Original Article

Diagnostic Yield of Colonoscopy in Patients Presenting with Lower Gastrointestinal Bleeding at a Tertiary Care Center

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Abstract

Background and Aims: Lower gastrointestinal bleeding (LGIB) poses a significant challenge in clinical practice due to its diverse etiologies and potential for serious morbidity and mortality. Colonoscopy is the preferred, valuable diagnostic tool for identifying the underlying cause of LGIB. This study aimed to evaluate colonoscopic findings in patients presenting with LGIB at a tertiary care hospital in Baghdad. **Subjects and Methods:** This retrospective descriptive study reviewed records of patients, who underwent colonoscopy for LGIB, at the Gastroenterology and Hepatology Teaching Hospital in Baghdad Governorate between January 1 and July 31, 2023. The analysis included age, sex, and endoscopic findings. **Results:** A total of 228 patients were included, with 124 (54.4%) males and 104 (45.6%) females. The mean age was 39.23 ± 20.57 years. A colonoscopy revealed a diagnostic yield of 68.0%. LGIB was more prevalent among individuals aged 40 years and younger (53.5%). The most common colonoscopic finding was hemorrhoids (20.2%), followed by polyps (13.1%), colitis (9.2%), ulcerative colitis (8.3%), and colorectal cancer (7.9%). **Conclusion:** This study underscores the importance of colonoscopy in evaluating LGIB. Larger, multicenter studies are recommended to validate these findings and guide clinical practice in LGIB management.

Keywords: Baghdad, colonoscopy, colorectal cancer, lower gastrointestinal bleeding

Introduction

Lower gastrointestinal bleeding (LGIB) is a common clinical presentation encountered in medical practice, characterized by bleeding originating from the rectum, colon, or small intestine distal to the ligament of Treitz.[1] LGIB poses significant diagnostic and management challenges due to its diverse etiologies, ranging from benign conditions such as hemorrhoids and diverticulosis to more serious entities including inflammatory bowel disease and colorectal cancer (CRC).[2]

LGIB affects 20.5–87.0 per 100,000 persons annually.[3] Despite advancements in diagnostic modalities, colonoscopy remains the gold standard for the evaluation of LGIB.[2] It offers advantages such as the ability to directly visualize the mucosa, obtain tissue samples for histopathological examination, and provide therapeutic interventions when indicated.[4]

Several studies have investigated the colonoscopic findings in patients presenting with LGIB, aiming to delineate the spectrum of pathologies encountered and their respective frequencies. These studies have contributed valuable insights into the different etiological factors of LGIB, guiding clinicians in the diagnostic workup and management of affected individuals.

The current study aims to evaluate the colonoscopic findings in patients presenting with LGIB in a tertiary care hospital in Baghdad. It seeks to elucidate the prevalence and distribution of various colonic lesions in this patient population. In addition, the study aims to assess the association between specific colonoscopic findings and patient demographic characteristics.

Subjects and Methods

This retrospective descriptive study was conducted at the Gastroenterology and Hepatology Teaching Hospital in

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Baghdad. All patients who underwent total colonoscopy due to complaints of LGIB within the period from January 1 to July 31, 2023, were included in the study cohort.

Patients with incomplete medical records, inadequate biopsy specimens, those who were unable to tolerate total colonoscopy or instances of repeated or duplicated cases were intentionally excluded from the analysis. In addition, procedures deemed unsuccessful due to poor bowel preparation or patient intolerance during colonoscopy examination were excluded from the study. A total of 228 eligible participants met the inclusion criteria and were enrolled in the study.

Patient data, including age, sex, endoscopic findings, and extent of colon intubation, were retrieved from the colonoscopy registers. Biopsies were performed as indicated and at the discretion of the endoscopist. These biopsies were subsequently sent to the histopathology department of the same hospital for histological diagnosis of presumed lesions identified during the procedure. Ethical approval was obtained from the relevant authorities before the commencement of the study.

Statistical analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 26 (IBM Corp, Armonk, NY). Continuous variables were summarized as means with standard deviations, while categorical variables were presented as numbers and percentages.

Results

During the study, a total of 228 patients underwent colonoscopies for LGIB. Of these, 124 (54.4%) were male and 104 (45.6%) were female, resulting in a male-to-female (M:F) ratio of 1.2:1. The mean age of the study population was 39.23 ± 20.57 years. The study population had a median age of 35.5 years, ranging from 9 months to 86 years.

Notably, individuals aged 20 years and below represented the highest frequency group, comprising 47 (20.6%) participants, followed closely by the 31–40 years of age group with 44 (19.3%) participants. Consequently, LGIB exhibited a higher prevalence among individuals aged 40 years and younger, constituting 53.5% of cases. Conversely, the age group of more than 70 years had the lowest frequency, with only 13 (5.7%) participants. Further details regarding the sex and age distribution of the study population are provided in Table 1.

Colonoscopy revealed normal findings in 73 (32.0%) subjects, resulting in a diagnostic yield of 68.0%. The most common colonoscopic finding in patients with LGIB was hemorrhoids, observed in 46 (20.2%) patients. Hemorrhoids were seen at a mean age of 39.6 ± 7.82 years, with a slight female predominance (M:F = 0.8:1).

Polyps were the next most prevalent colonic pathology and were observed in 30 (13.1%) patients. The mean age at presentation for polyps was 50.1 ± 6.44 years, with a male predominance (M:F = 1.5:1). Colitis was identified in 21 (9.2%) patients, with a mean age of 31.9 ± 5.09 years, with a slightly higher occurrence in females (M:F = 0.9:1).

CRC was identified as the etiology of LGIB in 18 (7.9%) patients. Rectal cancer was the source of bleeding in 11 patients, with five malignant colonic growths detected in the sigmoid colon and two in the descending colon. Histologically, adenocarcinoma was observed in 15 (83.3%) cases of CRC. The mean age of presentation with CRC was 58.0 ± 12.07 years, with a male predominance (M:F = 1.6:1). Furthermore, it was observed that 10 (55.6%) patients diagnosed with CRC were between the ages of 51 and 70 years.

Ulcerative colitis was identified as the etiology of LGIB in 19 (8.3%) patients, with a mean age of 32.7 ± 10.57 years and a male predominance (M:F = 1.4:1). LGIB was observed in only two male patients with Crohn's disease. Furthermore, the study revealed less common findings, such as telangiectasia and familial adenomatous polyposis, each accounting for 0.9% of cases. The distribution of colonoscopic findings according to the age and sex of the patients is detailed in Table 2.

Discussion

LGIB represents a significant challenge in clinical practice due to its diverse etiologies and potential for serious morbidity and mortality. A colonoscopy is the best procedure

Table 1: Age and sex distribution of patients

Age (years)	Sex		Total, *n* (%)
	Male	Female	
≤20	23	24	47 (20.6)
21–30	21	10	31 (13.6)
31–40	19	25	44 (19.3)
41–50	17	16	33 (14.5)
51–60	22	13	35 (15.4)
61–70	17	8	25 (10.9)
>70	5	8	13 (5.7)
Total	124 (54.4)	104 (45.6)	228 (100)

Table 2: Distribution of colonoscopic findings by age and sex

Colonoscopic findings	Patients, *n* (%)	Mean age (years)	Male:female ratio
Normal	73 (32.0)	31.3	1.5:1
Hemorrhoids	46 (20.2)	39.6	0.8:1
Polyps	30 (13.1)	50.1	1.5:1
Colitis	21 (9.2)	31.9	0.9:1
Ulcerative colitis	19 (8.3)	32.7	1.4:1
Cancer	18 (7.9)	58.0	1.6:1
Diverticula	11 (4.8)	65.1	1.8:1
Solitary rectal ulcer	9 (3.9)	43.7	1.3:1
Fissure	5 (2.2)	36.4	4:1
Proctitis	4 (1.8)	54.3	0:4
Crohn's disease	2 (0.9)	22.8	2:0
Telangiectasia	2 (0.9)	73.0	0:2
Familial adenomatous polyposis	2 (0.9)	45.5	0:2

for confirming the source of LGIB and excluding the ominous diagnoses.[2]

Our study cohort comprised 228 patients who underwent colonoscopy for LGIB, with a male-to-female ratio of 1.2:1, reflecting a slightly higher prevalence in males. This observation is in line with many studies conducted in Iraq, Saudi Arabia, and other Asian and African countries suggesting a higher incidence of LGIB in men compared to women.[5-13] The observed gender disparity may be influenced by social and economic constraints, potentially resulting in fewer female patients seeking medical care and thereby impacting their access to diagnostic procedures such as colonoscopy.

In terms of age distribution, LGIB exhibited a higher prevalence among individuals aged 40 years and younger, constituting 53.5% of cases with a mean age of 39.23 years. This finding aligns with observations reported in studies conducted in India and Bangladesh,[9,12] yet notably contrasts with data from Japan and certain Western countries.[14-16] In these regions, LGIB typically manifests during the seventh and eighth decades of life, possibly attributed to the extended life expectancy prevalent in these populations.

The colonoscopic findings in our study revealed a diagnostic yield of 68.0%, with normal findings observed in 32.0% of the subjects. Notably, this rate is lower than reported in numerous studies conducted in Iraq and various Asian, African, and Western countries.[6,7,12,13,15-17] The decreased diagnostic rate observed in our study may be attributed to suboptimal bowel preparation or the possibility of bleeding originating from a lesion higher up in the small intestine or stomach. Therefore, other specialized techniques should be considered for a definitive diagnosis. Nevertheless, despite variations among studies, colonoscopy remains a valuable diagnostic tool for identifying the underlying cause of LGIB.[2]

In our study, the most common colonoscopic finding among patients with LGIB was hemorrhoids (20.2%). Polyps represented the subsequent most prevalent colonic pathology at 13.1%, trailed by colitis (9.2%), ulcerative colitis (8.3%), and CRC (7.9%).

Upon conducting an age-centered comparative analysis, we observed a higher prevalence of hemorrhoids among the younger age group, with a mean age of 39.6 years. In addition, a slightly higher prevalence was noted among females, with a male-to-female ratio of 0.8:1.

Our findings are corroborated by various studies conducted in Iraq and several regions across Asia and Africa, which have consistently identified hemorrhoids as the predominant cause of LGIB.[6-9,11-13] Notably, a study conducted in the Netherlands underscored the coexistence of benign anal lesions such as hemorrhoids with more serious colorectal conditions, including CRC.[18] This emphasizes the imperative of endoscopy in patients presenting with seemingly benign conditions like hemorrhoids.

In contrast, certain Western studies have reported divergent results, where diverticular disease emerges as the most common cause of LGIB,[2,19,20] a finding that was less common in our research (4.8%). Furthermore, several studies conducted in Iraq and various global regions have revealed different etiological patterns compared to our study findings.[3,5,10,21]

Collectively, these variations in research outcomes underscore the marked geographical diversity in the etiology of LGIB. This geographical variation may arise from a multitude of factors including but not limited to differences in dietary habits, prevalence of chronic diseases, genetic predispositions, and access to health-care services across various regions and populations.

CRC accounted for 7.9% of cases of LGIB in our study, with rectal cancer being the most common site of malignant bleeding. Adenocarcinoma was the predominant histological subtype observed, consistent with the typical presentation of CRC in the setting of LGIB.[22] In addition, our study revealed a male predominance, with the mean age at presentation of CRC being 58.0 years, indicating an increased risk of cancer with advancing age. These findings are consistent with established demographic patterns of CRC incidence reported in a study conducted in Saudi Arabia.[23]

Limitations

Our study had few limitations, including its retrospective nature, reliance on medical records for data collection, and potential for selection bias. In addition, the study was conducted at a single tertiary care center, which may limit the generalizability of our findings to other health-care settings.

Conclusion

Our study revealed a diverse range of pathologies detected by colonoscopy. The most common findings included hemorrhoids, followed by polyps, colitis, ulcerative colitis, and CRC (predominantly adenocarcinoma). LGIB exhibited a slightly higher prevalence among men compared to women, with a higher prevalence among individuals aged 40 years and younger. These findings underscore the importance of colonoscopy in diagnosing and managing LGIB. Further prospective studies with larger sample sizes and multicenter designs are needed to validate these findings and guide clinical practice in the management of LGIB.

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Conflicts of interest

There are no conflicts of interest.

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