Original Article

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Do Colonic Cancers Behave Differently In Younger Aged Patients?

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Abstract

Aim & Objectives - To compare and analyze the various clinical and pathological factors of colonic malignancies presenting in young patients. Material and Methoeds: retrospective comparative analysis was done on patients admitted in Sri Ramachandra University from January 2011 to January 2013 with the diagnosis of colonic cancer. Patients were divided into 2 groups based on their age of disease presentation. A total of 50 patients were included and factors like sex, duration of symptoms, presenting complaints, family history, complications at presentation, tumor site, tumor histology & grade, surgery performed were analyzed for all these patients. Level of significance p < 0.05 was used. Analysis was performed using the SPSS 14.0 statistical package. **Results**: There was a male predominance in the disease occurrence within both the groups. Abdomen pain was the most common presenting complaint occurring in 74 % of the patients. There was no significant difference in disease presentation between the two groups. The duration of onset of disease was shorter in the younger group of patients when compared to the other group [2.40 months vs 5.90 months]. Predisposing malignant conditions and family history of colorectal cancer were present in a majority of the younger group patients in comparison to the older age group. (24%vs12%).Left sided malignancies were more common in the younger group [72%]. There was no such predilection towards right or left side in the older age group.Poorly differentiated High Grade G III tumors were most common in the \leq 50 age group with incidence of 44 %. Adenocarcinoma was the most common type in both the groups (64 %, 72 % in <50 age and >50 age group). In the \leq 50 age group, there was equal incidence of Curative Left hemi colectomy and Palliative Hartman's procedure (32 % each). In the >50 age group, there was increased incidence of Curative Right hemi colectomy (40%).**Conclusion:** young patient reveal certain different characteristics than the older population. There was trend towardshigher percentage of GIII High grade poorly differentiated tumors in the younger age, Although the reasons for these discrepancies remain unclear, it is possible that both environmental and genetic factors play some role. A bigger sample size and longer study period with follow up will be required to come to more definitive conclusions regarding the tumor behavior.

Keywords- Colonic Tumors; Age; Prognosis

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NTRODUCTION

cancer and are a leading cause of tumor related death worldwide. Majority of these tumors are diagnosed in the 50 -70 years

Colonic cancers are the 4th most common adult population.¹Many articles have previously reported poor outcomes for young patients with colonic malignancies relative to the older population. Certain like thyroid tumors age group, however of late there is an malignancies have excellent prognosis in the increasing incidence of these tumors in the young younger patient population, on the contrary tumors

of the breast have worse outcome in the younger age group. The effect of age on colonic tumors and its outcomes has always been a popular controversy. Some studies have shown poor outcome for colonic cancers occurring in younger patients and some studies have shown vice versa.²⁻⁴These voung patients have been portrayed as having a more aggressive disease due to the more advanced stage and grade at the time of presentation. The likelihood of colonic cancer diagnosis increases progressively from age 40, rising sharply after age 50. More than 70% of colonic cancer cases occur in people aged 50 or older⁵. There is still an ongoing debate as to how and why these tumors behave differently in the two age group population. Aim of our study was to compare and analyze the various clinical and pathological factors of colonic malignancies presenting in young patients (<50 years) and older patients (>50 years) in our institution and to identify which factors behave differently in the two age groups

MATERIAL AND METHODS

A retrospective comparative analysis was done on patients admitted in Sri Ramachandra University from January 2011 to January 2013 with the diagnosis of colonic cancer. Patients were divided into 2 groups based on their age of disease presentation. A total of 50 patients were included and factors like sex, duration of symptoms, presenting complaints, family history, complications at presentation, tumor site, tumor histology & grade, surgery performed were analyzed for all these patients. Tumors were staged according to the AJCC 7th edition TNM staging system. The criteria for inclusion were: patients with pathologically confirmed colonic cancer and patients who underwent operations, including palliative surgeries n the above mentioned time period in Sri Ramachandra University and Research Institute. Rectal tumors were excluded from the study group. Ethics clearance from our institutional ethics committee board was taken prior to the study. Group A - Patients Aged less than 50 years

Group **B** - Patients more than 50 years of age

Descriptive statistics were calculated for all variables. Categorical variables were analyzed by using the chi-square test.Level of significance p < 0.05 was used. Analysis was performed using the SPSS 14.0 statistical package.

RESULTS

It was observed that there was a male predominance in the disease occurrence within both the groups. 72 % of the patients in \leq 50 age group were males and around 80 % of patients in >50 age group were males [Table 1] Abdomen pain was the commonest

presenting symptom in both groups (74%) followed by altered bowel habits (44%). [Table 2] In the <50 group, the time of onset was 2.40 age (approximately two and a half months). In the >50age group, the time of onset was 5.92 (approximately six months). In the >50 age group had only 12 % of patients with any significant family history. However in the <50 age group, 24 % of the patients had positive family history. [Table 3] In the <50 age group, 68 % of the patients had no relevant medical history. On the contrary, the >50 age group had 36 % of the patients with medical history of Diabetes and Hypertension, and 24 % of patients presenting with history of inflammatory bowel disease and Coronary arterial diseases [table 4] 36 % of the patients in the <50 age group presented with acute emergencies to the hospital, and in the >50 age group 20 % of the patient presented as emergencies [Graph 1] In the \leq 50 age group, 32 % presented with tumor in the Sigmoid colon, whereas in the >50 age group 32 % presented with tumor in the ascending colon. On broader terms, the <50 age group had 72 % Left sided, 28 % Right sided colonic malignancies. The >50 age group had 56 % Right sided, 44 % Left sided colonic malignancies [Graph 21 Ulceroproliferative growth was the most common type of configuration in both the groups (64 % in \leq 50 age group and 76% in the >50 age group). (Graph 3] Poorly differentiated High Grade G III tumors were most common in the <50 age group with incidence of 44%. On the contrary in the > 50 age group moderately differentiated G II tumors were most common with incidence of 56%. [Table 5] Adenocarcinoma was the most common type in both the groups (64%, 72% in \leq 50 age and >50 age group respectively) followed by Mucinous adenocarcinoma (28% and 24% respectively). There was no significant difference noted between the two groups in terms of Lymphovascular invasion. It was present in 40 % of the patients in <50 age group and 36 % of the patient in >50 age group. In the \leq 50 age group, 44% of the patients presented with Stage III, 28% of the patients presented with Stage I and 24% of patients with stage II. In the >50 age group, 32% of the patients presented with Stage III, 28% of the patients presented with Stage I and 20% of patients with stage IV and stage II. In the <50 age group, there was equal incidence of Curative Left hemi colectomy and Palliative Hartman's procedure (32% each). In the >50 age group, there was increased incidence of Curative Right hemi colectomy (40%). [Graph 4] There were no significant postoperative complications in 44% of patients in <50 age groups and 60% of patients in >50 age group. Recurrence and only in 4% of the >50 age group. of the tumor was noted in 12% of the \leq 50 age group

Table	1:	Sex	Distrib	ution
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Sex	<50 age Group	>50 Group	Total
Male	18[72%]	20[80%]	38[76%]
Female	7[28%]	5[20%]	12[24%]

Table 2: Chief Presenting Complaints

Complaint	<u>≤</u> 50 years	>50 years	Total /50	%
Abdomen pain	17	20	37	74%
Altered Bowel Habits	9	13	22	44%
Generalized Weakness	8	7	15	30%
Anemia	10	7	17	34%
Vomiting	8	5	13	26%
Obstipation	6	5	11	22%

Table 3: Family history

Family	<50	>50	Total
History	years	year	
	age	age	
	Group	Group	
Present	6[24%]	3[12%]	9[18%]
Absent	19[76%]	22[88%]	41[82%]

Total Past <50 >50 history years years age age Group Group Diabetes 5[20%] 9[36%] 14[28%] &HTN Ulcerative 2[8%] 3[12%] 5[10%] colitis Crohns 1[4%] 1[4%] 2[4%] Disease 3[12%] Cardiac 0 3[6%] disease Nil 9[36%] 26[52%] 17[68%]

Table 5:HPE Grading

Table 4:Medical History

Histopatholo	<50	>50	Total
gy Grade	years	years	
	age	age	
	Group	Group	
G I	4[16%]	6[24%]	10[20%]
Well			
differentiated			
G II	10[40%]	14[56%]	24[48%]
Moderately			
differentiated			
G III	11[44%]	5[20%]	16[32%]
Poorly			
differentiated			
Total	25[100%	25[100%	25[10%]
]]	

Graph 1: Complication at Presentation



Graph 2: Pathological Tumor Site



Graph 3:Tumor type





DISCUSSION

There was a male predominance in the disease occurrence within both the groups. 72 % of the patients in \leq 50 age group were males and around 80 % of patients in >50 age group were males. It is proven that there is an increase in incidence of the disease in males when compared to females in the Indian population⁶. Abdomen pain was the most common presenting complaint occurring in 74 % of the patients. There was no significant difference in disease presentation between the two groups. In the ≤ 50 age group, the time of onset was 2.40 (approximately two and a half months), in the >50age group, the time of onset was 5.92 (approximately six months). This shows that the younger group takes lesser time for the presentation of symptoms than the older group probably owing to the more rapid growth of tumor and disease progression ^{7,8}. Predisposing malignant conditions and family history of colorectal cancer were present in a majority of the younger group patients in comparison to the older age group (24%vs12%). It has been proved previously that younger patients with colonic malignancies tend to have more genetic etiology and a positive familial history.^{9-12.}36 % of the patients in the \leq 50 age group presented with acute emergencies, and in the >50 age group only 20% of the patient presented as emergencies.It is apparent that for reasons not known, the younger age group patients present more acutely with emergencies than the older age group counterparts. The ≤ 50 age group had 72% Left sided tumors & the >50 age group had 56% Left Right sided. 44% sided colonic malignancies.Left sided malignancies were more common in the younger group. There was no such

redilection towards right or left side in the older age group. There have been many studies, which also show a similar pattern of left sided colonic malignancies in younger patients.^{12.} Poorly differentiated High Grade G III tumors were most common in the \leq 50 age group with incidence of 44 %.Younger age group had worse histology grade, presenting with more cases of poorly differentiated Grade III tumors in comparison to the older age group. Adenocarcinoma was the most common type in both the groups (64 %, 72 % in \leq 50 age and >50 age group respectively) followed by Mucinous adenocarcinoma (28% and 24% respectively. Consistent with previous reports published, adenocarcinoma is the most common histologic type in colonic malignancies irrespective of the age of the patient.^{6-8.}In the \leq 50 age group, there was equal incidence of Curative Left hemi colectomy and Palliative Hartman's procedure (32 % each).Suggesting more trends towards Left sided malignancies in this group. This has been already proved in published literature^{12,13}. In the >50 age group, there was increased incidence of Curative Right hemi colectomy (40%) suggesting the increasing occurrence of right sided malignancies in this study group. In our study, there were no significant post op complications in 44% of patients in \leq 50 age groups and 60% of patients in >50 age group. However there was an increase in the occurrence of surgical site infections in the older age group when compared to the younger age group (16% vs 0%).

LIMITATIONS:

Variable study designs on age differences in colon make comparisons difficult. In addition since only fewer patients do undergo surgery in the older age group because of their restrictive comorbidities, selection bias cannot be excluded.Presently chemotherapy regimens have drastically evolved over the past 2 decades. Due to missing data and variations in chemotherapy regimens, it was not possible to analyze this factor.A larger sample size and longer study period with follow up will be required to come to more definitive conclusions regarding the tumor behavior.

CONCLUSIONS

Colon cancer in young patient does reveal certain few different characteristics than the older population group. In our study there was frequent occurrence of advanced tumors and high-grade phenotype in young patients. There was trend toward higher percentage of GIII High grade poorly differentiated tumors in the younger age, Although the reasons for these discrepancies remain unclear, it is possible that both environmental and genetic factors play some role.Our findings of higher number of Left -sided lesions in younger age group and also earlier onset of disease symptoms in the younger age group have also been reported in previous studies^{12, 13}.A larger sample size and longer study period with follow up will be required to come to more definitive conclusions regarding the tumor behavior.

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