A GLIMPSE OF THE CURRENT CANCER INCIDENCE IN THE INDUSTRIAL BELT OF SOUTH SEMI-URBAN WEST BENGAL

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ABSTRACT

BACKGROUND

Global burden of cancer is on rise and trends and pattern of cancers are rapidly changing in different geographic area and population groups. Epidemiological information on cancer including the pattern is an important basis for determining the priorities for cancer control in any population group. This study is an attempt to know the incidence of cancer in a tertiary care centre of West Bengal.

MATERIALS AND METHODS

Record based cross-sectional study was conducted in Department of Pathology of IQ City Medical College, Durgapur, West Bengal. Cases confirmed histologically as cancer were studied.

RESULTS

Out of 2181 biopsies received in the department, 200 patients were diagnosed as having cancer with the male:female ratio of 1.3:1. The overall incidence of cancer was highest 22.5% in age group 61-70 years. In both the sexes combined, cancer of gastrointestinal tract was the most common cancer, and was found in 104 (52%) patients (60 males and 44 females) with predominant involvement of stomach followed by rectum, oesophagus and colon. After gastrointestinal malignancies, breast cancer is the most common malignancy in female and bladder cancer in males.

CONCLUSION

The current study mainly summarizes the different patterns of cancer incidence in the tertiary care center region. Cancer incidence is increasing gradually among the population. Pattern of malignancies in the present study is different from rest of the India.

KEYWORDS

Cancer, Stomach, Colorectal, West Bengal.

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BACKGROUND

Cancer has emerged as a major public health concern in India. 12.5 lakh new cases are diagnosed every year and around 28 lakh cases of cancers are prevalent at any given point of time. It also claims the lives of about 6.8 lakh patients per year.[1] According to the World Health Organization (WHO), death from cancer cases in India is projected to rise to 13.1 million by the year 2030. The burden of cancer is expected to further increase due to increase in life expectancy, demographic transitions and the effects of tobacco and other risk factors. Around one third of deaths from cancer are due to the 5 leading behavioural and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use.

As per latest data of India from GLOBOCAN 2012,[1] top three cancers in females are cancer of breast, cervix uteri and colorectum and in males top three cancers are cancer of oral cavity, lung and stomach.

National Cancer Registry Programme (NCRP) data of Indian Council of Medical Research (ICMR)[2] suggest a wide demographic variation in incidence of cancer. As per Population based Cancer Registry of Indian Council of Medical Research, the incidence and mortality of cancer is highest in the North Eastern region of the country. The northeast reported the highest number of cancer cases in both males and females. Aizawl district in Mizoram reported the highest number of cases among males with oesophagus as most common site, while Papump are district in Arunachal Pradesh recorded the highest number among females with

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breast as the most common involvement.[3] These data reflect the impact of environmental and cultural factors on the incidence of cancer.

Cancer profile varies in different parts of the world, and an epidemiological study will help us to know about the common cancer types prevalent in particular segment of a population, and the risk factors involved. Estimating the cancer burden not only helps us to formulate policies but also gear up for future management strategies. Keeping in view the existence of diverse pattern of cancer occurrence, present study was conducted to explore the pattern and trend of cancer among the biopsies received in the department of pathology of IQ City Medical College, Durgapur, West Bengal.

MATERIALS AND METHODS

We conducted a cross sectional study in IQ City Medical College and NH hospital, Durgapur in West Bengal. This hospital-based study was conducted for the period of two year. Only the cases histologically confirmed as cancer were included in our study. Tissue biopsies received in histopathology section of the pathology department. They were fixed in buffered formalin. Thorough gross examination of specimen was done. Appropriate sections were taken as per the standard guideline mentioned in the textbook. After processing in tissue processor, sections were cut and stained with H and E stain. Special stains were done wherever needed. The diagnosis offered on histopathological evaluation. Tumour, node, staging and classification of the tumour done in specimens with radical surgery.

Age	Male	Female	Total	Percentage
0-10 Yrs.	0	1	1	0.5%
11-20 Yrs.	0	2	2	1%
21-30 Yrs.	6	5	11	5.5%
31-40 Yrs.	17	13	30	15%
41-50 Yrs.	14	25	39	19.5%
51-60 Yrs.	19	13	32	16%
61-70 Yrs.	28	17	45	22.5%
71-80 Yrs.	27	7	34	17%
81-90 Yrs.	3	3	6	3%
Total	**114**	**86**	**200**	

Table 1. Age and Sex Wise Distribution of Total Cancer Patients in Present Study

System	Male	Percentage	Female	Percentage	Total	Percentage
Reproductive System	8	7%	16	18.6%	24	12%
Head and Neck Structures	15	13.1%	3	3.4%	18	9%
Gastrointestinal Tract	60	52.6%	44	51.1%	104	52%
Breast	2	1.7%	10	11.6%	12	6%
Soft Tissue	1	0.8%	1	1.1%	2	1%
Musculoskeletal System	0	0%	0	0%	0	0%
Skin	7	6.1%	0	0%	7	3.5%
Central Nervous System	0	0%	1	1.1%	1	0.5%
Endocrine System	0	0%	1	1.1%	1	0.5%
Tumor of Lymphoid Structure	4	3.5%	1	1.1%	5	2.5%
Hepatobiliary and Pancreas	4	3.5%	6	6.9%	10	5%
Kidney and Lower Urinary Tract	12	10.5%	3	3.4%	15	7.5%
Bone Marrow Biopsy	1	0.8%	0	0%	1	0.5%
Total	**114**		**86**		**200**	

Table 2. System Wise and Gender Distribution of Total Cancer Patients

Site	No. of Patient	Median Age
Stomach	11	52
Rectum	11	50
Breast	10	46
Cervix	8	49
Oesophagus	8	63
Anus	6	61
Colon	5	52
Gall Bladder	5	49
Endometrium	4	68
Ovary	3	34
Urinary Bladder	3	70

Table 3. Leading Cancer Sites Among Females with Median Age Group

Site	No. of Patient	Median Age
Stomach	27	60
Urinary Bladder	11	67
Rectum	10	65
Oral cavity	9	48
Skin	7	63
Oesophagus	6	59
Colon	6	69
Larynx	5	58
Gastroesophageal Junction	5	52
Prostate	4	75
Lymph node	4	43

Table 4. Leading Cancer Sites Among Males with Median Age Group

RESULTS

Total 2181 biopsies received in two year. Out of that, 200 patients were diagnosed as having cancer. Out of 200 patients, 114 (57%) were males and 86 (43%) were females diagnosed as having cancer with the male: female ratio of 1.3:1.

Table 1 shows age distribution of these patients. The overall incidence of cancer was highest 22.5% in age group 61-70 years. It was very low in the age group below 20 years (1.5%).

Table 2 shows the system wise and gender wise distribution of cancer patients. In both the sexes combined, cancer of gastrointestinal tract was the most common cancer, and was found in 104 (52%) patients (60 males and 44 females) with predominant involvement of stomach followed by rectum, oesophagus and colon.

When analysed separately, table 3 shows that in female, most common type of malignancy was gastrointestinal cancers in 44 patients with predominant involvement of stomach 11 and rectum 11 with a median age of 52 year and 50 year respectively, followed by breast cancer in 10 with median age of 46 years and cervical cancers in 8 with a median age of 49 years.

In males (Table 4) most common type of malignancy was stomach cancer seen in 27 patients with a median age of 60 years, followed by bladder cancer in 11 with a median age of 67 years, rectal cancer in 10 with median age of 65 years and carcinomas of oral cavity in 9 with a median age of 48 years.

In the present study, female genital tract carcinoma constituted 16 cases, among these 8 cases were of carcinoma cervix, 4 of endometrial carcinoma, 3 of ovarian carcinoma and 1 case of choriocarcinoma.

Male genital tract malignancy constituted 8 cases. 50% (4) of these were of prostatic adenocarcinoma, carcinoma penis in 3 and testicular tumour was seen in 1 case.

Out of 15 cases of head and neck malignancies seen in male patients and 3 in females, oral cavity was the most common site.

Malignant lesions of kidney and lower urinary tract constituted 7.5% (15) of total cancer cases. Out of 15 cases, 11 cases of bladder tumour were seen in male patient and 3 cases in female. Renal cell carcinoma constituted the single case in male patient.

In this study we came across 10 (5%) cases of hepatobiliary and pancreatic malignancies. Among these 5 cases of gall bladder adenocarcinoma were seen in female patient and 1 case in male. While 3 cases of ampullary carcinoma were seen in male patient and 1 case in case of female.

DISCUSSION

The incidence and pattern of cancer varies from country to country and within country from one region to another. Data of occurrence of cancer in different areas are very important. The geographical differences in incidences help us to get an idea of causative factors. Increase in the life expectancy is one of the major factors for an increased incidence of cancer in developing countries. Cancer is predominantly a disease of middle and old age, although no age is immune. Genetic factors may significantly alter the cancer risk caused due to environmental exposure to genotoxins. Infection with viruses and bacteria contributes to the increased risk of cancer, especially in developing countries. Twenty five percent of cancers in the developing countries are associated with chronic infections.

In present study conducted in tertiary care centre of West Bengal we observed that gastrointestinal cancer was the most common cancer in both the sexes combined, with stomach remained the most common cancer site in both female and male patients. This is probably because of the peculiar food habits of the people of West Bengal. Consumption of meat in diet and infection with Helicobacter pylori bacteria may be the possible reasons for the high incidence of this cancer.[4]

Similar incidence of stomach carcinoma being the most common cancer has also been observed in the Kashmir valley.[5] Study done by Cherian et al, 2015 in Kerala and Bal et al, 2015 in Punjab also showed rising trend in stomach carcinoma but was reported only in males.[6,7]

According to three years report of PBCR by NCDIR-NCRP (ICMR), Bangalore 2009-2011 stomach cancer was the leading site in registries of Sikkim and Mizoram.[3]

In present study we also found that the colorectal cancer to be the second most common cancer in female and third most common in males. The high incidence rate of colorectal cancer has been associated with food habits and life style patterns. The increasing prevalence of obesity, decreasing physical activity, smoking, alcohol consumption, diet low in fibres, consumption of fresh red meat and processed meat are associated with increased risk of colorectal cancers.[8] It is believed that these risk factors may also have increased the incidence of adenocarcinoma of the lower oesophageal tract, and the gastroesophageal junction cancers.

Carcinoma of the breast was the second most common cancer in females in present study after gastrointestinal cancers. Study done by Ghosh et al, 2015 showed increase in incidence of breast cancer in females of West Bengal.[9] According to the PBCR of 2012-14 similar incidence of increase breast cancer has been found in other cities of the country, like Delhi, Bangalore, Chennai, Manipur, Kolkata and Mumbai.[10] Breast cancer is common in affluent societies having a western lifestyle.[11] Epidemiological studies among female population have identified factors such as early menarche, late menopause, high calorie intake, high intake of saturated fats and pregnancy-related factors such as parity, age at giving birth to first child, and a number of children are factors possibly related to breast cancer.[12,13,14]

Male breast cancer is 100 times less frequent than the female breast cancer.[15] However, in present study out of 12 cases of breast cancer 2 cases were of male patients.

Carcinoma of the cervix was the fourth common cancer among females, which is the most common cancer country wise in the Indian females. Similarly, other genital cancers,

such as uterine and ovarian cancers have also shown a low incidence in our study.

Cancer of the gallbladder also showed high incidence in this study, especially in females. Similar incidence rates have been found in other cities of the India like Delhi. High incidence of gallbladder cancer is probably because of the high incidence of gall stones in this region.[16]

CONCLUSION

The differences in the pattern of various cancers in West Bengal have not been well researched, and no large population based epidemiological study has been done so far. Few studies have however suggested that the pattern of high oesophageal and low cervical cancers are seen in this area due to the differences in the lifestyle and characteristic sociocultural and religious practices of this region.

Findings from this study indicate an overall increase in cancer reporting, which could be a proxy measure for overall cancer situation in West Bengal, though it cannot be extrapolated for the entire state. Chances of missing cases, which could be better documented through population-based registry cannot be ruled out. There is also need of research to understand the culture, lifestyle and other factors for cancer because of diversity of the reasons.

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