

Colorectal Cancer: aggressive presentations among young Nigerian adults

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Abstract

Colorectal Cancer (CRC) is the fourth most common cancer contributing to high morbidity and mortality worldwide. CRC is very common in the Western world with typical peculiarities however, the black population has a different pattern of presentations since polyps and other pre-malignant lesions are relatively uncommon as compared to the Caucasians. This is a cross-sectional descriptive study of patients referred for colonoscopy evaluation at Aminu Kano Teaching Hospital, Kano, Nigeria. Sixty patients with colonic diseases were consecutively recruited during the study period. Colorectal cancer accounted for 11.7% of the study

population with a M:F ratio of 2.5:1. Significantly, 57.14% of the patients were within 50 years of age. Over 70% of the patients were diagnosed with aggressive variant CRC. Constipation, fatigue, and weight loss were the dominant presenting symptoms, and predominantly left-sided colonic tumours were seen in 85% of the study population. For reasons that require further investigations, the African population develops more aggressive variants of CRC at younger ages and it has a worse prognosis.

Introduction

Colorectal Cancer (CRC) is a common malignancy with an annual incidence of over 945,000 new cases worldwide and annual mortality of 492,000.¹ The highest incidence rates of CRC are noted in North America and Western Europe with the lowest incidence rate reported from developing countries. It is the fourth most common cancer diagnosed and the second most common cause of cancer death in the US accounting for about 300,000 deaths and a financial burden of over 400 million dollars annually.² Although said to be more common in the Western world, recent data from African countries, particularly Nigeria show an increasing prevalence of the disease.^{3,4} In South Africa, CRC had shown a geometric increase in prevalence from the 10th most common cancer in 1989 to fifth and third among male and female patients respectively in 2006.³ CRC is an important clinical condition in Nigeria often diagnosed in patients with intestinal obstruction at surgery, and occasionally during routine colonoscopy. The alarming characteristic of the disease in Nigeria and Africa as a whole is the lack of documented risk factors for this sudden surge in disease prevalence.^{3,4} Similarly, African patients tend to present with aggressive variants of CRC and as well in a much younger age group. A twenty-year review in Nigeria between 1971 and 1990, clearly showed a decline in age at presentation of CRC as compared to the older age group in the past;⁴ the same trend was observed in South Africa.³ The screening programs for CRC in the Western world start from the age of 50 years, however, Nigeria and by extension, Africa, has no particular policy in place for CRC screening. Therefore, there is a need to evaluate the pattern of presentation and characteristics of CRC in our society. This may form the basis for the development of the National Program for CRC screening in Nigeria.

Materials and Methods

The study was conducted in Aminu Kano Teaching Hospital (AKTH). After obtaining the Ethical approval, the colonoscopy was carried out using Pentax EPK-1000 video colonoscope and Colonoscope Pentax LH-150PC (Pentax Medical, Tokyo, Japan), about five colonoscopies are performed in a week, with referrals from within Kano and neighbouring states like Jigawa, Kaduna, Katsina, Kebbi, Sokoto, Zamfara and Yobe. The study was a cross-sectional descriptive study. All patients above 18 years of age

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referred for colonoscopy between November 2013 and June 2014 were enrolled consecutively into the study.

Study protocol

Patient consent was obtained, and each consenting patient was administered a prepared questionnaire to obtain his/her relevant clinical, socio-demographic, and family data. They were educated on pre-colonoscopy bowel preparation by ensuring a liquid diet for three days and use of dulcolax both oral and suppositories with 350 ml of 20% mannitol orally. At the colonoscopy, conscious sedation with 30 mg pentazocine and 2.5 mg midazolam were administered to the patient as indicated. The digital rectal examination findings were noted. All gross findings during the procedure were recorded. Multiple colonic biopsies were taken where necessary. The specimens obtained were taken to the morbid anatomy laboratory for histological examination. The data generated were collated, checked, and analysed using a computer-based Statistical Package for Social Sciences (SPSS) version 16.0. Data were documented as means \pm Standard Deviation (SD) and variables were presented in tables and percentages. The provision of the HELSINKI declaration on research involving human subjects was respected.

Results

A total of 60 patients were referred to the AKTH Endoscopy unit for colonoscopy were recruited during the study period from November 2013 to June 2014.

Colonoscopy findings of the study population

The colonoscopy features of the patients are shown in Table 1. The predominant endoscopic diagnosis among the patients was haemorrhoid and together with other diseases like colitis and diverticula accounted for 53.66%. Tumours and polyps were 20.0% and 5.00% respectively. Normal colonoscopy was in 21.67% as depicted in Table 1.

Histological findings of colonic biopsies

The histological findings are shown in Table 2. Colorectal cancer accounted for 11.67% of various histological types – 4 adenocarcinoma (2 poorly differentiated adenocarcinoma, 1 moderately differentiated adenocarcinoma, and 1 mucinous adenocarcinoma), 1 Signet ring cell carcinoma, 1 squamous cell cancer, and 1 lymphoma. Similarly, one case each of tubular adenoma polyp, hyperplastic polyp, and inflammatory polyp was reported.

The prevalence and clinical features of Colorectal Cancer

The frequency of CRC was 11.67%, age distribution and clinical features of these patients are shown in Tables 3 and 4. Significantly, 42.86% of the patients were within 40 years of age and mostly male gender. About 70% of the patients had evidence of rectal bleeding at presentation. The presence of weight loss and constipation had the highest frequency 100% each while passage of loose stool was seen in only 50% of the study population as depicted in Table 4.

Anatomical Location of Colorectal Cancer

The anatomical distribution of the colonic tumour is depicted in Table 5. Most of the CRC lesions were in the rectum 57.14% and sigmoid area 28.57%. One patient with colonic lymphoma has a very extensive lesion haemorrhagic pan-colitis.

Table 1. Colonoscopy findings among patients with LGIB.

| Colonoscopy findings | Frequency (n) | Percentages (%) |
|----------------------|---------------|-----------------|
| Other diseases | 32 | 53.33 |
| Tumour | 12 | 20.00 |
| Normal | 13 | 21.67 |
| Colonic polyps | 3 | 5.00 |
| Total | 60 | 100 |

Table 2. Histological diagnosis of sample specimens.

| Histology findings | Frequency (n) | Percentages (%) |
|--------------------|---------------|-----------------|
| No specimens | 36 | 60.00 |
| Other diseases | 14 | 23.33 |
| Colorectal cancer | 6 | 10.00 |
| Colonic polyps | 3 | 5.00 |
| Lymphoma | 1 | 1.67 |
| Total | 60 | 100 |

Table 3. Age and sex distribution of patients with Colorectal Cancer (CRC).

| Age (years) | Gender | | Total | Percentage (%) |
|-------------|--------|--------|-------|----------------|
| | Male | Female | | |
| 21-30 | - | - | 0 | - |
| 31-40 | 3 | 0 | 3 | 42.85 |
| 41-50 | 1 | 0 | 1 | 14.29 |
| 51-60 | - | - | - | - |
| 61-70 | 1 | 1 | 2 | 28.57 |
| 71-80 | 0 | 1 | 1 | 14.29 |
| 81-90 | - | - | - | - |
| Total | 5 | 2 | 7 | 100 |

Table 4. Clinical features among patients with Colorectal Cancer (CRC).

| Symptoms | Number of patients | Percentage |
|----------------------|--------------------|------------|
| Dark red blood | 5 | 71.43% |
| Blood mix with stool | 5 | 71.43% |
| Diarrhoea | 3 | 42.86% |
| Constipation | 6 | 85.71% |
| Changing bowel habit | 3 | 42.86% |
| Anal protrusion | 5 | 71.43% |
| Fatigue | 6 | 85.71% |
| Weight loss | 7 | 100% |
| Abdominal pain | 5 | 71.43% |
| Abdominal cramp | 4 | 57.14% |

Table 5. Clinical features among patients with Colorectal Cancer (CRC).

| Symptoms | Number of patients | Percentage |
|------------------|--------------------|------------|
| Rectum | 4 | 57.14% |
| Recto-sigmoid | - | - |
| Sigmoid | 2 | 28.57% |
| Descending colon | - | - |
| Transverse colon | - | - |
| Ascending colon | - | - |
| Caecum | - | - |
| Pancolon | 1 | 14.29% |

Discussion

This study described the clinical, colonoscopy, and histological characteristics of patients with CRC referred to the Endoscopy Unit of Aminu Kano Teaching Hospital, Kano, Nigeria.

Colonoscopy is not a common procedure in Nigeria, with only a few centres performing it. This is because of the sophistication in acquiring the necessary skills and the enormous funds required to procure the Endoscopy Machines. Hence few hospitals in Nigeria are actually aware of the existence of such a procedure for management of lower GI diseases.^{5,6}

Colorectal cancer was seen in 7 patients (11.67%) of different histological types mostly the aggressive variants 4/7 (1 - poorly differentiated adenocarcinoma, 1 - Siglet ring, 1 - squamous cells, and 1 - lymphoma) in the study. Similar frequencies of colorectal cancer had been reported from Ghana (8.6%),⁷ South Africa (8.9%),⁸ India (7.2%),⁹ and Iran. Thirty years ago, a study from Nigeria reported a lower prevalence of CRC (4%) at colonoscopy.⁵ Similar geometric increments in the prevalence of CRC were reported in other African countries, in Kenya and Ghana 2.7 and 3-fold increase respectively.^{7,10,11}

The geometrical increment in the prevalent rate of CRC in the African population is very alarming and largely attributable to lifestyle modifications, especially the high intake of animal proteins and fat, and the possibility of an increase in the disease awareness and availability of diagnostic facilities and expertise in the region.

Additionally, in the study, CRC is more common in male patients 2.5:1 and most of the patients 4/7 (57.14%) were less than 50 years of age. This was a lower age compared to Caucasians where CRC is said to be common in the seventh decade. This lower age at presentation was similarly reported in many African studies and among the Black South Africans compared to the White South Africans.³⁻⁷ Thus, it implies that apart from improved life expectancy in Africa and lifestyle changes, there is likely genetic abnormality yet to be established that is characteristic of CRC in an African population.

All the histological variants in the study were poor prognostic types like other African studies. In the S/Africa, it was demonstrated that the Blacks have higher levels of Microsatellite Instability (MSI-H) tumours which to some extent may explain the aggressive CRC incidence.^{2,11,12}

Additionally, in the study, the colonic polyps were seen only in 3 patients (5%), a result similar to the findings in other African and Middle-East Studies.^{5,7,13,14} The paucity of colonic polyps in our environment in comparison to Western countries has also raised questions as to whether the CRC being reported in this environment is of different biologic characteristics as well as aetiological basis compared to what is reported in Europe and America.

Another important issue raised by this young age at the presentation of CRC in the developing world relates to when screening programs should start in these populations, since the generally accepted starting time at the sixth decade recommended in the literature would appear too late if the aim is to pick polyps early to treat. These issues require further studies and consensus.

It is pertinent to state that similar aggressive variants of CRC were observed in the USA in the past. Chu *et al.*,¹⁵ reported that the pattern of CRC in America was initially the aggressive type which later peaked and subsequently declined with the introduction of screening colonoscopy.

Fifty percent of the patients with CRC in the study presented with a relatively short duration of rectal bleeding (<8 weeks) and all the patients (100%) had constipation as reported in the literature.^{16,17} Similarly, all the patients presented with significant

weight loss probably indicating the aggressive nature of the tumour in this population.

Anatomical location while undertaking the exercise of locating sites of the lesions at colonoscopy may prove difficult. Identifying constant features such as the prominent vascular mucosal markings in the rectum, the splenic and hepatic flexures, and the fish mouth opening of the appendiceal orifice at the caecum, would assist in this otherwise challenging exercise.

In the study, four patients with CRC had the lesion located in the rectum, 2 patients in the sigmoid area, and only 1 patient with colonic lymphoma had extensive lesions affecting the entire colon. These findings are similar to what is described in the literature where it has been noted that two-thirds of the cases of colorectal cancer are usually detected with the use of flexible sigmoidoscopy and about one-fourth of the tumours are found in the caecum and ascending colon.^{16,17}

In most other similar studies, rectal tumours had predominated. In India, Mahesi *et al.*⁹ found that of the 20 patients with CRC, six patients had the tumour in the rectum, two patients had a sigmoid tumour, descending colon two patients, hepatic flexure one patient, and ascending colon one patient. Also, in Ghana, Dakubo *et al.*⁷ found a rectal tumour in 38 patients, a sigmoid tumour in nine patients, a caecal tumour in two patients, descending colon tumour in one patient, and a hepatic flexure tumour in one patient. Similarly, Rotimi *et al.*¹¹ found the commonest site of CRC was the Rectum 60.30% followed by the sigmoid colon caecum 11.60% and the sigmoid colon 7.6% on pathology specimen.

Conclusions

CRC is no longer a rare condition in Nigeria as earlier speculated, and most patients with the disease present at relatively younger ages (50% <40 years) with an aggressive form of the disease. These trends are increasingly reported in other similar studies which really call for concern. There is need for a national data to determine the etiological factors of CRC in Nigeria and the ideal age to start colonoscopy screening for CRC in our environment.

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