ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

Etiology, Clinical picture and Diagnosis of Lower Gastrointestinal bleeding at a Tertiary Care Institute in Eastern Odisha - A Retroprospective Study

Dr.Suryakanta Parida [1], Dr. Reshu Khandelwal [1], Dr. Satyajit Samal [2], Dr. Satya Prasad Samantaray [3,*]

[1]Dept. of Gastroenterology, SCB Medical College, Cuttack, Odisha, India
[2]Dept. of Urology, SCB Medical College, Cuttack, Odisha, India
[3]Dept. of Surgical Gastroenterology, SCB Medical College, Cuttack, Odisha, India
*Corresponding author.
Satya Prasad Samantaray. Mobile no- 9437078782,
E-mail address: spsamantaray@yahoo.com

ABSTRACT

Aim of the Study: To determine the different etiologies, clinical evaluation, and need for blood transfusion in lower gastrointestinal bleeding patients admitted at a tertiary care institution of eastern Odisha.

Materials and Methods: A total of 988 cases were included in the study which consisted of824 retrospective cases and 164 prospective casesin the Gastroenterology Department, S.C.B. Medical College and Hospital, Cuttack, Odisha. Information was compiled by analysing the case sheets of retrospective cases. Prospective patients were managed as per departmental protocol and details of all investigations and treatments done were documented.

Results: Patients aged >40 years were the most commonly affected constituting 56% (533/988) of studied population. Males constituted 70.5% (697/988) and females 29.5% (291/988).Mean age of males was 43.23±10.65 years compared to females (42.79±16.53years). Hemorrhoids was found to be the most common pathologyin colonoscopy and was seen in 30.8% (*n* =305) patients. Anorectal growth was found in 15.3% casesand colonic growth in 9.7%.Inflammatorylesions were seen in14% (139/ 988) of patients. Colonic polyp was found in 4.8% of patients compared to rectal polyp in 3.9%. Mean haemoglobin level of males was 10.64±3.79 g/dl compared to females (10.83±3.69 g/dl). Only7.8% (77/988) patients required blood transfusion as their haemoglobin level dropped to <7gm/dl.

Conclusion: Hemorrhoids was the most frequent diagnosis of lower gastrointestinal bleeding followed by anorectal growth. Colonoscopy was the first and most frequent investigation used for the evaluation of lower gastrointestinal bleed. Only few patients required blood transfusion.

Key words: Lower gastrointestinal bleed, Colonoscopy, Haemorrhoids, Anorectal growth, Blood transfusion

INTRODUCTION

Bleeding site distal to ligament of Treitz is defined as lower gastrointestinal bleeding (LGIB).It remains a frequent cause of hospitalization and an important determinant in hospital morbidity and mortality, particularly among elderly patients.There is a paucity of

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

Indian data regarding etiology, clinical evaluation and diagnosis of lower gastrointestinal bleed.Roughly 20% cases of acute GI bleeding are due to lower gastrointestinal (GI) tract bleeding(1). Lower gastrointestinal bleeding within three days is considered as acute bleeding. This might result in instability of vital signs, anaemia and/or the need for blood transfusion (2). Chronic LGIB implies that the blood loss is slow or intermittent, as in the passage of blood from the rectum over a period of several days or longer. LGIB can be overt, i.e., hematochezia or melena; or can be occult, i.e.,unexplained iron deficiency anemia and/or positive fecal occult blood testing result(3).The incidence of LGIB ranges from 20.5 to 27 cases/100,000 adults in the west. Indian experience is different from the west, where the patients are younger, localization is possible in the majority of patients, mortality is lower and re‐bleed rate is only 4% (4).Compared with acute upper GI bleeding (UGIB), patients with acute LGIB experience shock less frequently, i.e., 19% vs. 35%, require fewer blood transfusions (36% vs. 64%) and have a higher hemoglobin level, i.e., 84% vs. 61% (5).Bleeding from the small bowelis more profuse than bleeding from colon and requires more blood transfusions. Overall mortality rate of LGIB ranges from 2% to 4%. Theetiology of LGIB changesdepending upon the age, longevity of the population, dietary habits, life style,history of smoking or drug intake, etc. Majority of western data reveal that the most common source of LGIB is colonic diverticula followed by angiodysplasia, ischemic and infectiouscolitis, chronic inflammatory bowel disease (IBD), neoplasm, small bowel bleeding and postpolypectomy bleeding. The etiology of LGIB is entirely different in the Indian studies (6).Nonspecific ulcers are the most common(30% of cases) followed by enteric ulcers-15%, amebic ulcers-6%, tubercular ulcers-6%, angiodysplasia-6%, neoplasm-6%and others (7).Colonoscopy is an effective initial investigation and is very convenient.Acute episode of bleeding usually causespoor view with subsequentnon-visualization of bleeding source. Early colonoscopy in an unprepared bowel is advised by some authors while others prefer a more expectant approach (8). One study concluded that colonoscopy was safe and accurate without bowel preparation and therapeutic procedures could be accomplished with minimal complications. Lesions could be localized accurately in 97% of patients (9).Computed tomography [CT] colography and magnetic resonance [MR] colography, which are also known as virtual colonoscopy, though non-invasive, provideinferior results than colonoscopy (10). Preoperative localization of a bleeding source is also possible with complementary investigations like selective visceral angiography and radioisotope scanning (11).Scintigraphy with 99mTc‐radiolabeled sulfur colloid can detect active bleeding as slow as 0.1–0.5 ml/min, but itdoes not localize the exact site of bleeding. Angiography detectstheaccurate bleeding sitewhen the rate of bleeding is 0.5–1 ml/min. It is also therapeutic as interventions like embolization and infusion of vasopressin can be done. Small bowel bleeding is difficult to diagnose. Endoscopic option for examination of the small bowel is by push enteroscopy with pediatric colonoscope, which is widely available (12).Double‐balloon enteroscopy first found its place in 2001. The gold standard of examination for small bowelbleedingis intraoperative enteroscopy (surgeon guides the endoscope). Wireless capsule endoscopy (WCE) is a new technology where the patient swallows a battery‐powered pill‐sized camera which sends wireless images to a data recorder while traversing through the bowel (13). Barium study of the small bowel and colon is of little help in the investigation of LGIB. Small bowel enteroclysis (per‐oral small bowel intubation and delivery of contrast) provides a more accurate picture than barium swallow(14). In the majority of patients bleeding stops spontaneously and hence active treatment is needed for a small group of patients. The treatment options include therapeutic colonoscopy, angiography and surgery. The colonoscopic interventional options are electrocautery, injection,“heater probe” and laser coagulation.Surgical intervention is warranted for those who continue to bleed or re‐bleed after initial cessation (15).

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

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.

MATERIALS AND METHODS

This study was conducted in the Gastroenterology Department of S.C.B. Medical College& Hospital, Cuttack, Odisha, India. This medical college is one of the high-volume hospitals of eastern India andis a referral centre for gastrointestinal diseases. As both groups were included in this study,it is both a retrospective as well as prospective study. Upper GI endoscopy (UGIE) was done in all patients with GI bleeding. Patients without any lesion or lesions which were thought not accounting for the current GI bleeding such as gastritis, clean based or healed gastroduodenal ulcers in UGIE were included in the study. All patients were evaluated by colonoscopy. Intermittently bleeding patients where the bleeding was not profuse underwent CT Enterography (CTE).CT Angiography (CTA) was done if the bleeding was significant and persistent. Twopatients with nondiagnostic colonoscopic findings were sent for RBC Scanning.

Retrospective group

This group included patients who were admittedin the department for LGIBfrom January 2011 to December 2015 for evaluation and treatment. Available case records were analysed to obtain these data:age, sex, use of nonsteroidal anti‑inflammatory 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 etc.Proformawas filled upfor each patient which contained the findings of upper GI endoscopy, colonoscopy; CTE and CTA if done and the received therapy during hospitalization.

Prospective group

This group included patients who were admitted in the department for LGIB from January 2016 to December 2016 for evaluation and treatment. History was taken in detail and thorough physical examination was done in all patients. Complete blood count, kidney function test, liver function test, coagulation profile, and other relevant investigations were also done in all patients. Written informed consent was taken for all invasive procedures.CTA was done according to requirement. All LGIB patients, including those with undetermined etiology, were treated with supportive measures like intravenous fluids, correction of electrolyte and metabolic abnormalities, blood transfusion at a hemoglobin level of <7g/dl, & other symptomatic treatments. Patients with infective colitis & IBD were managed with medical treatment. Endoscopic therapy was given in the form of injection therapy (adrenaline, sclerosantsetc.). Patients whose bleeding was not amenable to or not responding to endoscopic therapy were offered surgery and the intraoperative findings were filled up in the proforma.

RESULTS

Baseline characteristics

This study included 988 patients who met inclusion criteria. Among them,there were 824 retrospective cases and 164 prospective cases. Details of the baseline characteristics are summarized in Table I.Younger population group (<40 years) was most commonly affected

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

constituting 56% (533/988) of studied population. Mean age of males and females was 43.23±10.65 years and 42.79±16.53 years respectively. Males constituted 70.5% (697/988) and females constituted 29.5% (291/988).Malepatients had a mean hemoglobin level of10.64±3.79 g/dl and female patients had a mean hemoglobin level of 10.83±3.69 g/dl. Only 28% (n=277) patients required blood transfusion. Underlying comorbid conditions were seen in 33% of patients (326/988). Out of these, 11.33% had diabetes mellitus, 8.5% had hypertension and 7.2% had both diabetes mellitus and hypertension. Twenty-three patients suffered fromchronic kidney disease (CKD). Chronic liver disease (CLD) was found in 36 patients. Both these diseases combinedly constituted 6% of total patient population (59/988).

Table I. Baseline characteristics

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

Etiology

Different etiologiesof LGIB found on colonoscopy in this study are mentioned in Table II.Hemorrhoids was found to be the most common pathology and was seen in 30.8% (*n* =305) patients. Anorectal growth was found in 15.3% (n=151) patients compared to colonic growth in 9.7% (n=96). Ulcerative colitis was seen in 11.8% (117/988), whereas nonspecific colitis was seen in 9% patients (89/988). Colonic polyp was found in 4.8% of patients and rectal

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

polyp in 3.9%. Anal fissure was seen in 7.5% (74/988) of patients and rectal ulcer in 3.75% (37/988). Other unusual causes such as diverticular disease and angiodysplasia comprised 3.4% (n=33) and 2.6% (n=26) of cases respectively. Cause of LGIB could not be ascertained in about 2.4% patients (n=24) even with newer investigations like CTA & CTE.

Table II. Colonoscopic 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

Clinical picture

The most frequent clinical picture of LGIB in our patient population was hematochezia (59.4%, 587/988) followed by bloody diarrhea (24%, 237/988) and anorectal bleed (13.9%, 137/988). The least common presentation was melena (2.7%, 27/988).

Diagnostic modalities

A total of988 patients underwent colonoscopic evaluation.Localization of LGIB was possible in 948 patients (95.95%). CTE revealed positive findings in 48% of cases (12/25). Four patients were found to have enteric strictures and 8 patients had enteric polyps. CTA was positive in 12.5% of patients (2/16). One patient had a lesion in the form of vascular dilatation in right colon and the other was found to have sigmoid diverticular bleed. Two patients with positive RBC scans were found to have Meckel's diverticulitis.

DISCUSSION

LGIB occursat extremes of age; but the etiology varies according to the age group. Most studies reveal that LGIB predominantly affects elderly individuals with a mean age of >65 years. (15, 16).The annual incidence rate of hospitalization for LGIB increases with respect to age. It rises from 1/100,000 patients in the third decade of life to over 200/100,000 in patients in the ninth decade. Our study also revealedsimilar result and the elderly age group (>40

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

years) constituted 56% of our studied patients.Older age group also predisposes to concurrent comorbid illnesses. Studies show that at least one comorbidity exists in at least 70% of patients with LGIB (17). Comorbidity like vasculopathy might increase the risk of bleeding. Similarly, anticoagulants and antiplatelet drugs used in cardiovascular diseases may also cause bleeding.
Our study found that 33% (n=326) of patients had comorbid conditions such as diabetes mellitus,hypertension, CLD and CKD. Diabetes mellitus was the most frequently associated comorbidity (11.33%) and more than one comorbidity was found in 7.2%.The paucity of comorbidity in this present study is probably due to the fact that a significant proportion of the studied population are children and young adults in contrast to other studies.Males are generally more commonly affected than females (18).The male predominance of LGIB (70.5% vs. 29.5%) is also revealed in our study.

Hematochezia is the most common presentation in patients with LGIB. Many patients also present with anorectal bleed and bloody diarrhea.Few patients present with melena and the bleeding site in these cases is usually the small intestine. So, clinical picture may also give a clue to the source of the LGIB. Our study also reveals hematochezia as the most frequent presentation of LGIB (59.4%).Bloody diarrhea (24%), anorectal bleed (13.9%) and melena (2.7%) are less frequent presentations.Bleeding source is never identified in approximately 4% of patients.Colonoscopy is the firstinvestigation of choice for the management of LGIB because of its easy availability, low cost and therapeutic potential. Our study also used colonoscopy as the most frequent and initial diagnostic tooland it enabled to identify the bleeding source in 96% of patients.Similar results have been shown by Strate and Naumann, who found the colonoscopic composite diagnostic yield of 82% (19).CTA was positive in 12.5% of patients, which is consistent with the study by Al Qahtani et al., who found that CTA localized the bleeding site in 19% cases (20).Browder et al., in another retrospective study, found that CTA had a sensitivity of 35% in localization of the bleeding source.WCE, used in occult GI bleed, is an important new tool for localization of bleeding site(21).Overall sensitivity of WCE for detection of bleeding site is 48% (22) in the study by Sodhi et al. (22).In our study, CTE showed bleeding lesion in 48% patients. CTE was 33% sensitive in detecting source of GI bleeding in the study by Hara et al. (23).

LGIB at an older age group reflects that the underlying diseases usually tend to occur with ageing (e.g., diverticulosis, ischemic colitis).Diverticular disease is essentially a disease of the western world. However, there are differences between developing countries and western countrieswith respect to different causes of LGIB. The difference could be due to genetic, environmental, lifestyle and dietary difference between the differentracial groups. Colorectal polyps constituted only 8.7% of all the causes of LGIB in our study. Other studies do not reveal similar results.Polyps were found in 25% of cases and IBD in 10.2% of cases in their study of 363 patients with LGIB by Mozhgan Zahmatkeshan et al. (24).Similarly,polyps were the most common cause of LGIB comprising 56%(45/80) in the study by Wajeehudin et al., (25).The study by Bai and Jun Penget revealed that 20% of cases of LGIB were due to IBD (26). Polyps constituted 34.7% case of LGIB in the study by Farzaneh Motamed et al. (27). Colonic diverticulosis is a common disease in western countries (28).The true prevalence of diverticula is not known, but an observational study of9086 consecutive patients who had undergone colonoscopy revealed a prevalence rate of 27%, and it increased with advancing age (29).According to some studies,there is no sex predilection of the diverticula and the prevalence of diverticula in patients older than 80 years of ageare as high as 60%. Though the incidence of diverticulosis of the colon increases with age, it is still rare in rural Asia and Africa. The prevalence varies from 8% to 22% in Southeast Asia(30).We found diverticular

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

disease and angiodysplasia as cause of LGIB in 3.4% and 2.6% of cases respectively in our series.

CONCLUSION

Hemorrhoids was the most common diagnosis (30.8%) of lower gastrointestinal bleeding followed by anorectal growth (15.3%). Ulcerative colitis, colonic growth, nonspecific colitis and anal fissure also contributed significantly among the other causes of lower GI bleed in our study. Colonoscopy was the first and most frequent investigation used for the evaluation of lower GI bleed. Only few patients required blood transfusion.

REFERENCES

1. Wilcox CM, Alexander LN, Cotsonis G. A prospective characterization of upper gastrointestinal hemorrhage presenting with hematochezia. AmJ Gastroenterol. 1997;92:231‐5.
2. Leerdam ME, Ramsoekh D, Rauws EA, Tytgat GN. Epidemiology ofacute lowerintestinal bleeding.GastrointestEndosc. 2003;57:93.
3. Leitman IM, Paull DE, Shires GT 3rd. Evaluation and management ofmassive lower gastrointestinal hemorrhage. Ann Surg. 1989;209:175‐80.
4. Farrell JJ, Friedman LS. Review article: The management of lowergastrointestinal bleeding. Aliment PharmacolTher. 2005;21:1281‐98.
5. Peura DA, Lanza FL, Gostout CJ, Foutch PG. The American collegeof gastroenterology bleeding registry: Preliminary findings. Am JGastroenterol. 1997;92:924‐8.
6. Zuckerman GR, Prakash C. Acute lower intestinal bleeding: Part I:Clinical presentationand diagnosis. GastrointestEndosc. 1998;48:606‐17.
7. Khandelwal C. Lower gastrointestinal bleeding. Indian J Surg. 2003;65:151‐5.
8. Richter JM, Christensen MR, Kaplan LM, Nishioka NS.Effectivenessof current technology in the diagnosis and management of lowergastrointestinal hemorrhage.GastrointestEndosc. 1995;41:93‐8.
9. Chaudhry V, Hyser MJ, Gracias VH, Gau FC. Colonoscopy: The initialtest for acute lower gastrointestinal bleeding. Am J Surg. 1998;64:723‐8.
10.Nicholson AA, Ettles DF, Hartley JE, Curzon I, Lee PW, Duthie GS, et al.Transcatheter coil embolotherapy: A safe and effective option for majorcolonic haemorrhage. Gut. 1998;43:79‐84.
11. Peck DJ, McLoughlin RF, Hughson MN, Rankin RN. Percutaneousembolotherapy of lower gastrointestinal hemorrhage. J VascIntervRadiol. 1998;9:747‐51.
12. Costamagna G, Shah SK, Riccioni ME, Foschia F, Mutignani M, Perri V,et al. A prospective trial comparing small bowel radiographs and videocapsule endoscopy for suspected small bowel disease. Gastroenterology. 2002;123:999‐1005.
13. Manning‐Dimmitt LL, Dimmitt SG, Wilson GR. Diagnosis ofgastrointestinal bleeding in adults. Am Fam Physician. 2005;71:1339‐46.
14. Fernández E, Linares A, Alonso JL, Sotorrio NG, de la Vega J,Artimez ML, et al.Colonoscopic findings in patients with lowergastrointestinal bleeding send to a hospital for their study. Value ofclinical data in predicting normal or pathological findings. Rev EspEnferm Dig. 1996;88:16‐25.
15. Govil D, Sahni P. Lower gastrointestinal haemorrhage. GI Surgery Annual. 1994;1:93‐103.

ISSN: 0975-3583,0976-2833 VOL13,ISSUE07,2022

16. Longstreth GF. Epidemiology and outcome of patients hospitalized withacute lower gastrointestinal hemorrhage: A population‐based study. AmJ Gastroenterol. 1997;92:419‐24.
17. Okamoto T, Watabe H, Yamada A, Hirata Y, Yoshida H, Koike K. Theassociation between arteriosclerosis related diseases and diverticularbleeding.Int J Colorectal Dis. 2012;27:1161‐6.
18. Onyekwere CA, Odiagah JN, Ogunleye OO, Chibututu C, Lesi OA.Colonoscopy practice in Lagos, Nigeria: a report of an audit. DiagnTherEndosc. 2013;2013:6.
19. Strate LL, Naumann CR. The role of colonoscopy and radiologicalprocedures in the management of acute lower intestinal bleeding.ClinGastroenterolHepatol. 2010;8:333‐43.
20. Al Qahtani AR, Satin R, Stern J, Gordon PH. Investigative modalities formassive lower gastrointestinal bleeding. World J Surg. 2002;26:620‐5.
21. Browder W, Cerise EJ, Litwin MS. Impact of emergency angiography inmassive lower gastrointestinal bleeding. Ann Surg. 1986;204:530‐6.
22. Sodhi JS, Ahmed A, Shoukat A, Khan BA, Javid G, Khan MA,et al. Diagnostic role of capsule endoscopy in patients of obscuregastrointestinal bleeding after negative CT enterography. J Dig Endosc. 2013;4:107‐13.
23. Hara AK, Walker FB, Silva AC, Leighton JA. Preliminary estimate oftriphasic CT enterography performance in hemodynamically stablepatients with suspected gastrointestinal bleeding. Am J Roentgenol. 2009;193:1252‐60.
24. Zahmatkeshan M, Fallahzadeh E, Najib K, Geramizadeh B, Haghighat M,Imanieh MH. Etiology of lower gastrointestinal bleeding in children:A single center experience from southern Iran. Middle East J Dig Dis. 2012;4:216‐23.
25. Wajeehuddin A, Brohi AR. Per rectal bleeding in children. J SurgPak (International). 2008;13:47-50.
26. Bai Y, Peng J, Gao J, Zou DW, Li ZS. Epidemiology of lowergastrointestinal bleeding in China: single‐center series and systematicanalysis of Chinese literature with 53,951 patients.
27. Motamed F, Najafi M, Khodadad A, Fallahi G, Fatemeh F, Sobhani M.Colonoscopic findings in children with lower gastrointestinal bleeding.Govaresh. 2008;13:54‐7.
J GastroenterolHepatol. 2011;26:678‐82.
28. Campbell WB, Lee EJ, Van de Sijpe K, Gooding J, Cooper MJ. A 25‐year studyof emergency surgical admissions. Ann R CollSurgEngl. 2002;84:273‐7.
29. Loffeld RJ, Van Der Putten AB. Diverticular disease of the colon andconcomitant abnormalities in patients undergoing endoscopic evaluationof the large bowel. Colorectal Disease. 2002;4:189‐192.
30. Munakata A, Nakaji S, Takami H, Nakajima H, Iwane S, Tuchida S.Epidemiological evaluation of colonic diverticulosis and dietary fiberin Japan. Tohoku J Exp Med. 1993;171:145‐51.