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Original Research Article

Etiology, Clinical Picture and Diagnosis of Lower Gastrointestinal Bleeding at a Tertiary Care Institute in Eastern Odisha: A Retroprospective Study

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Abstract:

Aim of the Study: To evaluate the various etiologies, clinical assessment, and requirement for blood transfusion in patients with lower gastrointestinal bleeding admitted to an eastern Odisha tertiary care center.

Materials and Procedures: The research comprised 988 patients, 824 retrospective cases and 164 prospective cases from Department of Surgery in S.C.B. Medical College and Hospital in Cuttack, Odisha. Analyzing case sheets from retrospective cases yielded information. Prospective patients were handled in accordance with departmental practice, and all investigations and treatments were recorded.

Results: Patients over the age of 40 were the most often afflicted, accounting for 56% (533/988) of the study group. Males made up 70.5% (697/988) of the population, while females made up 29.5% (291/988).Males had a mean age of 43.2310.65 years, while females had a mean age of 42.7916.53 years. Hemorrhoids were shown to be the most prevalent pathology in colonoscopy, affecting 30.8% (n =305) of individuals. Anorectal growth was identified in 15.3% of the patients; while colonic growth was found in 9.7%.14% (139/988) of patients had inflammatory lesions. Colonic polyps were discovered in 4.8% of patients, whereas rectal polyps were found in 3.9%. Males had a higher mean hemoglobin level of 10.643.79 g/dl than females (10.833.69 g/dl). Only 7.8% (77/988) of patients needed a blood transfusion if their hemoglobin level fell below 7gm/dl.

Conclusion: Hemorrhoids were the most common cause of lower gastrointestinal hemorrhage, followed by anorectal growth. Colonoscopy was the first and most common diagnostic performed to evaluate lower gastrointestinal bleeding. Only a small number of patients needed blood transfusions.

Introduction

Lower gastrointestinal bleeding (LGIB) is described as bleeding at a place distal to the Treitz ligament. It is still a common reason for hospitalization and a major factor in hospital morbidity and death, especially among the elderly. There is a scarcity of evidence from India on the cause, clinical examination, and diagnosis of lower gastrointestinal bleed. Lower gastrointestinal (GI) tract bleeding accounts for about 20% of all instances of acute GI hemorrhage [1]. Acute bleeding is defined as lower gastrointestinal bleeding that occurs within three days. This might lead to vital sign instability, anemia, and/or the requirement for a blood transfusion [2]. Chronic LGIB denotes gradual or intermittent blood loss, such as the flow of blood from the rectum over many days or longer. LGIB may be overt, such as hematochezia or melena, or occult, such as unexplained iron deficiency anemia and/or a positive fecal occult blood tests result [3]. In the west, the prevalence of LGIB varies from 20.5 to 27 instances per 100,000 persons. The Indian experience differs from that of the West in that the patients are younger, localization is achievable in the majority of cases, mortality is lower, and rebleeding is only 4% [4]. In comparison to acute upper GI bleeding (UGIB), individuals with acute LGIB have a lower rate of shock (19% vs. 35%), need fewer blood transfusions (36% vs. 64%), and have a higher hemoglobin level (84% vs. 61%) [5].Small intestinal bleeding is more severe than colon bleeding and needs more blood transfusions. The overall mortality rate of LGIB varies between 2% and 4%. The etiology of LGIB varies based on age, population lifespan, dietary habits, lifestyle, history of smoking or drug use, and so on. The majority of western data show that colonic diverticula is the most prevalent cause of LGIB,

followed by angiodysplasia, ischemic and infectious colitis, chronic inflammatory bowel disease (IBD), neoplasm, small intestinal bleeding, and postpolypectomy bleeding. In Indian research, the etiology of LGIB is completely different [6].Nonspecific ulcers account for 30% of all cases, followed by enteric ulcers (15%), amebic ulcers (6%), tubercular ulcers (6%), angiodysplasia (6%), neoplasm (6%), and others [7]. Colonoscopy is an efficient and convenient first inquiry. Acute bleeding frequently results in a spoor view with eventual non-visualization of the bleeding site. Some writers recommend early colonoscopy in an unprepared intestine, while others advocate a more cautious approach [8].

According to one research, colonoscopy without intestinal preparation is safe and accurate, and therapeutic procedures may be performed with little problems. Lesions could be properly identified in 97% of patients [9]. Although non-invasive, computed tomography [CT] colography and magnetic resonance [MR] colography, also known as virtual colonoscopy, yield inferior outcomes to colonoscopy [10]. Complementary studies such as selective visceral angiography and radioisotope scanning may also be used to locate a bleeding cause prior to surgery [11]. Scintigraphy using 99mTc radiolabeled sulfur colloid may identify active bleeding at rates as modest as 0.1-0.5 ml/min, but it cannot pinpoint the specific location of the bleeding. When the rate of bleeding is 0.5-1 ml/min, angiography reveals the exact bleeding location. It is also therapeutic in that procedures such as embolization and vasopressin infusion may be performed. Small intestinal bleeding might be difficult to identify.

Push enteroscopy using a pediatric colonoscope is a common endoscopic method for examining the small bowel [12].Double balloon enteroscopy first appeared in 2001. The gold standard of examination for small intestinal hemorrhage is intraoperative enteroscopy (the endoscope is guided by the surgeon). Wireless capsule endoscopy (WCE) is a novel method in which the patient consumes a battery-powered pill-sized camera that transmits wireless pictures to a data recorder while crossing the gut [13]. Barium studies of the small bowel and colon are ineffective in the examination of LGIB. Small intestinal enteroclysis (by oral small bowel intubation and contrast administration) yields a more accurate image than barium swallows [14]. Because the majority of patients' bleeding stops spontaneously, only a small number of people need active therapy. Therapeutic colonoscopy, angiography, and surgery are among the therapy possibilities. Electrocautery, injection, "heater probe," and laser coagulation are the colonoscopic interventional options. Those who continues to bleed or rebleed after initial cessation need surgical intervention [15].

Aims and Objectives

To study patients with LGIB in a tertiary care institute in Eastern Odisha to know various aspects of LGIB like etiology, clinical picture, different diagnostic tests used and treatments received.

Methods and Materials

The research was carried out at the S.C.B. Medical College& Hospital's Gastroenterology Department in Cuttack, Odisha, India. This medical college is a reference center for gastrointestinal illnesses and one of the high-volume hospitals in eastern India. This research is both retrospective and prospective since both groups were included. All patients with GI hemorrhage underwent upper GI endoscopy (UGIE). The research included patients with no lesion or lesions that were deemed to be unrelated to the present GI bleeding, such as gastritis, clean based or healed gastroduodenal ulcers in UGIE. Colonoscopy was performed on all individuals. Patients who were bleeding intermittently but not profusely received CT Enterography (CTE). If the bleeding was severe and prolonged, a CT Angiography (CTA) was performed. RBC Scanning was performed on two individuals who had nondiagnostic colonoscopic results.

Retrospective Group

This group comprises individuals who were referred to the department for LGIB assessment and treatment between January 2011 and December 2015. Age, sex, use of nonsteroidal antiinflammatory drugs or any drug causing coagulopathy or interfering with platelet function, bleeding diathesis, history of blood transfusion, blood investigations such as complete blood count, kidney function test, liver function test, coagulation profile, and so on were obtained from available case records. Proforma was completed for each patient, which included the results of upper GI endoscopy, colonoscopy, CTE and CTA if performed, and the treatment administered during hospitalization.

Prospective group

This group comprises patients who were admitted to the department for LGIB examination and treatment from January to December 2016. All patients had a detailed history obtained and a complete physical examination. All patients had a complete blood count, renal function test, liver function test, coagulation profile, and other pertinent procedures. All invasive procedures need written informed permission. CTA was completed in accordance with the specifications. All LGIB patients were treated with supportive measures such as intravenous fluids, correction of electrolyte

and metabolic imbalances, blood transfusion at a hemoglobin level of 7g/dl, and other symptomatic therapies.

Medical therapy was used to treat patients with infective colitis and IBD. Endoscopic treatment took the form of injectable therapy (adrenaline, sclerosants, and so forth). Patients whose bleeding were resistant to or did not respond to endoscopic treatment were given surgery, and the intraoperative findings were recorded in the proforma.

Results

Baseline characteristics

This research included 988 patients who satisfied the eligibility requirements. There were 824 retrospective cases and 164 prospective cases among them. Table I summarizes the baseline characteristics in detail. The younger age group (40 years) was the most typically afflicted. 56% (533/988) of the population examined. Males had a mean age of 43.2310.65 years while females had a mean age of 42.7916.53 years. Males made up 70.5% (697/988) of the population, while females made up 29.5% (291/988).Male patients had a hemoglobin level of 10.643.79 g/dl, while female patients had a level of 10.833.69 g/dl. Only 28% of the patients (n=277) needed blood transfusions. Comorbid disorders were found in 33% of patients (326/988). 11.33% of these people had diabetes, 8.5% had hypertension, and 7.2% had both diabetes and hypertension. Chronic kidney disease (CKD) affected 23 of the individuals. In 36 cases, chronic liver disease (CLD) was discovered. Both of these disorders accounted for 6% of the overall patient population (59/988).

Table 1: Baseline characteristics

Parameters	Number (%)
Cases	
• Retrospective	• 824 (83.4)
• Prospective	• 164 (16.6)
Age (years)	
• <40	• 533 (56)
• >40	• 455 (44)
Sex	
• Male	• 697 (70.5)
• Female	• 291 (29.5)
Clinical presentation	
• Hematochezia	• 587 (59.4)
• Bloody diarrhea	• 237 (24.0)
• Anorectal bleeding	• 137 (13.9)
• Melena	• 27 (2.7)
Need for blood transfusion	
• Yes	• 277 (28)
• No	• 711 (72)
Comorbidities	
• No comorbidity	• 662 (67)
• Diabetes	• 112 (11.33)
• Hypertension	• 84 (8.5)
• Hypertension & Diabetes	• 71 (7.2)
• Others (CKD, CLD)	• 59 (6)

Etiology

Table II lists the various etiologies of LGIB discovered after colonoscopy in this investigation. Hemorrhoids were shown to be the most frequent pathology, affecting 30.8% (n =305) of patients. Anorectal growth was identified in 15.3% (n=151) of patients, whereas colonic growth was found in 9.7% (n=96). Ulcerative colitis was detected in 11.8% of patients (117/988), whereas nonspecific colitis was reported in 9% (89/988). 4.8% of patients had a colonic polyp, and 4.8% had a rectal polyp.

3.9% of the population has polyps. 7.5% (74/988) of patients had an anal fissure, while 3.75% (37/988) had a rectal ulcer. Diverticular disease and angiodysplasia accounted for 3.4% (n=33) and 2.6% (n=26) of cases, respectively. Even with newer studies like as CTA and CTE, the cause of LGIB could not be determined in around 2.4% of patients (n=24).

Table 2: Coloposcopic findings

	Frequency	Percentage (%)
Hemorrhoids	305	30.8
Anorectal growth	151	15.3
Ulcerative colitis	117	11.8
Colonic growth	96	9.7
Nonspecific colitis	89	9.0
Anal fissure	74	7.5
Colonic polyp	47	4.8
Rectal polyp	38	3.9
Rectal ulcers	37	3.75
Diverticulosis	33	3.4
Angiodysplasia	26	2.6

The clinical situation

Hematochezia (59.4%, 587/988) was the most common clinical picture of LGIB in our patient sample, followed by bloody diarrhea (24%, 237/988) and anorectal bleed (13.9%, 137/988). Melena was the least frequent appearance (2.7%, 27/988).

Modalities of Diagnosis

A total of 988 individuals had colonoscopic examinations. In 948 patients (95.95%), LGIB could be found. CTE was found to be positive in 48% of the cases (12/25). There were four patients with enteric strictures and eight individuals with enteric polyps. CTA was found to be positive in 12.5% of patients (2/16). One patient had a lesion in the form of right colon vascular dilatation, while the other had sigmoid diverticular bleed. Meckel's diverticulitis was discovered in two individuals who had positive RBC scans.

Discussion

LGIB occurs at extremes of age, however the cause differs by age group. Most studies show that LGIB mostly affects older people with a mean age of more than 65 years. [15, 16]. The yearly incidence rate of LGIB hospitalization rises with age. It grows from 1/100,000 patients in the third decade to more than 200/100,000 in the ninth decade. Our investigation found comparable results in the older age group (>40 Years) made up 56% of the patients in our study. The older age group is also predisposed to comorbid diseases. According to studies, at least 70% of individuals with LGIB had at least one comorbidity [17]. Comorbidities such as vasculopathy may increase the risk of bleeding. Anticoagulants and antiplatelet medications used to treat cardiovascular disease may potentially induce bleeding. In our research, 33% (n=326) of patients had comorbid diseases such as diabetes, hypertension, CLD, and CKD. Diabetes mellitus was the most often linked condition (11.33%), while 7.2% had more than one ailment. The lack of comorbidity in this research is likely owing to the fact that, in contrast to previous studies, a major component of the analyzed group includes children and young people. Males are more likely to be impacted than females [18]. Our analysis also reveals a male prevalence of LGIB (70.5% vs. 29.5%).

The most prevalent manifestation of LGIB is hematochezia. Many individuals also have anorectal bleeding and bloody diarrhea. Only a few people show with melena, and the bleeding location is frequently the small intestine. As a result, the clinical picture may potentially provide information on the source of the LGIB. According to our findings, hematochezia is the most common manifestation of LGIB (59.4%). Less common manifestations include bloody diarrhea (24%), anorectal bleed (13.9%), and melena (2.7%). In around 4% of patients, the cause of the bleeding is never determined. Because of its ease of access, cheap cost, and therapeutic promise, colononoscopy is the primary study of choice for the treatment of LGIB. In our research, colonoscopy was also utilized as the most common and first diagnostic method, and it was able to identify the source of the bleeding in 96% of patients. Strate and Naumann obtained an 82% diagnostic yield for colonoscopic composite diagnostic yield [19]. CTA was positive in 12.5% of patients, which is comparable with the findings of Al Qahtani et al. [20], who discovered that CTA could locate the bleeding location in 19% of instances. In another retrospective investigation, Browder et al. discovered that CTA had a 35% sensitivity in localizing the bleeding source. WCE is an essential new method for localizing the bleeding location in occult GI bleed [21]. According to Sodhi et al. [22], the overall sensitivity of WCE for detecting bleeding sites is 48% [22]. In our investigation, CTE revealed a bleeding lesion in 48% of the patients. In the research by Hara et al. [23], CTE was 33% sensitive in determining the source of GI bleeding. LGIB in an older age group reflects the fact that the underlying disorders (e.g., diverticulosis, ischemic colitis) frequently worsen with age. Diverticular illness is mainly a Western disease. However, there

are distinctions between developing and developed nations in terms of the causes of LGIB. The disparity might be attributed to genetic, environmental, behavioral, and nutritional differences across racial groupings. In our analysis, colorectal polyps accounted for just 8.7% of all causes of LGIB. Other investigations have shown different outcomes. Mozhgan Zahmatkeshan et al. [24], in their investigation of 363 patients with LGIB, discovered polyps in 25% of cases and IBD in 10.2% of cases. Similarly, in the research by Wajeehudin et al., [25], polyps were the most prevalent cause of LGIB, accounting for 56% (45/80).According to a research conducted by Bai and Jun Penget, IBD was responsible for 20% of LGIB patients [26]. In the research of Farzaneh Motamed et al. [27], polyps accounted for 34.7% of the cases of LGIB. Colonic diverticulosis is a frequent condition in the Western world [28].The real frequency of diverticula is unknown, however an observational research of 9086 consecutive colonoscopy patients found a prevalence rate of 27%, which increased with age [29]. According to certain studies, diverticula have no gender preference, and the frequency of diverticula in people over the age of 80 is as high as 60%. Despite the fact that diverticulosis of the colon becomes more common with age, it is still uncommon in rural Asia and Africa. In Southeast Asia, the prevalence ranges from 8% to 22%[30].We discovered diverticular In our study, illness and angiodysplasia were the causes of LGIB in 3.4% and 2.6% of cases, respectively.

Conclusion

Hemorrhoids were the most prevalent cause of lower gastrointestinal hemorrhage (30.8%), followed by anorectal growth (15.3%). Among the various causes of lower GI hemorrhage in our research, ulcerative colitis, colonic expansion, nonspecific colitis, and anal fissure all played a major role. Colonoscopy was the first and most common examination done to evaluate lower GI bleeding. Only a small number of patients needed blood transfusions.

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