14.	MadhyaPradesh	Male	OralCavity	Tongue	Naso-Pharynx	LymphNode	Skin
		Female	Cervix	Breast	OralCavity	Tongue	Naso-Pharynx
15.	Maharashtra	Male	OralCavity	Naso-Pharynx	Skin	LymphNode	Penis
		Female	Cervix	Breast	OralCavity	Naso-Pharynx	LymphNode
16.	Manipur	Male	Naso-Pharynx	Lymphoma	Esophagus	Skin	Oral Cavity
		Female	Cervix	Nasop-harynx	Lymphoma	Skin	Breast
17.	Mumbai	Male	Esophagus	Lung	Larynx	Tongue	Stomach
		Female	Cervix	Breast	Esophagus	Ovary	Stomach
18.	Nagpur	Male	Esophagus	Stomach	Oral cavity	LymphNode	Naso-Pharynx
		Female	Esophagus	Stomach	Cervix	Breast	Naso-Pharynx
19.	Orissa	Male	OralCavity	Naso-Pharynx	LymphNode	Liver	Skin
		Female	Cervix	OralCavity	Breast	Naso-Pharynx	LymphNode
20.	Pondicherry	Male	OralCavity	Penis	Oesophagus	Stomach	LymphNode
		Female	Cervix	OralCavity	Breast	Oesophagus	Stomach
21.	Pune	Male	Oesophagus	Larynx	Stomach	Lung	Buccal Mucosa
		Female	Cervix	Breast	Esophagus	Stomach	Uterus
22.	Punjab	Male	Prostate	Penis	Skin	Lymph-node	Rectum andanalcanal
		Female	Cervix	Breast	Skin	Oropharynx	Rectum analcanal
23.	Raipur(C.G.)	Male	Oral Cancer (9.02%)	Tongue (6.93%)	Larynx (5.72%)	Penis (2.64%)	Oesoph-agus (2.93%)
		Female	Cervix (63.9%)	Breast (9.02%)	Oral Cancer (7.52%)	Ovary (1.39%)	Tongue (1.20%)
24.	Rajasthan	Male	OralCavity	Naso-Pharynx	Skin	LymphNode	SoftTissue
		Female	Cervix	Breast	OralCavity	Naso-Pharynx	LymphNode
25.	Srinagar	Male	Esophagus (31.03%)	Stomach (30.99%)	Breast (5.46%)	Lymph-node	Rectumandanal canal
		Female	Esophagus (36.41%)	Stomach (17.57%)	Breast (8.51%)	RectumandAnal-canal (3.65%)	Cervix (3.57%)
26.	Tamil-nadu	Male	OralCavity	Stomach	Naso-Pharynx	LymphNode	Penis
		Female	Cervix	OralCavity	Breast	Stomach	Naso-Pharynx
27.	UttarPradesh	Male	OralCavity	Naso-Pharynx	LymphNode	Skin	SoftTissue

		Female	Cervix	Breast	Oralcavity	Naso-Pharynx	LymphNode
28.	VishakhaPatnam	Male	Hard Palate	Penis	Skin	Lymph node	Soft tissueandbone
		Female	Cervix	Breast	Skin	Lymphoma	Softtissueand bone
		Male	Oralcavity (14.28%)	Penis (8.58%)	Skin (7.89%)	Prostate (7.20%)	Tongue (6.75%)
29.	PresentSeries	Female	Cervix (27.71%)	Breast (19.15%)	Oralcavity (6.87%)	Skin (4.59%)	Tongue (3.83%)

breast (9.05%), skin (6.33%) and tongue (5.37%).

DISCUSSION:

In the present study, among male, the predominant site of cancer was oral cavity (14.28% cases) this was followed by penis (8.58% cases). Skin (7.89% cases), Prostate (7.20% cases), Tongue (6.75% cases) in descending order of frequency. Among females, cervix cancer was most prevalent being observed in 27.71 percent cases, followed by breast cancer (19.15%), oral cavity cancer (6.87%), skin cancer (4.59%), and tongue cancer (3.83%) in descending order of frequency.

In the present series, a low incidence of respiratory tract Malignancies were reported. Respiratory tract malignancies were reported to have high incidence in Lucknow, Amritsar, Gujarat, Karnataka, Maharashtra, Nagpur, Pune and Mumbai, Manipur, Rajasthan and Uttar Pradesh. Its low incidence was reported in Bihar and Pondicherry.

Comparing the common sites of cancer among males, in the present series with that of other parts' of the country, oral cavity was reported commonest malignancy in Lucknow (Central U.P.), corresponding to the observation made in present series. Cancer of oral cavity figured in the five commonest malignancies reported, from Gorakhpur (Eastern, U.P.), Nagpur, Pune and Manipur. Penis was observed second most common site of cancer in the present study among males, corresponding to the observations made in Punjab, Vishakhpatnam and Amritsar series. Skin cancer was third most prevalent malignancy in the present study finding consistent to that observed in Punjab and Vishakhpatnam. Skin cancer was also reported in top-five malignancies in Amritsar, Assam and Manipur. Cancer of Prostate, which was fourth in order of frequency in the present series, was reported as leading most cancer in Punjab, but it was not found commoner in other parts of India - Assam, Nagpur, Bombay, Pune, Vishakhpatnam, Manipur, Aurangabad, Gorakhpur and Srinagar. The fifth common site of cancer observed in the present series was tongue, corresponding with the observation made in Aurangabad. Tongue cancer was also reported commoner in Lucknow, Gorakhpur and Bombay. Laryngeal cancer which was less frequent in the present series among males was reported as most frequent malignancy in Aurangabad. Esophageal cancer which was rare among males in the present series was reported predominant in Bombay and Pune.

Again on comparing the common sites of cancer prevailing in females in the present series with that of other parts of India, cervix was found to be the leading most site of cancer in Assam, Punjab, Visakhapatnam, Bombay, Pune, Manipur, Aurangabad, Lucknow, Gorakhpur, and Amritsar, corresponding to present series observations. At Nagpur and Srinagar oesophagus was reported as the commonest site of cancer, among females. Breast cancer was observed second commonest malignancy in the present series, finding consistent with the observations made in Assam, Punjab, Vishakhpatnam, Bombay, Pune, Aurangabad, Lucknow, Gorakhpur and Amritsar while it differs with that reported from Srinagar. Oral cavity cancer which was found third in order of frequency among females in the present series was reported third and fourth commonest cancer in Lucknow and Aurangabad respectively. Skin cancer in females which was fourth in order of frequency in the present series, was also reported among top five malignancies in Punjab, Visakhapatnam, Manipur and Amritsar. Tongue cancer was fifth among females in order of frequency which is corresponding to the observations made in Lucknow.

Esophagus cancer was found rare in the present series in both the sexes where as it was reported as most frequent malignancy in Nagpur and Srinagar. Stomach cancer which was found rare in the present series was found prevalent in Nagpur, Bombay, Pune, Aurangabad and Srinagar.

CONCLUSION:

Various factors as tobacco chewing and smoking habits, deficient diet, poor oral hygiene, low socio-economic conditions, and easy accessibility of the oral cavity lesions may be the factor for higher frequency of cancer cases in the present series study. Easy accessibility of cervix lesions, multiparty and poor marital hygiene, due to low socio-economic condition (as revealed by personal history of the patients recorded in the prospective study) were few of the risk factors prevalent in the female population in Vindhya region, which may be attributed to the high frequency of the cervix cancer.

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