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CLINICOPATHOLOGICAL PROFILE OF COLORECTAL CANCER PATIENTS YOUNGER THAN 50 YEARS: A STUDY FROM SOUTH INDIA

Original Research Article

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Abstract

Background: The incidence of colorectal cancer is increasing among young adults. Cancer diagnosis in young adults leads to many challenges due to the impact of the disease on their fertility, career, and life expectancy. In the present study, we investigated the clinicopathological profile of colorectal cancer patients younger than 50 years. **Materials and Methods:** Retrospective data of colorectal cancer patients were collected over the period of 4 years, from January 2019 to December 2022. All diagnosed colorectal cancer patients less than 50 years of age were enrolled in the study. Clinicopathological data of patients were collected from their medical and pathological reports. **Results:** A total of 271 patients with colorectal cancer were registered during the study period. Among them, 100 (36.9%) patients were less than 50 years old. Most of the patients were 40 – 49 years (67%), followed by the 30 – 39 years (25 %) age group. Only 8 patients (8%) were below the age of 30 years. The most common primary site was rectum and rectosigmoid (57 %), followed by ascending colon (17 %). Most of the patients presented with stage III (64 %) disease. The liver was the most common site of distant metastasis in stage IV patients. **Conclusion:** The incidence of colorectal cancer is increasing among young adults. Most patients present in a locally advanced and non-metastatic stage and have the potential for curative treatment. Therefore, early detection by screening at a younger age may improve the survival of younger patients.

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer worldwide, with an estimated 1.9 million new cases (10.0 % of the total) in 2020.[1] Global patterns vary widely and are strongly linked to the human development index level, reflecting the adoption of Western lifestyles. In general, CRC incidence is rising in low- and middle-income countries but beginning to stabilize or decline in high-income countries, especially those that have implemented screening.[2] In India, colorectal cancer rates are rising and it is the seventh leading cause of cancer.[3] The risk of colorectal cancer increases with age, with 90% of cases being diagnosed in individuals 50 years of age and older.

The United States Multi-Society Task Force (MSTF) on colorectal cancer recommends colorectal screening for all average-risk individuals after the age of 50.[4] However, in a recent update, the U.S. Multi-Society Task Force suggested that an average-risk CRC screening should begin at the age of 45.

This recommendation is based on the increasing disease burden among individuals under the age of 50 years.[5]

The ACS (American Cancer Society) also updated their guidelines in 2018 with recommendations that colorectal screening should be done for everyone, not merely for those at increased risk for colon cancer, and should begin at age 45 rather than age 50. They based their recommendation on a decision analysis demonstrating an increase in life years gained when beginning screening at an earlier age.[6]

Siegel et al. described patterns of colorectal cancer incidence in young adults worldwide.[7] In India, their estimates were based on data from a single population-based cancer registry (PBCR) in the southern Indian state of Tamil Nadu, representing 0.5% of the Indian population (Chennai PBCR). Recently, Mathew et al.[9] also analyzed data from 14 PBCRs, representing 5% of the Indian population.

In the Siegel et al. study, the CRC incidence in younger adults in 2008 – 2012 was 3.5 (95% CI 3.2

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to 3.9), and in older adults was 27.5 (95% CI 25.9 to 29.1). Whereas, in the Mathew et al. study, the CRC incidence in younger adults in 2012 – 2014 was 3.5 (95% CI 3.1 to 3.9), a relative increase of 30% over a decade, and in older adults was 22.9 (95% CI 21.7 to 24.1), a relative increase of 22%. The findings from these study point to a rising trend in colorectal cancer burden in young adults in India.

Due to the paucity of data, the recommendation and effectiveness of systematic or community-based screening of colorectal cancer remain unsolved. In the current study, we investigated the clinicopathological profile of colorectal cancer patients younger than 50 years.

Aim:

This study aimed to investigate the clinicopathological profile of colorectal cancer patients below the age of 50.

MATERIALS AND METHODS

This retrospective study investigates the clinicopathological profile of colorectal cancer patients younger than 50 years. Data from patients diagnosed with colorectal cancer between January 2019 and December 2022 were collected and analyzed.

Data for this study were collected from the medical and pathological reports of patients. The study focused on patients diagnosed with colorectal cancer and younger than 50 years of age. Demographic information such as age, sex, and primary disease site (colon or rectum) were collected. Additionally, data regarding the patients' complaints at presentation, histology, and stage at diagnosis were recorded.

The collected data were stratified based on sex (male/female), different age groups (40 – 49 years, 30 – 39 years, and <30 years of age), and primary site of disease (colon/rectum). Furthermore, the data were analyzed to determine the distribution of complaints at presentation, histological types of colorectal cancer, and stage at diagnosis.

RESULTS

A total of 271 patients with colorectal cancer were registered during the study period. Among them, 100 (36.9%) patients were less than 50 years old. There was no particular gender predisposition for colorectal cancer amongst this age group, with 52 (52%) being male and 48 females (48%) [Figure: 1]. Most of the patients were 40 – 49 years (67%), followed by the 30 – 39 years (25%) age group. Only 8 patients (8%) were below the age of 30 years [Figure: 2].
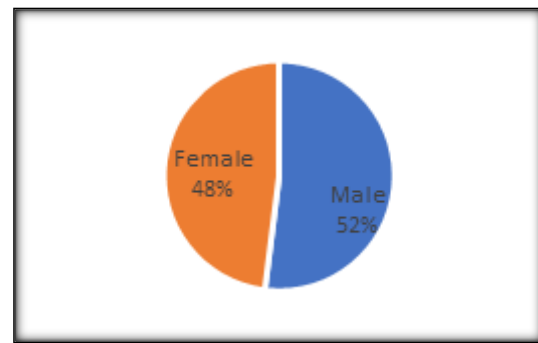

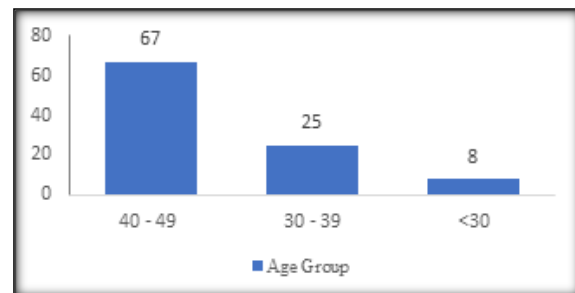**Figure 1: Distribution of gender**

Figure 2: Distribution of age group

The commonest presentation was abdominal pain and distension in 49 patients, bleeding per rectum in 35 patients, and obstructive symptoms in 16 patients [Figure: 3]. Histologically, adenocarcinoma was present in 97 patients and signet ring cell carcinoma in 3 patients [Figure: 4]
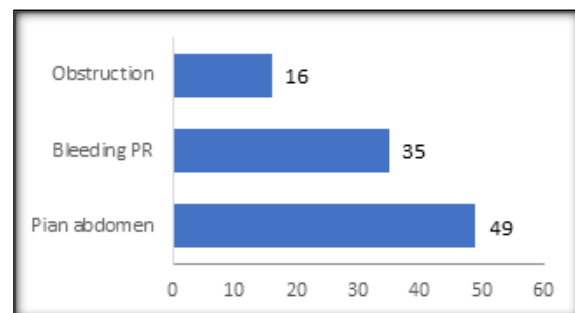

Figure 3: Distribution of symptoms at presentation
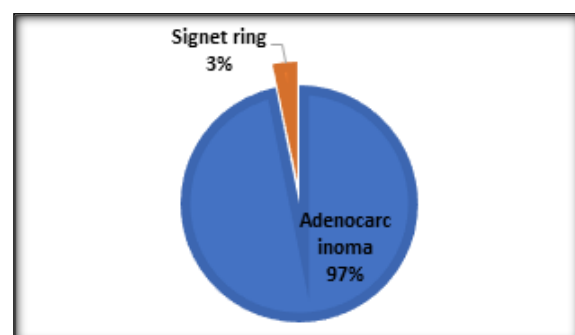

Figure 4: Distribution of disease pathology

The most common primary site was the rectum and rectosigmoid (57 patients), followed by ascending colon (17 patients), sigmoid colon (10 patients), descending colon (9 patients), transverse colon (4 patients), and caecum in 3 patients [Figure: 5]. Most

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of the patients presented with stage III (64 patients), followed by stage II (20 patients), stage IV (14 patients), and stage I in only 2 patients [Figure: 6]. The liver was the most common site of distant metastasis in stage IV patients.
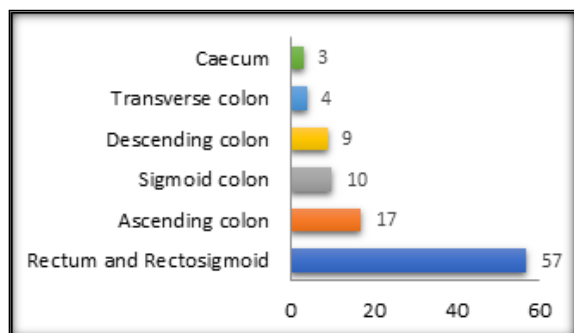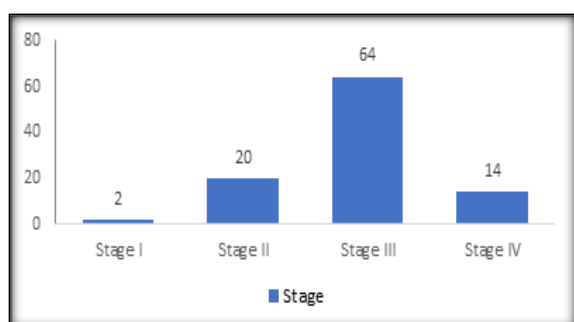

Figure 5: Distribution of site of cancer

Figure 6: Distribution of stages of cancer

DISCUSSION

We observed that most of the patients were in the group of 40 – 49 years of age (67 %), and the most common site of cancer was rectum and rectosigmoid (57 %). In a study by Jones et al.[8], rectal cancer was more frequent among patients younger than 50 years of age compared to the older group. There was no particular gender predisposition for colorectal cancer amongst this age group in this study.

A recent study by Mathew et al. highlights the trends in CRC in India.[9] They analyzed data from 14 PBCRs, representing 65 million people (5 % of the Indian population), and reported that the colorectal cancer incidence in younger adults during 2012–2014 was 3.5 (95% CI 3.1 to 3.9), a relative increase of 30% over a decade. We also observed many patients (36.9%) aged less than 50 years. The cut-off value of age distribution is also very important as age diversity may cause different results due to co-morbidities associated with colorectal cancer.[10] We used an age cut-off of 50 years, the recommended age for colorectal screening for average-risk individuals.[11]

Rising incidence in young age signals changes in early lifestyle modifications that adversely influence CRC risk.[12] Reduction in the prevalence of protective factors such as physical activity (for colon cancer) and insufficient intake of a high-fibre diet, dairy, and fruits and vegetables may play a role, as well as increased prevalence of obesity, smoking, red and processed meat consumption, and excess alcohol consumption.[13] Obesity was recently found to be associated with a 20% excess risk of early-onset colorectal cancer, and prevalence has risen most rapidly in young adults.[14]

In our study, most of the patients presented in stages III and IV. The presence of a higher cancer stage in young patients may be due to a delay in diagnosis. Further, colorectal screening programs might increase the likelihood of diagnosis at earlier stages among older patients in other countries.

Colorectal screening programs have mostly emerged over the past two decades and likely contributed to the decline in incidence among older adults in Western countries. However, systematic or community-based screening of colorectal cancer does not exist in India. We do not know the impact of an organized screening program as recommended in Western countries.[15]

Several limitations present in this study are the absence of outcome analysis and other prognostic markers like pre-treatment CEA level, MSI, and RAS status, which were largely unknown. Our study provides a separate assessment of the colorectal cancer burden in young adults in South India. The findings from this study point to the rising burden of colorectal cancer in young adults.

CONCLUSION

The colorectal cancer incidence rate has been increasing in young adults, which is likely to continue. Most patients present in non-metastatic but locally advanced stages and have the potential for curative treatment. Therefore, early detection by screening at a younger age may improve the survival of these patients, and a healthy lifestyle shall be emphasized as a colorectal cancer preventive strategy.

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