Clinical Epidemiology and Global Health xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Clinical Epidemiology and Global Health

journal homepage: www.elsevier.com/locate/cegh

Original article

Clinicopathological trends of colorectal carcinoma patients in a tertiary cancer centre in Eastern India

Tapas Patra[a], Syamsundar Mandal[b], Neyaz Alam[c], Nabendu Murmu[a,*]

[a] Department of Signal Transduction & Biogenic Amines, Chittaranjan National Cancer Institute (CNCI), Kolkata 700026, India
[b] Department of Epidemiology & Biostatistics, Chittaranjan National Cancer Institute (CNCI), Kolkata 700026, India
[c] Department of Surgical Oncology, Chittaranjan National Cancer Institute (CNCI), Kolkata 700026, India

ARTICLE INFO

Article history:
Received 24 February 2017
Accepted 22 April 2017
Available online xxx

Keywords:
Colorectal Cancer
Mucinous adenocarcinoma
Histopathology
Colectomy
Diabetes

ABSTRACT

Background: The frequency of colorectal carcinoma is inadequate in India compared to the western world. The carcinoma of colon and rectum is usually disturbing among the individuals of older age group whereas it is less frequent in younger age group. This study was based on age, gender, site of primary tumor and histopathological type of colorectal cancer cases.

Methods: A retrospective study of 420 colorectal carcinoma cases admitted to Chittaranjan National Cancer Institute hospital, Kolkata, India during 2012–2016 was carried out. All the clinicopathological data was collected from the medical records of the patients. The detailed information was entered into tabular sheet and statistical analysis was performed.

Results: During these five years out of total cases in the Department of Surgical Oncology, 5.09% patients with colorectal carcinoma were admitted for colectomy or hemicolectomy. The percentage of younger age group (≤40 year) with colorectal cancer was rise up sharply in context of older age group (>60 year). The ratio of male and female affected in colorectal cancer was 1.6:1. Rectum was the most common site 46.2% among the total cancer lesions. From histopathological data, mucinous adenocarcinoma cases were identified with (23.6%) high frequency and mostly detected at younger age group (65.7%). It was found that 18.8% patients with synchronous liver metastasis and 16.7% of patients with Type 2 diabetes mellitus were likely to develop colorectal cancer.

Conclusion: The concise overview has documented an increased incidence of colorectal carcinoma patients amongst younger individuals with more aggressive forms like mucinous adenocarcinoma and also development of synchronous liver metastasis.

1. Introduction

Colorectal carcinoma is one of the most frequent malignancies in the world. It is the second foremost cause of cancer mortality in the United States.[1–3] Hence, colorectal cancer poses a severe concern to public health. Compared to the western world, the incidence rates of colorectal cancer are low in India; but apart from geographical variations, the incidences are rising rapidly in India.[4] Incidence rate in different subsides varies for age, gender, and race. Colorectal cancer is the third most common cancer in men (746,000 cases, 10.0% of the total) and the second in women (614,000 cases, 9.2% of the total) worldwide. Almost 55% of the cases occur in more developed regions. There is wide geographical variation in incidence across the world and the geographical patterns are very similar in men and women.[5] The world's two most populous countries, China and India, have relatively low incidence rates of 14.2 and 6.1 cases per 100,000 men and women, respectively. But as their economies have developed, their incidence of colorectal cancer has increased.[6] Generally, colorectal carcinoma is thought to be a malignancy that primarily occurs in patients older than 50 years of age[7]; likelihood the disease is an unusual in patients under 40 years of age. It has been estimated that between 2 and 3% of colorectal cancers occur in patients younger than the age of 40 years.[8] However, current studies suggested that an increased incidence of colorectal cancers in younger age group in India as well as all over the world.[9,10]

Colorectal cancer is a malignant neoplasm arising from the lining of the mucosa of the colon and rectum. It develops by a multistep process that analyzed can be influenced by hereditary or genetic and environmental or acquired factors. An individual with

* Corresponding author at: Department of Signal Transduction & Biogenic Amines, Chittaranjan National Cancer Institute, 37, S.P. Mukherjee Road, Kolkata 700026, India.
E-mail addresses: nabendu.murmu@cnci.org.in, nabendu64@gmail.com (N. Murmu).

http://dx.doi.org/10.1016/j.cegh.2017.04.003
2213-3984/

a history of adenomatous polyps or inflammatory bowel disease has an increased risk of developing colorectal cancer compared to an individual with no history of either.[11,12] This type of cancer cells may in the long run multiply to regional lymph nodes and later to more distant lymph nodes and in the other organs. The treatment, prognosis and survival rate largely depends on the stage of disease at diagnosis. Screening for colorectal cancer is particularly effective. Screening can prevent cancer from occurring as it can detect adenomatous polyps that can be successfully removed.[13] Treatment for colorectal cancer varies by tumor location and stage at diagnosis. Depending upon the stage of the disease, the patient undergoes multimodal treatment, surgery, chemotherapy, radiotherapy and hormonal therapy. Surgical removal of tumor and nearby lymph nodes is mainstay of treatment for early stage of colorectal cancer. However, with a potentially curative surgery alone, up to 50% patients will ultimately relapse and die of metastatic disease.[14]

Only a few studies from India retrospectively reviewed the incidences of colorectal cancer. Although exact incidence rate cannot be provided by a hospital-based study, the information would be useful in showing patterns of malignancies in our region. This study is designed to describe the distribution of the colorectal carcinoma while considering age, gender, site of tumor, tumor pathology and other related diseases in a retrospective fashion.

2. Methodology

A retrospective study was conducted at Chittaranjan National Cancer Institute, Kolkata, a Regional Cancer Centre of Eastern India. The patients with colorectal malignancy who were underwent colectomy or hemicolectomy in the Department of Surgical Oncology during the period January 2012 to July 2016, were included in this study. All the cases were histopathologically confirmed. The information was collected from the medical records of the patients. A total of 420 patients were included in the study. The survival pattern of the patients was not included in the study.

All the data were entered into Microsoft Office Excel 2007 spreadsheet. Statistical Analysis was performed with help of EPI INFO (TM) 3.5.4 from the Centers for Disease Control and Prevention (CDC).[15] Descriptive statistical analysis was performed to calculate the means with corresponding standard deviations (SD). Test of proportion was used to find the Standard Normal Deviate (Z) to compare the difference proportions and Chi-square (χ^2) test was performed to find the associations. Odds Ratio (OR) with 95% confidence interval (CI) had been calculated to find the risk factors. $P \leq 0.05$ was taken to be statistically significant.

3. Results and Discussion

During this study period, a total number of 8251 cancer patients were attended in the Department of Surgical Oncology out of which 420 (5.09%) patients were diagnosed with colorectal carcinoma. The year wise distribution of these 420 colorectal cases (Table 1) during the period was 92 (4.40%) in 2012, 88 (4.84%) in 2013, 135 (5.21%) in 2014, 31(5.83%) in 2015 and 74 (6.07%) in 2016. From the year wise distribution, it showed gradually rise up the colorectal cases but it was not statistically significant ($Z = 0.64$; $p = 0.51$). Both urban and rural populations of this part of India were attended to this Cancer hospital. The number of 221 (52.6%) and 199 (47.4%) patients attended from rural and urban area, respectively. No significant difference was found between the proportion of patients from urban and rural area ($Z = 0.84$; $p = 0.39$). But overall, the colorectal carcinoma was distributed slightly higher among urban people rather than rural people. Changes in food habits or much exposes in environmental pollution of urbanized people might be more prone to this disease. From all diagnosed colorectal incidences, 77.1%, 21.0% and 1.9% were Hindu, Muslim and other religion; respectively ($Z = 7.92$; $p < 0.001$). These percentages of religious differentiation were forthwith coming from total patient population included in this study.

Table 1
Year-wise distribution of colorectal incidences.

Year	Total number of cases	Colorectal cases	Percentage
2012	2092	92	4.40%
2013	1818	88	4.84%
2014	2589	135	5.21%
2015	532	31	5.83%
2016	1220	74	6.07%
Total	8251	420	5.09%

In total, 420 colorectal cancer patients, ages between 15 to 89 years were analyzed. All the patients divided into three age groups represented (Fig. 1) as younger age group (≤40 year), mid age group (41–60 year) and older age group (>60 year). From the analysis, it showed that the percentage of younger age group affected in colorectal cancer was inclined whereas the percentage of older individual was declined. The year wise mean age of the colorectal patients was also decreased as follow 49.91 ± 15.23 in 2012, 49.06 ± 16.30 in 2013, 48.16 ± 15.69 in 2014, 47.16 ± 13.58 in 2015 and 45.97 ± 14.74 in 2016 (Table 2). Generally, incidences of colorectal cancer ascended sharply after the age of 45 years, and 90% of cases occur in persons over the age of 50 years[16,17] but its reported incidences among patients of 20–40 years of age increased by 17–20% now-a-days.[18] Several studies in India also reported that incidences of colorectal cancer in younger individuals escalated in recent years.[19,20] This study is also clearly indicated that the percentage of younger colorectal carcinoma patients is rising at the eastern part of India. The exact reasons behind these outcomes are still not clear. However, it is assumed that the early onset colorectal cancer may be the consequence of genetic mutation. Besides, several other factors like intake of excess alcohol, junk foods, uses of tobacco, lack of exercise, etc have potential risk for such observation.

In the retrospective study group, there were 257 (61.2%) male and 163 (38.8%) female. Thus the proportion of male was significantly higher than that of females ($Z = 3.11$; $p = 0.002$). The ratio of male and female (Male:Female) was 1.6:1. These data suggested that female contributed less to observed colorectal

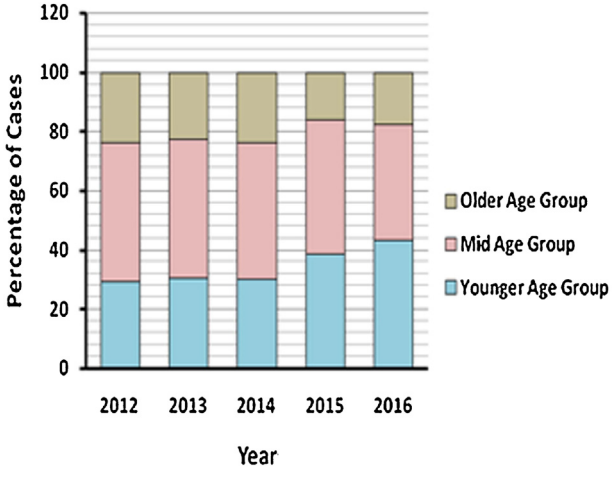

Fig. 1. Year-wise distribution of different age groups.

Please cite this article in press as: T. Patra, et al., Clinicopathological trends of colorectal carcinoma patients in a tertiary cancer centre in Eastern India, Clin Epidemiol Glob Health (2017), http://dx.doi.org/10.1016/j.cegh.2017.04.003