

*Full Length Research Paper*

## Lower gastrointestinal bleeding: Spectrum of colonoscopy findings in Ado-Ekiti, Nigeria

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**Lower gastrointestinal bleeding (LGIB) is a common ailment seen at emergency departments. It is a significant cause of morbidity and mortality in the elderly worldwide. The aim of this study was to determine the aetiology and management outcome of LGIB in our centre and compare it with results elsewhere. Sixty-eight consecutive patients who underwent colonoscopy for LGIB were recruited into this study. The study was carried out at the Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti, Nigeria from January, 2010 to December, 2012. Ethical approval for the study was obtained from hospital's Ethics Committee and all the patients gave their individual signed consent. Relevant data were retrieved and analyzed using statistical package for social sciences (SPSS) version 15.0 (SPSS, Inc., Chicago, Illinois, USA) for statistical analysis using the t-test for quantitative variables and  $\chi^2$  test for qualitative variables. Differences were considered to be statistically significant if P value was less than 0.05. The male: female ratio was 1.83:1. The mean age of the studied population was  $56.04 \pm 10.60$  (age range 30 to 75). The indications for colonoscopy were; melena (11.8%), haematochezia (52.9%) and both (35.5%). Findings at colonoscopy were; haemorrhoids (35.3%), colorectal cancer (16.2%), polyps (14.7%), anal fissure (13.2%), arteriovenous malformations (5.9%) and diverticulosis (4.4%). Normal findings were reported in 10.3%. While haemorrhoids, anal fissure, colorectal cancer, polyps and diverticulosis were more prevalent in the male populations, arteriovenous malformation was more prevalent in the females. Co-morbidities found included; diabetes (14.7%), chronic liver disease (14.7%), hypertension (36.8%), diabetes and hypertension (16.2%) and renal disease (5.9%) of the studied population. These findings were found to be statistically significant ( $\chi^2 = 68.535$ ,  $p = 0.001$ ,  $\alpha = 0.05$  that is, 95% confidence interval). Haemorrhoids followed by colorectal cancer are the commonest colonoscopy findings in our environment. It is recommended that colonoscopy should be embraced for routine cancer screening and surveillance in our society.**

**Key words:** Colonoscopy, lower gastrointestinal bleeding, emergency departments.

### INTRODUCTION

Lower gastrointestinal bleeding (LGIB) is defined as bleeding that occurs from the bowel distal to the ligament

of Treitz (Longstreth, 1997). It is a significant cause of morbidity and mortality in the elderly worldwide. The

incidence of LGIB increases with age and is more common in men than women (Potter and Sellin, 1988). The annual incidence of hospitalization for LGIB is estimated to be 20 to 30 per 100,000 persons in a large, Southern California health maintenance organization (Longstreth, 1997). LGIB is approximately one-fifth as common as upper gastrointestinal bleeding (UGIB) (Kollef et al., 1997; Peura et al., 1997; Velayos et al., 2004). While most patients with LGIB will stop bleeding spontaneously, recurrent bleeding occurs in 10 to 40% of patients (Chaudhry et al., 1998; Das et al., 2003). In contrast to UGIB, predictors of poor outcome in LGIB are not that well defined. Hemodynamic instability, ongoing haematochezia and presence of comorbid illness have been associated with poor outcome (Bhasin and Rana, 2011).

The causes of LGIB vary from one region of the world to the other. In the countries of Western Europe and the United States where diverticulosis coli is common, it is one of the most common causes of LGIB unlike in Asia, diverticulosis coli is uncommon and is much less responsible as a cause of LGIB in the region (Longstreth, 1997). Colonoscopy when performed within 12 to 24 h of bleeding or admission is the preferred diagnostic procedure after stabilization in patients with lower gastrointestinal (GI) bleeding. The diagnostic yield of colonoscopy is more than radiographic tests, which require active bleeding at the time of the radiological examination. The diagnostic yield of urgent colonoscopy in acute lower GI bleed has been reported to be between 75 to 97% depending on the definition of the bleeding source, patient selection criteria and timing of colonoscopy (Barnert and Messmann, 2009; Wong and Baron, 2008). Literature is very scanty as regards the aetiology of LGIB in Nigeria. The aim of this study is to determine the aetiology and management outcome of LGIB in our centre and compare it with results elsewhere.

## MATERIALS AND METHODS

### Study location

This study was carried out at the Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti, Nigeria from January, 2010 to December, 2012.

### Study population

Sixty eight consecutive patients who underwent colonoscopy for LGIB were recruited into this study.

### Inclusion and exclusion criteria

All patients age 18 years and above with LGIB were included in the study, while patients with severe cardiopulmonary instability/failure were excluded.

### Data collection

The following were extracted from the patients or their relations: age, gender, previous history of LGIB, use of aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs), alcohol ingestion, use of native concoctions, melena and haematochezia.

### Procedure

Colonoscopy was performed within 48 h after adequate resuscitations were carried out using intravenous normal saline, blood transfusion and parenteral omeprazole. The procedure was carried out using video-colonoscopes (CF 130 Olympus). Colon preparation was achieved by the oral administration of 3 liters of Movicol<sup>R</sup> and Docolax<sup>R</sup> suppository, given 12 to 18 h before the examination. Blood pressure and oxygen saturation were monitored with mercury sphygmomanometer and pulse oxymeter, respectively. Warm water (37°C) infusion method was used instead of the traditional air insufflations. This method significantly gave a better patient procedure tolerance, better evaluation of the mucosal wall and adenoma detection rate. Findings at endoscopy were documented.

### Ethical clearance

Ethical approval for the study was obtained from the hospital's Research and Ethics Committee and all the patients gave their individual written consent.

### Statistical analyses

SPSS version 15.0 (SPSS, Inc., Chicago, Illinois, USA) was deployed for statistical analysis using the t-test for quantitative variables and  $\chi^2$  test for qualitative variables. Differences were considered to be statistically significant if P value was less than 0.05.

## RESULTS

The male: female ratio was 1.83:1. The mean age of the studied population was 56.04  $\pm$  10.60 years (age range 30 to 75). Majority of the patients were in the age group 51 to 70 years (Table 1). LGIB was found to increase steadily with age up to the seventh decade of life when a sharp decline was noticed. The indications for colonoscopy were; melena (11.8%), haematochezia (52.9%) and both (35.5%) (Table 2 and Figure 1).

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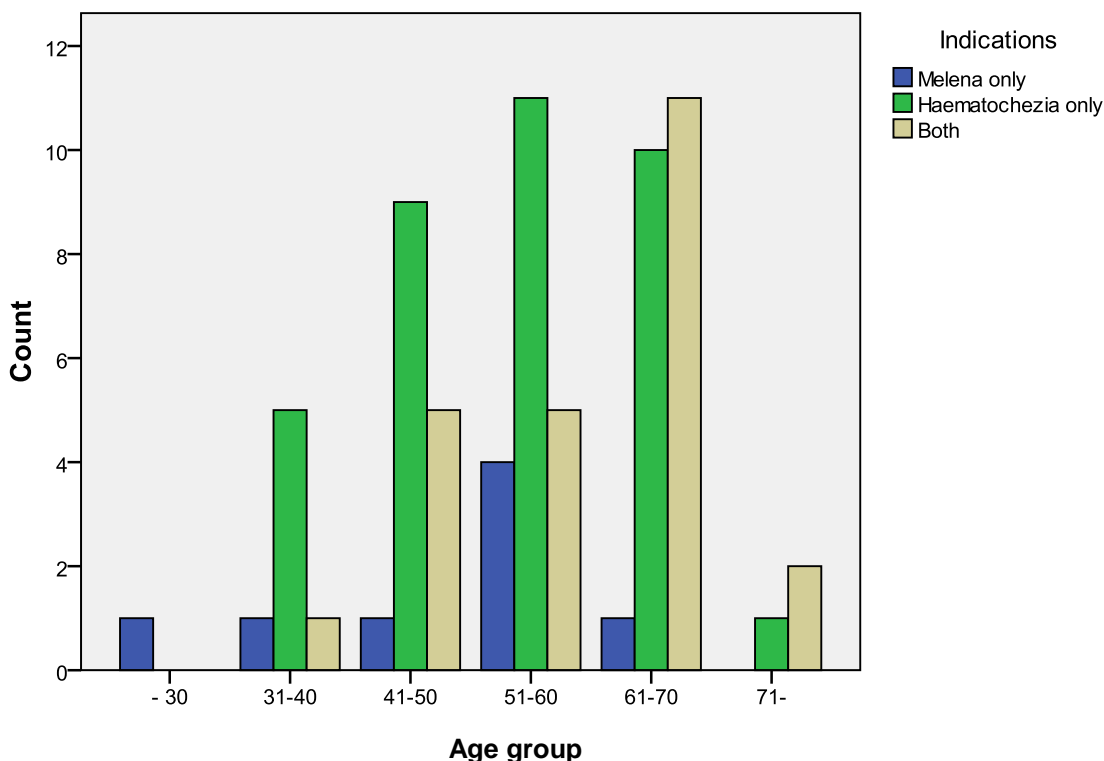
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**Table 1.** Age group distribution among the study participants.

Age group	Frequency	Percentage	Cumulative %
-30	1	1.5	1.5
31-40	7	10.3	11.8
41-50	15	22.1	33.8
51-60	20	29.4	63.2
61-70	22	32.4	95.6
71-	3	4.4	100.0
Total	68	100.0	100.0

**Table 2.** The indications for colonoscopy among the study participants.

Indication	Frequency	Percentage
Melena	8	11.8
Haematochezia	36	52.9
Melena/Haematochezia	24	35.3
Total	68	100.0



**Figure 1.** Indications versus age group.

Findings at colonoscopy were; haemorrhoids (35.3%), colorectal cancer (16.2%), polyps (14.7%), anal fissure (13.2%), arteriovenous malformations (5.9%) and diverticulosis (4.4%). Normal findings were reported in 10.3%

10.3% (Figure 2). While haemorrhoids, anal fissure, colorectal cancer, polyps and diverticulosis were more prevalent in the male populations, arteriovenous malformation was more prevalent in the females. These

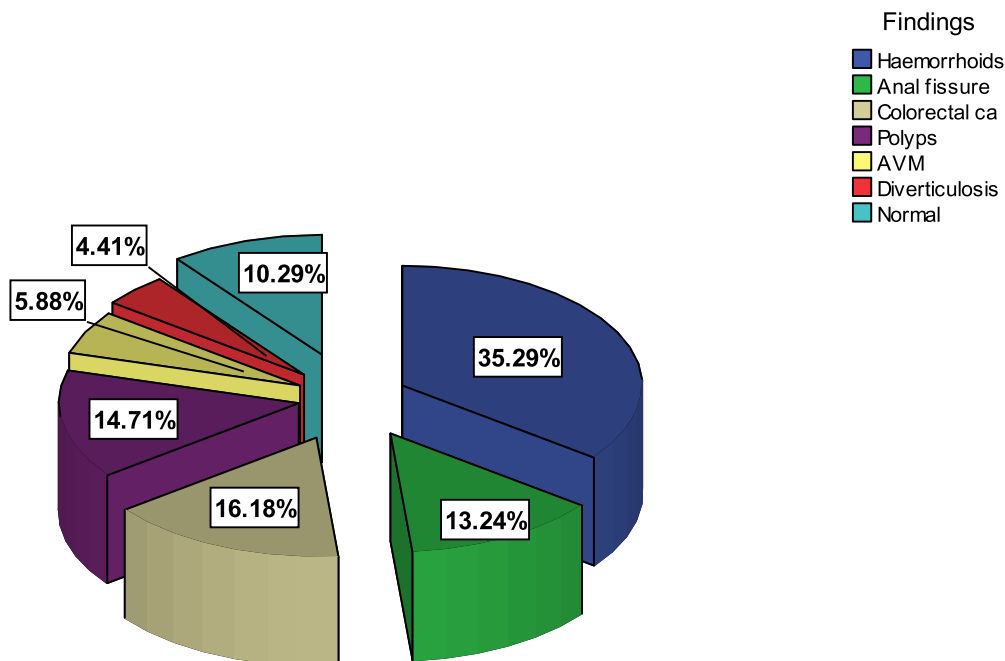


Figure 2. Findings at colonoscopy among the study participants.

findings were not statistically significant ( $\chi^2 = 8.867$ ,  $p = 0.181$ ,  $\alpha = 0.05$  that is, 95% confidence interval). Co-morbidities found included: diabetes (14.7%), chronic liver disease (14.7%), hypertension (36.8%), coexistence of diabetes and hypertension (16.2%) and renal disease (5.9%) of the studied population (Figure 3). These findings were found to be statistically significant ( $\chi^2 = 68.535$ ,  $p = 0.001$ ,  $\alpha = 0.05$  that is, 95% confidence interval). None of the patients had a previous history of LGIB. 15% of the patients were on aspirin as part of their routine anti-hypertensive medications. In all, seven patients died, giving a mortality rate of 10.3%. These deaths were recorded among those having colorectal cancers.

**DISCUSSION**

LGIB is a significant cause of morbidity and mortality in the elderly worldwide. It is also one of the most common gastrointestinal indications for hospital admission. The incidence increases with age and is more common in men than women (Potter and Sellin, 1988). Our study equally confirmed this statement. The male: female ratio was 1.83:1 with a male preponderance in all age groups. This male preponderance is similar to what was reported by (Olookoba et al., 2013) in the North Central region of Nigeria. LGIB was found in this study to increase steadily with age up to the seventh decade of life. This is similar

to similar studies elsewhere outside African continent by Chait (2010), Comay and Marshall (2002) and Longstreth (1997). This increase in incidence of LGIB with increasing age can be adduced to two factors commonly found in the elderly: (1) the increased incidence of gastrointestinal disease specific to elderly patients and (2) co-morbid diseases. Co-morbid diseases found in this study were; diabetes mellitus (14.7%), hypertension (36.8%), diabetes and hypertension (16.2%), chronic liver disease (14.7%) and renal disease (5.9%). Majority of our patients have at least one coexistent illness. This was similar to the findings of (Al Qahtani et al., 2002; Schmulewitz et al., 2003).

Findings at colonoscopy in our study were; haemorrhoids (35.3%), colorectal cancer (16.2%), polyps (14.7%), anal fissure (13.2%), arteriovenous malformations (4%) and diverticulosis (4.4%). Haemorrhoids were the commonest cause of LGIB in this study similar to the findings by Alatise et al. (2012), Dakubo et al. (2008) and Olookoba et al. (2013). This was contrary to the pattern in the Western world where diverticular diseases, colorectal cancer and angiodysplasias were the common findings at colonoscopy (Strate, 2005). Contrary to the general belief that colorectal cancer is not common in our environment, with the availability of colonoscopy, this had been debunked as shown in this study where colorectal cancer ranked as the second commonest finding (16.2%). This may in part be due to increased

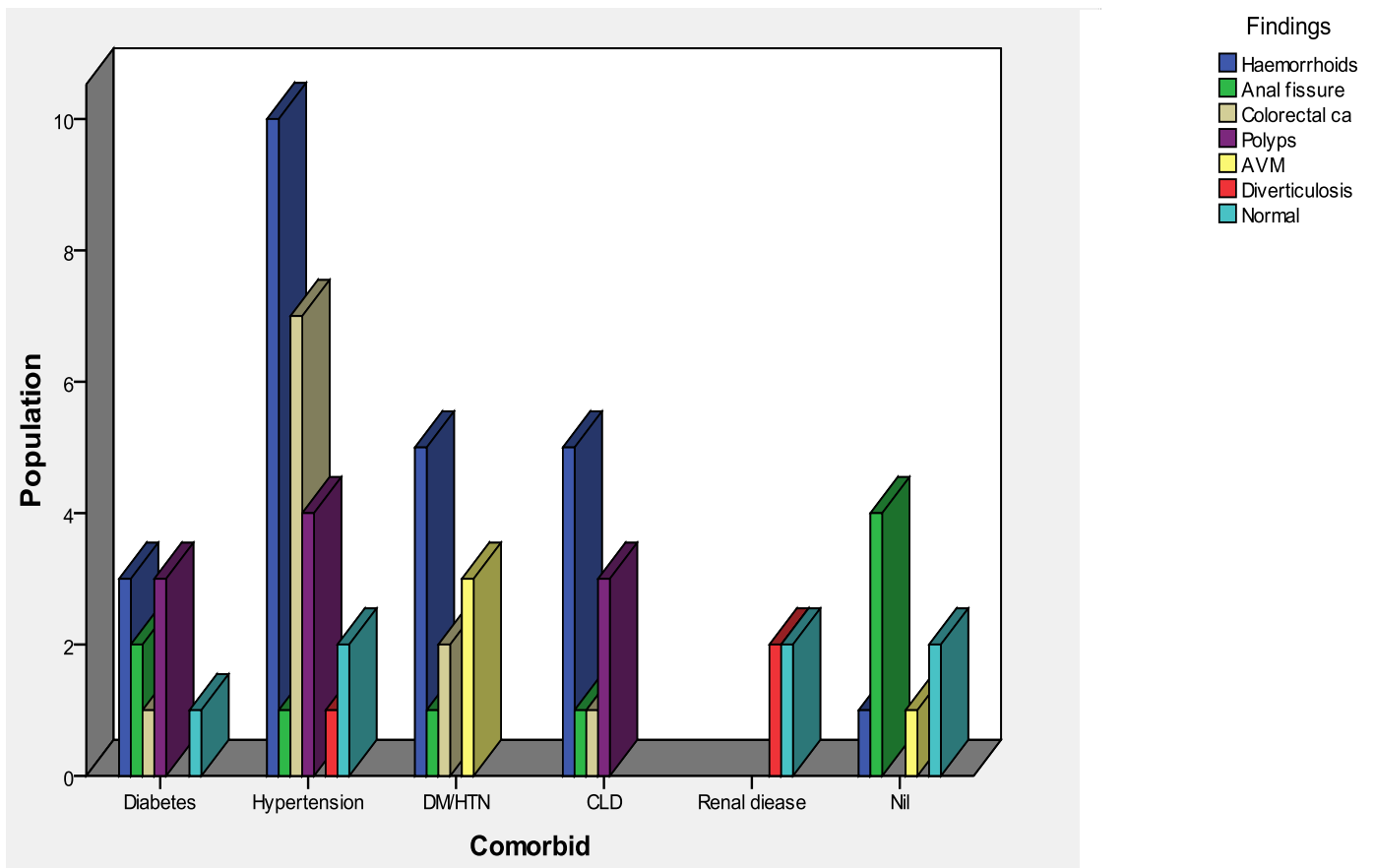


Figure 3. Comorbidity versus indications for colonoscopy.

Westernization among the populace. The findings in this study that showed haemorrhoids topping the list of the findings at colonoscopy might be due in part to frequent or chronic constipation, straining to have a bowel movement, diets low in fiber and pregnancy. Little information exists as regards racial differences in LGIB. However, this geographic variation may be due in part to dietary and lifestyle factors. In this study, haemorrhoids, anal fissure, colorectal cancer, polyps and diverticulosis were found to be more prevalent in the male populations while arteriovenous malformation was more prevalent in the females. The reasons for these findings are not known. The indications for colonoscopy in this study were; melena (11.8%), haematochezia (52.9%) and both (35.5%).

Most patients with LGIB have favorable outcomes despite advanced age and comorbid conditions (Boley et al., 1979). While most patients with LGIB will stop bleeding spontaneously, continued or recurrent bleeding during an acute episode occurs in 10 to 40% of patients (Das et al., 2003). All the patients studied were managed

conservatively with fluid replacements, parenteral omeprazole and blood transfusions. Those that required advanced interventional endoscopy therapy were duly referred after stabilization to other facilities. Endoscopic polypectomy was carried out in those that had polyps. Among those that had haemorrhoids, 25% had haemorrhoidal banding while 75% had haemorrhoidectomy successfully carried out. In all, seven patients died, giving a mortality rate of 10.3%. These deaths were recorded among those having colorectal cancers. Most of these patients presented in the late advanced form.

Colonoscopy was carried out in this study within 12 to 48 h of admission and it was found to be safe and effective. This was similar to the findings in the studies of Strate and Syngal (2003). Generally, the diagnostic yield of colonoscopy ranges from 45 to 95% (Al Qahtani et al., 2002), the diagnostic yield in this study was 89.7%. The high yield obtained here was similar to the findings of Olookaba et al. (2013), much higher than that of Dakubo et al. (2008), Ismaila and Misauno (2011) and Mbengue et al. (2009). This finding was contrary to the low yield

found by Al-Shamali et al. (2001) (21%) in the Saudis and Sahu et al. (2009) (48%) in the Indian patients. These observed differences may be due to the varying spectrum of colonic diseases across the world regions and the water method used in this study as against the traditional air inflation.

## Conclusion

Haemorrhoids followed by colorectal cancer are the commonest colonoscopy findings in our environment. It is recommended that colonoscopy should be embraced for routine cancer screening and surveillance in our society.

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