PATTERN OF MALIGNANT COLORECTAL TUMORS IN BLACKLION HOSPITAL, ADDIS ABEBA UNIVERSITY,ETHIOPIA,2010-2012.

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Abstract

This study analyzed age,sex,site & histologic types of Malignant colorectal neoplasms in 203 cases during a period of January 2000 to December 2012 in the department of pathology,Addis Abeba University,Ethiopia. This cases accounted for 1.1% of total biopsies submittedto the departement during the study period.The mean age for Malignant colorectal neoplasms was 48 years.The mean age for each histologic type was analyzed.The youngest case seen was 15years of age. The male:female ratio was 1.3:1.Of all CRC 59.7% occurred in the rectum & sigmoid.The most frequent histologic type was Adenocarcinoma 83.25%.Mucinous carcinoma was the the second frequent histologic type which accounted for 6.4%.100% of lymphomas occurred in the caecum**.** Increasing burden of CRC is observed in the young. Frequency of Mucinous carcinoma increased with relatively young age predilection**.**Therefore, high index of clinical suspicion for CRC in the young recommended.

INTRODUCTION

Nearly two–thirds of annual mortality worldwide is attributable to non–communicable diseases (NCDs), with 70% estimated to occur in low– and middle–income countries (LMIC).Colorectal cancer (CRC) accounts for over 600,000 deaths annually(1). Colorectal carcinoma is the third most common cancer worldwide and the third most common cause of deaths from cancer in both sexes in industrialized nations(2). Although the highest incidence of colorectal carcinoma in United States is seen among African Americans, colorectal carcinoma is an uncommon malignancy in Africans and most of the other developing countries(3,4).The incidence appears to be different in different parts of the world,being highest in developed countries and lowest in developing countries(5).

The development of colorectal carcinoma is a multistep process and is influenced by complex interactions between the host and environmental factors(6).Enviromental factors particularly dietary practices are implicated for the striking geographic differences(7). Almost synonymous with the host factor are genetic influences that include mutations in adenomatous polyposis coli (*APC*) gene, DNA mismatch repair (*MMR*) gene, and fast acetylators particularly those with *N*-acetyl transferase 1 alleles (NAT)(8,9,10).

Cancer is an emerging public health issue in Africa, with estimates of 715,000 new cases and 542,000 cancer deaths in the continent in 2008.CRC ranked sixth frequent malignant neoplasm in a report from Black Lion Hospital, Addis Abeba,Ethiopia & seventh frequent malignant neoplasm in a study from Gondar,Ethiopia (11,12). Though there are reports of CRC at the age of 10 & 14 years,generally the peak incidence for Colorectal cancer is 60 to 70 years of age; fewer than 20% of cases occur before the age of 50 years(13,14,15).In contrary to the above figure ,61.4% of CRC in Ethiopia occur before the age of 50(16).Few of the histologic types of CRC occur more frequently in the in the young as compared to the old & carry poor prognosis(15,16). Therefore this study aims to assess the pattern of histologic types of CRC with respect to anatomic site and age as observed in the department of pathology, Black Lion Hospital,Addis Abeba University,Ethiopia which is the biggest center of histopathology service in the country .

Materials and Methods

Data were retrieved from the files of the department of Pathology,Medical faculty, Addis Abeba University,Ethiopia. The department handles an average of 7000 histopathologic specimens a year & the biggest histopathologic center in the country.This retrospective study reviewed the biopsy reports of 203 patients histopathologicaly diagnosed with CRC during a three year period (January 2010 upto December 2012).

All the CRC cases were diagnosed by a pathologist using routine Hemathoxylin and Eosin staining methods.Histologic grading was done according to the WHO grading system(15). Mucinous & Signet ring cell carcinoma if these cell types comprise more than 50% of the tumor(15). Six cases were excluded as they didn't contain adequate information with regard to histologic diagnosis,site & age.

Results

The total number of biopsies seen in the department during the study period was 17,466 of which 1.1% (203 cases) were Malignant colorectal neoplasms giving an average of 68 cases per year. CRC was diagnosed in 56.85% (112) males & 43.14%(85) females with a male to female ratio of 1.3:1**.**Six cases were lymphomas & one case was Carcinoid tumor.

The mean age of Malignant colorectal neoplasms was 48 years. The mean age was 48.37 & 48.53 years for male & female respectively. The mean age for each histologic type of Malignant colorectal neoplasms is described on Table 1&2.The youngest patient with a diagnosis of CRC in this study was 15 years old**.**

The majority of CRC were in the Rectum 47.76% (96). The Rectum , Rectosigmoid & Sigmoid colon accounted for 59.7%(120**)(table 3**). Only 7.69%(16) of Malignant Colorectal Neoplasms occurred in the Caecum with a frequency of Adenocarcinoma 56.25%(9), Lymphoma 37.5%(6) & Signet ring cell carcinoma 6.25%(1).

The commonest histologic type observed in this study was Adenocarcinoma 83.25%(169).But only 57.98%(98) of Adenocarcinoma had their histologic differentiation described on the histopathologic reports.Of the Adenocarcinomas with described histologic differentiation on the histopathologic reports 56.12% (55) well,38.78%(38) moderate & 5.10%(5) were poorly differentiated**.**

The other histologic subtypes seen in descending order are Mucinous carcinoma 6.40%(13),Signet ring cell carcinoma 4.43%(9),Lymphoma 2.96%(6), Undifferentiated carcinoma 1.97%(4) & Adenosquamous carcinoma & carcinoid tumor 0.49%(1) each(table 4)

100% (6) of lymphomas occurred in the caecum**.**

Table 1.The mean age of patients with Malignant colorectal neoplasms by histologic type as seen in Pathology department,Addis Abeba University,Ethiopia ,January 2010-December 2012

Histologic type	Mean age
Adenocarcinoma	50.4
Mucinous carcinoma	39.3
Signet ring carcinoma	34.5
Lymphoma	33.8
Undifferentiated carcinoma	51.5
Carcinoid tumor	35
Adenosquamous carcinoma	51

Table 2. The mean age of patients with well,moderately & poorly differentiated Adenocarcinoma as seen in in Pathology department,Addis Abeba University,January 2010-December 2012

Adenocarcinoma	Mean age
Well differentiated	51
Moderately differentiated	48
Poorly differentiated	43

Table 3.Distribution of Malignant colorectal neoplasms by anatomical site as seen in Pathology department,Addis Abeba University,January 2010-December 2012.

SITE	Frequency	Percent
CAECUM	16	7.96%
COLON	65	32.34%
Rectosigmoid	13	6.47%
RECTUM	96	47.76%
SIGMOID COLON	11	5.47%
Total	201	100.00%

Table 4.Frequency of Malignant colorectal neoplasms by histologic type as seen in Pathology department,Addis Abeba University,January 2010-December 2012

HISTOLOGICTYPE	Frequency	Percent
ADENOCARCINOMA	169	83.25%
Adenosquamous carcinoma	1	0.49%
CARCINOID TUMOR	1	0.49%
LYMPHOMA	6	2.96%
MUCINOUS CARCINOMA	13	6.40%
SIGNET RING	9	4.43%
UNDIFFERENTIATED CARCINOMA	4	1.97%
Total	203	100.00%

Discussion

Colorectal carcinoma (CRC) is the third most common cancer worldwide and the third most common cause of cancer death in both sexes in the developed world and the incidence of CRC was highest in the developed world & lowest in the developing world(1,2,3,4,5).The incidence of CRC is observed to be increasing in the developing countries like ours and the age at presentation decreasing as has been shown in previous studies in this department & African countries like Nigeria (16,17,18).

In this study,CRC is seen in 1.1% of total received biopsies in the department with an average of 68 cases per year which shows an increament in burden of the problem as compared to 0.8% & 0.9% in previous study done in the past in the same place(16,17).The average number of biopsies in this study is 2 to 8.5 times higher than the study done in different parts of Nigeria where an average case per year was only 8 to 32 (18,19,20).This increament could be because of recent launching of fellowship program in Gastroenterology in our set up.

The mean age of 48 years in this study is similar with previous reports from our country and Nigeria but significantly low compared to reports from developed countries(13,14,15,16,17,18). The M:F ratio of 1.3:1 is similar with a previous reports from here & Nigeria but one previous study 14 years back from here showed M:F ratio of 2:1(16,17,18). This narrowing of frequency in male & female could be because of an increase in access for health care services for women since few years back.

The youngest patient with the diagnosis of CRC in this study is 15 years old.This is inkeeping with other reports from our country which reported CRC at the age 14 and other countries like Nigeria(13,14,18).This warrants high index of clinical suspicion for CRC in the young.

Though it is well described in reports from here & other countries like Nigeria & India that CRC is most frequent in the rectum with frequency of 60.2% to 82.4%, the anatomic distribution of CRC in this study is 47.76 % in the rectum (rectum & sigmoid 59.7%) & 7.96% in caecum.In the remaining 32.34% specific anatomic site not mentioned.This makes it difficult to compare with other reports (18,21)

Despite the fact that the most frequent histologic type of CRC is adenocarcinoma in this study & other previous reports from the same place & other African countries like Nigeria,the frequency in this study which is 83.25% is lower than a previous report in our country which is 91% but higher than a report from Nigeria which is 77.2%(17,18).In the latter case, Mucinous carcinoma accounted for 16.2% of CRC as opposed to 6.4% in this study.The reason for this discrepancy is yet to be studied.

Of the adenocarcinomas- well,moderately & poorly differentiated accounted 56.12%,38.78% & 5.10% respectively in this study as opposed to 42.91%,23.77% & 33.90% on an Indian study.This discrepancy could be because of relatively early presentation of our cases as compared to the Indian cases(21)

The second most frequent histolologic type of CRC in this study is mucinous carcinoma which took a share of 6.4% of CRC in this study.This value is close to a previous report from here which is 5% but much lower than a report from Nigeria which is 16.2%(17,18).The third frequent histologic type of CRC in this study was Signet ring cell carcinoma accounting for 4.43% of CRC which is in agreement with a previous study from here & Nigeria (17,18).The mean age at presentation of Mucinous & Signet ring cell carcinoma in this study are 39.3 & 34.5,respectively. This figures are consistent with other reports (15,18,22,23).

Recommendations

1.CRC is not just the disease of the old as it had been in the past.Therefore,high index of suspicion in the young recommended.

2.The burden of CRC & other neoplasms is increasing in this country which needs a due attention as this requires not only proportional increament in histopathology service centers but also centers for radiotherapy.

3.Differentiation of all adenocarcinomas should be described in the histopathologic reports as this plays a pivotal role in the outcome of the disease.

4.Further studies recommended to know the reason for the increasing frequency & early age presentation of CRC.

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