

To Determine the Frequency of the Common Causes of Lower Gastrointestinal Bleeding by Colonoscopy at a Tertiary Care Hospital.

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Abstract

Objective:

To determine the frequency of the common causes of Lower Gastrointestinal Bleeding (LGIB) by Colonoscopic examination in a tertiary care hospital.

Subject and Method: This study was performed at the department of Gastroenterology, Liaquat National Hospital, Karachi. This is a cross-sectional descriptive study carried out over six months. We included patients presenting with lower gastrointestinal bleeding. History, examination and investigations were carried out. After stabilizing the patient colonoscopy was performed.

Results: A total of 139 patients were included in this study, 94(67.6%) were males and 45(32.4%) were females. The average age of the patients was 45.61 ±16.40 years. Colonoscopy showed abnormal findings in 110 (79.4%) patients. 40(28.8%) patients had internal hemorrhoids, 14 (10.1%) had rectal ulcers and 9(6.5%) had polyps; infective colitis, proctitis and colonic ulcers were noted in 8(5.8%), 6(4.3%) and 5(3.6%) patients respectively. Malignant lesions in the colon and rectum were noted in 8(5.8%) and 3(2.2%) patients while ulcerative colitis, Crohn's and diverticular disease were noted in 5(3.6%), 1(1.4%), 2(0.7%) patients respectively. 29(20.6%) patients had normal colonoscopy examination.

Conclusion: In our study bleeding from internal hemorrhoids was the leading cause of lower gastrointestinal bleeding followed by rectal ulcers and polyps.

Keywords: Lower GI Bleeding, Hemorrhoids, Rectal Ulcer, Rectal polyps, Colonoscopy.

Introduction:

Lower gastrointestinal bleeding is defined as bleeding from a source distal to the ligament of Treitz. It is a common medical emergency and remains a major cause of morbidity and mortality. It is less common than upper GI bleeding, but if it is massive, it can be a serious clinical condition. Approximately 20% of acute hemorrhage presents as massive LGIB. A recent US population based study estimated an annual incidence rate of lower GI bleeding at 20.5/100,000. The most common diagnoses were diverticulosis, colorectal cancer and ischemic colitisⁱⁱ. Factors associated with the development of acute lower GI bleeding include advanced age and use of non-steroidal anti-inflammatory medication. The mean age of patients with lower gastrointestinal bleeding ranges from 63 to 77 years, with a reported mortality rate of 2-4% among patients admitted with lower GI bleeding compared with 23.1% in patients who developed lower GI bleeding while hospitalized for another reason. The incidence of lower gastrointestinal bleeding increases with a >200 fold increase from the age of 20-80 years.

However studies conducted in Pakistan have demonstrated that there were differences in frequencies of etiologies in our population compared to Western ones. In our country, a lot of work has been done on etiology and treatment of upper gastrointestinal bleeding but lower tract remains deficient which is why we don't have comparable statistics. In a study done in Pakistan the annual incidence of LGIB was estimated to be 20% and mortality was 11%. Furthermore, ulcerative colitis (19.3%) was the leading cause of bleeding per rectum in this study, While infrequent findings of Crohn's disease (2.2%), Hemorrhoids (10.7%), polyps (6.2%), and diverticuli (2.3%) indicate that these are uncommon in this region^v. Previous evidence suggested that in our country, frequencies of different etiologies of lower GI bleed are different from the West^{iv}.

Colonoscopy is the diagnostic and therapeutic procedure of choice in LGIB. It has a very high diagnostic yield^{ii,iii,iv,v}. Colonoscopy is a very useful modality for diagnosis in most patients with severe acute LGIB requiring hospitalization. Furthermore, it is now being used more effectively for hemostasis resulting in less operative intervention to control bleedingⁱⁱ.

Therefore, the aim of this study was to determine the frequency of the common causes of Lower Gastrointestinal Bleeding (LGIB) by Colonoscopic examination in a tertiary care hospital.

Materials and Methods:

This was a Cross-sectional Descriptive Study carried out at the Department of Gastroenterology, Liaquat National Hospital, Karachi. Sample size was 139 with 95% confidence Interval and 5% margin of error, calculated

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by using the WHO's sample size calculator(version 2.0) for Health Sciences with reference of the study^{iv} by considering the vascular causes as the lowest proportion of common causes of LGIB i.e. 10.7%. It was non probability purposive sampling. The inclusion and exclusion criteria were as follows:

Inclusion criteria:

1. Both genders
2. Age --15 years to 70 years
3. Patients presenting with visible rectal bleeding as their chief complaint.
4. Duration of bleeding not > 6 months.

Exclusion criteria:

1. Already known cause of Lower gastrointestinal bleed.
2. Bleeding secondary to trauma.
3. Suspected upper gastrointestinal source of bleeding, i.e., history of haematemesis/ melena or gastric aspirates containing coffee-ground material or bright red blood.
4. Patients with hemorrhoidal bleeding established by per rectum examination or proctoscopy.
5. Known case of inflammatory bowel disease, internal hemorrhoids and GI malignancy.
6. Known case of advanced cardiac, renal and liver disease.
7. Pregnant women.

Risks and benefits of colonoscopy were discussed with the patients and relatives before the procedure and informed and written consent was taken in all cases. Subjects fulfilling the inclusion and exclusion criteria were inducted from endoscopy suite. Patients' demographic data, comorbid conditions and drug history were noted. Colonoscopy was performed by a (year?)resident or by a consultant. Bowel preparation (poor/adequate) was observed by the endoscopist. Colonoscopy findings were documented by the investigators after the procedure.

Statistical Analysis:

Statistical package for social sciences (SPSS-15) was used to analyze the data. Mean \pm Standard deviation was calculated for quantitative variables. Age, gender, endoscopist (resident/consultant), bowel prep were taken as confounders and were controlled in the study. Frequencies and percentages were calculated for qualitative variables like gender.

Results:

A total of 139 patients who presented with lower gastrointestinal were included in the study bleeding. Age ranged from 16 years to 84 years with the mean age of 45.61 \pm 16.40 years (95%CI; 42.86 to 48.36). Out of 139 patients, there were 94(67.6 %) males and 45(32.4%) females, with 2.08:1 male to female ratio.

Intermittent bleeding was the most common presenting complaint(69.8%); continuous bleeding was seen in 18.7% and spontaneous bleeding was present in 11.5% of patients.

On colonoscopic examination the cause of bleeding re-

lated to rectum was found in 72 (51.79%) patients. Internal hemorrhoids were seen in 40(28.8 %) patients, rectal ulcers were present in 14(10.1%) patients, rectal polyp in 9(6.5%), proctitis in 6 (4.3%) and rectal growth in 3 (2.2%) patients.

Bleeding related to colon was noted in 38(27.3%) patients, among whom colitis was present in 8(5.8%) patients, ileitis in 6 (4.3%) patients, iliocecal ulcers in 6 (4.3%) patients, colonic ulcers in 5(3.6%) patients, ulcerative colitis 5(3.6%) patients, colonic growth in 5(3.6%) patients, diverticular disease in 2(1.4%) and crohn's disease in 1(0.7%) patient (Table 1).

TABLE 1

PATTERN / CAUSES OF LOWER GASTROINTESTINAL BLEEDING (N= 139)

PATTERN / CAUSES	NO. OF PATIENTS	PERCENT
Normal	29	20.6%
COLONIC CAUSES – 38 (27.3%)		
Colitis	8	5.8%
Ileitis	6	4.3%
Illiocecal ulcers	6	4.3%
Colonic ulcers	5	3.6%
Ulcerative colitis	5	3.6%
Colonic growth	5	3.6%
Diverticular disease	2	1.4%
Crohn's disease	1	0.7%
RECTAL CAUSES - 72 (51.79%)		
Hemorrhoids	40	28.8%
Rectal ulcers	14	10.1%
Polyp	9	6.5%
Proctitis	6	4.3%
Rectal growth	3	2.2%
Total	139	100%

Discussion:

Lower gastrointestinal bleeding is a common medical emergency and remains a major cause of morbidity and mortality. Though less common than upper GI bleed, is a frequently encountered problem in general medical practice, especially in tertiary care hospitals like ours. This clinically significant condition has important implications for health care costs worldwide. Lower GI bleeding (LGIB) may be due to self-limiting local anorectal conditions; on the other hand it may be the only sign of colorectal neoplasia. The management of LGIB

is challenging because of the diverse range of bleeding sources, the large extent of bowel involved, the intermittent nature of bleeding, and the various complicated and often invasive investigative modalities. Colonoscopy is the first choice of investigation nowadays; questions about its timing and the need for bowel preparation remain unanswered. While some authors advocate early colonoscopy in an unprepared bowel, others advise a more expectant approach. Advances in endoscopic technology have brought colonoscopy to the forefront of the management of LGIB.

In our study the diagnostic yield of colonoscopy was 79.1%. Similar results were found in other studies: Chaudhry V et al reported 95% yield in cases of LGIB while Jensen et al documented 74% yield of colonoscopy in their study.

In our study, out of 139 patients, 94(67.6%) were male and 45 (32.2%) were female with a male to female ratio of 2.08:1. Male predominance in the studies of LGIB was also observed in other studies e.g. Saira S et al reported male to female ratio 2:1 and in another study Zia N et al^{iv} from Islamabad also revealed male predominance.

In our study the mean age of patients was 45.61 years; this is almost similar to the study by Zia N et al^{iv} from our country who documented the mean age 41.04 years in patients presenting with LGIB. Patients presenting with LGIB in our country were younger than the patients reported from the western countries where LGIB is thought to be more common in elderly people as evidenced by the studies of Longstreth GF et alⁱ (above 60 years of age). The exact reason of this age difference between our population and the western population is unknown but it could be due to difference in life span which is higher in western countries as compared to our population, lifestyle differences as well as due to varying prevalence of diseases in these two parts of the world.

A total of 139 patients were included in this study who presented with LGIB at Liaquat National Hospital Karachi. Internal hemorrhoids were the main cause of lower gastrointestinal bleeding in the majority of the patients i.e. 40 (28.8%) out of 139 patients. No local study has reported internal hemorrhoids as the commonest cause of LGIB in our population. In contrast to our study most of the international data reported diverticulosis as the commonest cause of LGIB. A study conducted by Longstreth GF et alⁱ in which 219 patients were enrolled, 41.6% had diverticulosis as the most common cause of LGIB. Other international studies also reported diverticulosis as the most common cause of Lower GI bleed such as by Chaudhry V et al (20%)^{ix}, García Sánchez M et al (29.16%). In our study diverticulosis was the cause of bleeding in only 1.4% of the patients. Diverticulosis is common in western population; this may be due to low fiber in the western diet which leads to chronic constipation and ultimately formation of diverticula.

In our study rectal ulcers were the second commonest cause of LGIB, found in 14(10.1%) patients and colonic ulcers in 5(3.6%) patients. Lin CC et al found rectal ulcers in 16.4% patients as cause of LGIB. In a local study Zia N et al^{iv} reported that 4.5% of LGIB was due to rectal ulcers. This high incidence of rectal ulcers in Western populations is thought to be due to chronic constipation.

In our study polyps were noted in 9 (6.5%) patients. A study by Zia N et al^{iv} found colonic polyps in 2.5% of their study patients whereas in an international study Forsberg AM et al found colonic polyps in 27% of their study population. This increased prevalence of colonic polyps could be due to higher incidence of colorectal carcinoma in their population and also due to better awareness of population for screening colonoscopy.

In this study colitis was noted in 14(10.1%) patients, among whom ulcerative colitis was found in 3.6% of patients, nonspecific colitis in 5.8% and Crohn's disease in 0.7% of patients. In a study Saira S et al^{xi} found nonspecific colitis in up to 46% of patients and ulcerative colitis in 16% of patients. An international study by Molodecky NA et al reported highest incidence of ulcerative colitis up to 24.3 per 100,000 and Crohn's disease up to 12.7 per 100,000 person-years in Europe. The annual incidence of UC and CD in North America is reported as 19.2 per 100,000 person-years and 20.2 per 100,000 person-years respectively.

Colonic and rectal growth was noted in 5 (3.6%) & 3 (2.2%) respectively. One patient with rectal growth was diagnosed as gastrointestinal tumor (GIST) and rest of the growths were reported as adenocarcinoma of colon or rectum. The incidence of colorectal cancers in the United States is reported to be 3.6 to 4% in white and blacks respectively. The average annual crude incidence of colorectal cancer (CRC) in Pakistan has been reported to be 3.6% in males and 3.1% in females by Bhurgri Y et al. The lower incidence of colorectal cancer in our population may be due to consumption of high fiber diet and low use of carcinogenic diet.

The terminal ileum was successfully intubated in 89.6% in the current study. Internationally, terminal intubation rate of upto 87.1% has been reported by Jeong SH et al. In our study ileitis and iliocecal ulcers were noted in 12 (8.6%) patients and histopathological analysis showed mild chronic non-specific inflammation in all patients. Terminal ileum intubation during colonoscopy identified significant pathology in 8.6% of patients in this study. However, its diagnostic yield is very low. Thus the decision to perform ileoscopy or not during colonoscopy needs to be made on a case-by-case basis. A study by Kennedy G et al concluded that intubation of the terminal ileum should not be a required part of screening colonoscopy.

In our study the exact cause of lower gastrointestinal bleeding remained unidentified in 20.6% of patients even after visualizing the whole colon and terminal ileum. Clinical evidence of obscure gastrointestinal haemorrhage ranges from 5-20% in different studies. A lesion higher

up in the small intestine or stomach may cause it, and other specialized techniques should be employed for a definite diagnosis.

Lower gastrointestinal bleed is associated with significant morbidity and mortality and colonoscopy has a very high diagnostic yield and should be considered the investigation of choice in patients presenting with bleeding per rectum. It is a safe procedure in experienced hands. Common colorectal pathologies prevalent in our population include internal hemorrhoids, rectal ulcers and polyps, nonspecific colitis and ulcerative colitis, while colorectal growth, diverticulosis, Crohn's disease and angiodysplasia are found less frequently. Furthermore bleeding per rectum afflicts relatively younger patients in our country. However findings of this study require confirmation by similar studies including larger numbers of patients.

Conclusion:

We concluded that colonoscopy has a very high yield in cases of LGIB. We also concluded that LGIB was more common among younger population in this study and internal hemorrhoids, rectal ulcers and polyps were more frequently present in our study population while inflammatory bowel disease IBD, diverticulosis and colorectal carcinoma were less frequent.

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