



LGIB & the Elderly: Perspective from the Developing World

Shakeel Ahmad Mir¹, Rajandeep Singh Bali^{1*}, Baabul Bansal²,
Syed Mushtaq Ahmad Shah¹, Varun Dogra³ and Sushanto Neogi²

¹ MS General Surgery, Govt. Medical College Srinagar, Jammu and Kashmir, India.

² MS General Surgery, Maulana Azad Medical College, Delhi, India.

³ Govt. Medical College Jammu, Jammu and Kashmir, India.

Authors' contributions

This work was carried out in collaboration between all authors. Authors SAM and RSB designed the study, wrote the protocol, and wrote the first draft of the manuscript. Authors BB and SMAS managed the literature searches and analyses of the study. Authors VD and SN were instrumental in writing the final draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To ascertain the common causes of LGIB in the elderly and to evaluate sigmoidoscopy and colonoscopy as the initial investigation for diagnosing LGIB in the elderly in the developing world.

Materials and Methods: The study was conducted over a period of two years at SMHS Hospital and Government Medical College Srinagar, a tertiary care centre, Jammu & Kashmir. All the patients above the age of 60 years, presenting with symptoms or complaints of LGIB to the OPD's and casualty services of the said hospital were enrolled in the study. Exclusion Criteria: Cases presenting with LGIB which were proved by any diagnostic procedures or during laparotomy to originate from any source proximal to ligament of Treitz.

Results: The commonest cause of LGIB in our study was local anal disease [haemorrhoids and anal fissures] followed by carcinoma colorectum, inflammatory bowel disease [IBD], solitary rectal

*Corresponding author: E-mail: rajandeepbali@gmail.com;

ulcers [SRUS] and colonic polyps, in the order of decreasing frequency. Colonoscopy was able to detect the cause of LGIB in all our study subjects.

Conclusion: Despite the small number of patients in our study group, it can be concluded that the cause of LGIB in the elderly in our part of the world differs from that of the developed world, although the reasons for this remain unexplained and require more research. As such, elderly patients with complaints of LGIB should be offered the benefits of colonoscopy unless contraindicated by their co-morbidities because of the fact that they may be harbouring a sinister cause of LGIB, i.e., colorectal malignancy.

Keywords: LGIB; colorectal; colonoscopy; elderly.

1. INTRODUCTION

Hemorrhage from the lower gastrointestinal tract accounts for about 20% of all cases of acute gastrointestinal bleeding [1]. Lower gastrointestinal bleeding (LGIB) has traditionally been defined as an abnormal loss of blood beyond the ligament of Treitz. Lately it has been shown that bleeding from the small intestines represents a distinct entity, this is due to the fact that results from capsule and double-balloon endoscopy have revolutionized the management algorithm of small bowel bleeding [2]. It, therefore, seems reasonable to divide gastrointestinal bleeding into three categories: Upper, middle and lower. We define LGIB as the acute or chronic loss of blood from a source in the colon or ano-rectum.

In the US, the incidence of LGIB ranges from 20.5 to 27 cases per 100,000 adults [3]. The incidence increases with age, with a >200-fold increase between 20 and 80 years. LGIB occurs more often in men than in women [4]. In the elderly the increased incidence of LGIB is due to the increased incidence of specific GI diseases, co-morbid illnesses and polypharmacy [5].

The sources of acute LGIB and their frequency as reported in the literature are diverticulum, angiodysplasia, colitis, neoplasia, postpolypectomy bleeding, anorectal disease, upper gastrointestinal bleeding and small bowel bleeding in 17-40%, 9-21%, 2-30%, 11-14%, 11-14%, 4-10%, 0-11% and 2-9% respectively [6].

The causes of chronic LGIB and their frequency are more difficult to determine, although they cause 18–30% of iron-deficiency anaemia, the most common manifestation of chronic gastrointestinal bleeding are: Colon carcinoma [4.5-11%], angiodysplasia [0.9-8.5%], colon polyps [2.8-7.5%], colitis [1.4-2%] [7-11].

In the elderly the common GI illnesses associated with LGIB include diverticulosis coli,

vascular ectasia, ischemic colitis and colonic neoplasm [5].

Flexible endoscopy is now considered the mainstay for evaluation of acute and chronic colonic bleeding. Colonoscopy is recommended as the first step in the evaluation of acute LGIB [12]. The timing of colonoscopy after initial presentation varies among studies from 12 h to 48 h [12]. Colonoscopy can determine the source and type of bleeding, and can help to identify patients with ongoing hemorrhage or those who are at high risk of rebleeding. Furthermore, endoscopic hemostasis can be performed, if necessary.

The diagnostic yield for urgent colonoscopy in acute LGIB is 89–97% [13,14]. EGD should be carried out in patients with iron-deficiency anaemia if colonoscopy fails to detect the source of bleeding.

Nuclear scintigraphy is a sensitive method for detecting gastrointestinal bleeding at a rate of 0.1 ml/min. The method is more sensitive, but less specific, than angiography [15].

Visceral angiography is estimated to only detect active bleeding when the rate is at least 0.5–1 ml/min [16,17]. Studies have shown that CT angiography is highly sensitive and specific for diagnosing colonic angiodysplasia [18,19].

Because of the non-availability of diagnostic procedures required to pinpoint bleeding site in small gut like mesenteric angiography, technetium 99 scans, push enteroscopy, etc., in our study we focused on the etiology and diagnosis of LGIB originating from colon and anorectal region in the elderly, utilizing the diagnostic modalities, like – proctoscopy, sigmoidoscopy, colonoscopy, CT scans available at SMHS hospital and Government Medical College, Srinagar.

1.1 Aim

1. To ascertain the common causes of LGIB in the elderly.
2. To evaluate sigmoidoscopy and colonoscopy as the initial investigation for diagnosing LGIB in the elderly.

2. MATERIALS AND METHODS

This study was conducted at the Postgraduate Department of Surgery, SMHS Hospital and Government Medical College Srinagar, a 750 bed tertiary care centre. The study was conducted over a period of 2 years. All the patients above the age of 60 years, presenting with symptoms or complaints of LGIB to the OPD's and casualty services of SMHS Hospital and Government Medical College Srinagar, were enrolled in the study. The patients were assessed according to the following protocol after they were explained about the study and proper consent was taken from them.

- 1) A detailed clinical history.
- 2) A detailed clinical examination with special stress upon digital rectal examination and proctoscopy.
- 3) Routine investigations i.e. complete blood count, kidney function tests, electrolytes [Na⁺ K⁺], electrocardiography, urine-routine examinations, liver function tests, SGOT and SGPT, blood grouping and cross-matching.
- 4) Coagulation profile
- 5) Ultrasonography of abdomen
- 6) Sigmoidoscopy
- 7) Colonoscopy
- 8) Biopsy or FNAC of solid gut masses in selected patients
- 9) Computerized tomography scans of selected patients.
- 10) Esophago-gastro-duodenoscopy of selected patients.

2.1 Exclusion Criteria

Cases presenting with LGIB which were proved by any diagnostic procedures or during laparotomy to originate from any source proximal to ligament of Treitz.

3. RESULTS

A total of 100 patients aged above 60 years who fulfilled the inclusion and exclusion criteria were

part of our study group. The youngest and the oldest patients in our study were 60 & 81 years old male patients respectively. The mean age of presentation was 68 years.

The commonest cause of LGIB in our study was local anal disease [haemorrhoids and anal fissures] followed by carcinoma colorectum, inflammatory bowel disease [IBD], solitary rectal ulcers [SRUS] and colonic polyps, in the order of decreasing numbers as is shown in Table 1. Two of the patients harbouring a colorectal malignancy had haemorrhoids also.

Table 1. Cause of LGIB

Cause / Etiology	Number of patients
Local anal disease [haemorrhoids and anal fissures]	69
Carcinoma colorectum	20
Inflammatory bowel disease [IBD]	6
Solitary rectal ulcers [SRUS]	3
Colonic polyps	2

The patients were included irrespective of their sex. There were 61 male and 39 female patients in our study. The causes of LGIB affected both the sexes, as is shown in Table 2.

As the patients were investigated with proctoscopy, sigmoidoscopy and colonoscopy to localise the site and cause of bleeding, we found that colonoscopy had the highest pick up rate for detecting lesions of the colon, rectum and anal canal, as is evident in Table 3. The chi-square statistic for Table 3 is 37.8039. The P-Value is <0.00001 and hence the result is significant [p < 0.05].

The local anal diseases [haemorrhoids & anal fissures] were managed by sclerotherapy [sodium tetradecyl sulphate], open hemorrhoidectomy and lateral internal sphincterotomy. Of the 20 patients who presented with LGIB and were diagnosed to have carcinoma colorectum, 13 had malignancy of the recto-sigmoid [7], sigmoid colon [3] and rectum [3] and 7 had malignancy of the ascending colon [4], cecum [2] and transverse colon [1], all of them were managed accordingly with surgery and chemo-radiotherapy [neo adjuvant or adjuvant]. IBD patients were provided the necessary treatment by the gastroenterologist. Solitary rectal ulcers [3] were

Table 2. Sex distribution according to cause

Cause / Etiology	Male	Female	Total
Local anal disease [haemorrhoids & anal fissures]	41	28	69
Carcinoma colorectum	12	8	20
Inflammatory bowel disease [IBD]	5	1	6
Solitary rectal ulcers [SRUS]	2	1	3
Colonic polyps	1	1	2

Table 3. Diagnostic pick up rate of different investigations in identifying the source of LGIB

S. no.	Investigation	Number of patients in whom the cause was detected by the said investigation
1.	Proctoscopy	69
2.	Sigmoidoscopy	86
3.	Colonoscopy	100

managed by dietary and life style modifications. There were two patients in our study group who had a solitary colonic polyp in the sigmoid colon, each. Both were pedunculated and polypectomy was done at the time of colonoscopy, on histopathology both came out to be adenomas, the patients are being followed up with colonoscopic surveillance.

All the patients in our study group did not report any further episode of LGIB on follow-up after they received treatment at our hospital from the concerned specialities.

4. DISCUSSION

According to Maxwell MC, in the elderly, LGIB is a cause of increased morbidity and mortality world-over and its incidence increases with age. Moreover a successful outcome can be achieved in majority of elderly patients having LGIB with appropriate evaluation and management [5].

We conducted our prospective study to know the etiology and management of LGIB in the elderly. In our study we enrolled the first 100 patients who came to our outpatient department with complaints of LGIB and fulfilled our inclusion and exclusion criteria. The mean age of presentation in our study was 68 years. This is in concurrence with Farrell JJ and Friedman LS who in their review have stated that the age range of patients with LGIB is 63-77 years [3]. Bokhari M, et al in their study found 79 years to be the mean age of presentation of LGIB [20]. This difference in the mean age of presentation in our study and that by Bokhari M could be explained by the difference in the number of patients in the respective studies.

The leading cause of LGIB in the elderly in our study was LAD [69%] followed by carcinoma colorectum [20%], IBD [6], SRUS [3] and colonic polyps [2%], in the order of decreasing frequency. According to Maxwell MC the etiology of LGIB in the elderly is diverticulosis coli, vascular ectasia, IBD of the colon, neoplasms, post-polypectomy bleeding, haemorrhoids, stercoral ulcers, solitary ulcer syndrome, Dieulafoy's lesions and colorectal varices [5]. This is not in accordance with our study and may be explained due to the more dietary fibre content in our diet than our western counterparts leading to very less incidence of diverticulosis in our part of the world. The reasons for carcinoma colon being the second most common cause of LGIB in our part of the world could not be found in the literature and as such we must emphasise the point that further studies from our part of the world are needed to evaluate it.

The male to female ratio in our study was 1.5:1, respectively. Maxwell MC has also stated that the incidence of LGIB in the elderly is more in males than female [5]. Also, this high male to female ratio in our study is probably due to the under-reporting of LGIB by elderly females because of the conservative set up of our society.

The cause of LGIB in the elderly in our study was successfully localized by colonoscopy in all our study group patients and hence it can be said that it is the diagnostic modality of choice for localizing the source of LGIB in the elderly originating from the anorectum and the colon. Barnett J and Messmann H [21] in their study found that colonoscopy was the diagnostic and therapeutic procedure of choice for managing

acute and chronic LGIB. Akhtar AJ [22] in his study has concluded that all elderly patients should be offered the benefits of early endoscopy and therapeutic interventions unless contraindicated by their advanced directives. Moreover a patient's advanced age should not be a deterrent to any of the diagnostic or therapeutic interventions.

The major limitations of our study were our inability to assess the bleeding originating from the small bowel due to the non-availability of angiography and scintigraphy at our hospital, we could not find the reasons for malignancy to be the second most common cause of LGIB in the elderly in our setup and lastly as ours was a hospital based study we cannot comment upon the incidence and prevalence of the causes of LGIB in our setup.

5. CONCLUSION

Despite the small number of patients in our study group, it can be concluded that the cause of LGIB in the elderly in our part of the world differs from that of the developed world, although the reasons for this remain unexplained and require more research. As such elderly patients with complaints of LGIB should be offered the benefits of colonoscopy unless contraindicated by their co-morbidities because of the fact that they may be harbouring a sinister cause of LGIB, i.e., colorectal malignancy.

ETHICAL APPROVAL

All authors hereby declare that the study was approved by the appropriate ethics committee and has, therefore, been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

All the authors declare that there are no potential conflicts of interests or any financial relation with the commercial identities mentioned in the paper.

REFERENCES

1. Zuccaro G Jr. Management of the adult patient with acute lower gastrointestinal bleeding. American College of Gastroenterology: Practice Parameters Committee. *Am. J. Gastroenterol.* 1998;93:1202–1208.

2. Prakash C, Zuckerman GR. Acute small bowel bleeding: A distinct entity with significantly different economic implications compared with GI bleeding from other locations. *Gastrointest. Endosc.* 2003;58:330–335.
3. Farrell JJ, Friedman LS. Review article: The management of lower gastrointestinal bleeding. *Aliment. Pharmacol. Ther.* 2005; 21:1281–1298.
4. Longstreth GF. Epidemiology and outcome of patients hospitalized with acute lower gastrointestinal hemorrhage: A population-based study. *Am. J. Gastroenterol.* 1997;92:419–424.
5. Maxwell MC. Lower gastrointestinal bleeding in the elderly. *World J Gastrointest Endosc.* 2010;2(5):147-154.
6. Zuckerman GR, Prakash C. Acute lower intestinal bleeding. Part II: Etiology, therapy, and outcomes. *Gastrointest. Endosc.* 1999;49:228–238.
7. Yoshida Y, et al. Endoscopic treatment of massive lower GI hemorrhage in two patients with ulcerative colitis. *Gastrointest. Endosc.* 2001;54:779–781.
8. Jensen DM, et al. Prospective randomized comparative study of bipolar electrocoagulation versus heater probe for treatment of chronically bleeding internal hemorrhoids. *Gastrointest. Endosc.* 1997; 46:435–443.
9. Johanson JF, Rimm A. Optimal nonsurgical treatment of hemorrhoids: A comparative analysis of infrared coagulation, rubber band ligation, and injection sclerotherapy. *Am. J. Gastroenterol.* 1992;87:1600–1606.
10. Eisen GM, et al. Endoscopic therapy of anorectal disorders. *Gastrointest. Endosc.* 2001;53:867–870.
11. Zinberg SS, Stern DH, Furman DS, Wittles JM. A personal experience in comparing three nonoperative techniques for treating internal hemorrhoids. *Am. J. Gastroenterol.* 1989;84:488–492.
12. Eisen GM, et al. An annotated algorithmic approach to acute lower gastrointestinal bleeding. *Gastrointest. Endosc.* 2001;53: 859–863.
13. Chaudhry V, Hyser MJ, Gracias VH, Gau FC. Colonoscopy: The initial test for acute lower gastrointestinal bleeding. *Am. Surg.* 1998;64:723–728.
14. Ohyama T, et al. Analysis of urgent colonoscopy for lower gastrointestinal tract bleeding. *Digestion.* 2000;61:189–192.

15. Dusold R, Burke K, Carpentier W, Dyck WP. The accuracy of technetium-99m-labeled red cell scintigraphy in localizing gastrointestinal bleeding. *Am. J. Gastroenterol.* 1994;89:345–348.
16. Zuckerman DA, Bocchini TP, Birnbaum EH. Massive hemorrhage in the lower gastrointestinal tract in adults: Diagnostic imaging and intervention. *Am. J. Roentgenol.* 1993;161:703–711.
17. Nusbaum M, Baum S. Radiographic demonstration of unknown sites of gastrointestinal bleeding. *Surg.* 1963;14: 374–375.
18. Junquera F, et al. Accuracy of helical computed tomographic angiography for the diagnosis of colonic angiodysplasia. *Gastroenterology.* 2000;119:293–299.
19. Mindelzun RE, Beaulieu CF. Using biphasic CT to reveal gastrointestinal arteriovenous malformations. *Am. J. Roentgenol.* 1997;168:437–438.
20. Bokhari M, et al. Diverticular hemorrhage in the elderly: is it well tolerated? *Dis Colon Rectum.* 1996;39(2):191-5.
21. Barnert J, Messmann H. Diagnosis and management of lower gastrointestinal bleeding. *Nat Rev Gastroenterol Hepatol* 2009;6(11):637-46.
22. Akhtar AJ. Lower gastrointestinal hemorrhage in African-American and Hispanic elderly patients. *Ethn Dis.* 2002; 12(3):379-82.

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