

**DOI:**

10.22301/IJHMCR.2528-3189.744

Article can be accessed online on:  
<http://www.ijhmcr.com>

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**ORIGINAL ARTICLE**  
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**INTERNATIONAL JOURNAL  
OF HEALTH MEDICINE AND  
CURRENT RESEARCH**

## **ETHIOLOGY OF LOWER GASTROINTESTINAL BLEEDING: A CROSS SECTIONAL STUDY IN IRAN DURING 2013 TO 2015**

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### **ARTICLE INFO**

**Article History:**

Received 13th January, 2018

Received in revised form

03th February, 2018

Accepted 25th February, 2018

Published online 12th March, 2018

**Key words:**

Lower Gastrointestinal Bleeding,  
Hemorrhoid, Fissure, Etiology ,  
Hematochezia, Iran.

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### **ABSTRACT**

**Background and aim:** Lower gastrointestinal bleeding, commonly abbreviated LGIB, is any form of gastrointestinal bleeding in the lower gastrointestinal tract. The aim of this study was to investigate the etiology of lower gastrointestinal bleeding .

**Materials and Methods:** In this cross-sectional study, all patients with lower gastrointestinal bleeding that referred to the endoscopic unit of Shahid Rahimi and Shohadaye Ashayer hospitals in Khorramabad city during October 2013 to October 2015 were included. Colonoscopy was done for all cases .Demographic data and results of colonoscopy were recorded. After collection of the colonoscopy finding , the data were entered into SPSS software version 20 and analyzed by providing tables and charts.

**RESULTS:** In this study, 721 patients (57% male and 43% female) suffering from lower gastrointestinal bleeding with an age range of 15 to 94 years (mean 49±2 years) were participated. From 721 patients with LGIB, 489 (67.82%) patients had benign anorectal disease (hemorrhoid or fissure). Other causes of LGB were colorectal polyps( 11.3%) ,colon diverticula ( 6.6%), inflammatory bowel disease (5.9%), malignant tumor(2.9%), vascular ectasia(2.7%), and solitary rectal ulcer syndrome ( 1.2%).

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**Citation:** Saleh Azad bakht<sup>1</sup>, Mosayeb Moradniani<sup>1</sup>, Hamidreza Sherkatolabbasieh<sup>2</sup>, Soleiman Jaferian<sup>1</sup>, Shiva Shafizadeh<sup>1</sup>, Hamed Maleki<sup>3</sup>, Majid Firouzi<sup>2\*</sup>, 2018 "Etiology Of Lower Gastrointestinal Bleeding: A Cross Sectional Study In Iran During 2013 To 2015", *International Journal of Health Medicine and Current Research*, 3, (01), 744-749.

**Conclusion:** this study showed that ,anorectal disease (hemorrhoid and fissure) were the most common cause of lower gastrointestinal bleeding .Further studys are need to confirm the result of this study.

## INTRODUCTION

Lower gastrointestinal bleeding, commonly abbreviated LGIB, is any form of gastrointestinal bleeding in the lower gastrointestinal tract.[1] LGIB accounts for 30-40% of all gastrointestinal bleeding and It is estimated that 20–27 per 100,000 cases for LGIB.[2]Lower gastrointestinal bleed is defined as bleeding originating distal to the ileocecal valve which includes the colon, rectum, and anus.[3] LGIB was previously defined as any bleed that occurs distal to the ligament of Treitz.[4]. Bright red stool, called hematochezia, is the sign of a fast moving active GI bleed.The bright red or maroon color is due to the short time taken from the site of the bleed and the exiting at the anus.[5]. Colonoscopy is the test of choice in the majority of patients with acute Lower GI bleeding as it can be both diagnostic and therapeutic. [6]The diagnostic accuracy of colonoscopy in lower GI bleeding ranges from 48% to 90% .[7]Diverticulosis, angiodysplasia, colitis, Colorectal polyps \carcinoma, and anorectal disease are the most common etiologies of LGIB.[8]

In a retrospective review of medical records from approximately 1100 patients with acute LGIB, all of whom were admitted to the surgical service of a single urban emergency hospital, Gayer et al determined that the most common etiologies for bleeding in these patients were diverticulosis (33.5%), hemorrhoids (22.5%), and carcinoma (12.7%). [9] The aim of this study was to investigating the ethiology of lower gastrointestinal bleeding in outpatient and hospitalized patient referred to endoscopy department.

## MATERIAL AND METHODS

Adult patients who were suffering from lower gastrointestinal bleeding and referred to Shahid Rahimi and Shohada Ashaier hospitals in Khorramabad city during October 2013 to October 2015 given the criteria for entering the study and the lack of exit criteria were studied. Entry criteria include: All adult patients over 15 years of age admitted to or hospitalized because of one or more of the lower gastrointestinal bleeding manifestations (including cleared blood or clear blood) Shahid Rahimi and Shohada Ashaier Hospitals in Khorramabad( west of iran) and to diagnose the cause of

bleeding and possible therapeutic measures, they were candidate to colonoscopy by a gastroenterologist.

Exclusion criteria: Patients with less than 15 years of age, as well as patients whose colonoscopy report was not available or incomplete colonoscopy report. To do this study, we first referred to the endoscopic section of Shohadaye Ashaier and Shahid Rahimi hospitals and then extracted the list of all patients referred for colonoscopy. Then, from among them, people who had colonoscopy due to gastrointestinal bleeding were extracted from the hospital computer. Previously a questionnaire was designed, which included demographic information, the cause of colonoscopy, and colonoscopy findings. In cases where rectangular, hematopoietic, rectal bleeding or Lower GI bleeding was used for colonoscopy, it was considered as lowering digestive bleeding. We extracted the information from these patients and entered the questionnaire. After completing the questionnaire and collecting them, the data were entered into SPSS software and analyzed by providing tables and charts.

## RESULTS

In our study, 721 patients with lower gastrointestinal bleeding were studied, of whom 417 (57%) were male and 304 (43%) were female. The minimum age of the patients was 15 years old, the maximum age was 94 years old and the mean age of patients was 49±2 years. For convenience and comparisons between the age groups, we divided the patients into 4 age groups. The number of individuals in each age group is listed below. The most studied subjects were in the age group of 46-60 years (Table 1).

**Table 1.** Demographic data of patients with lower gastrointestinal bleeding.

Gender	number	Percent
Male	417	57
Female	304	43
Age group (Years)		
15-30	130	18
31-45	201	28
46-60	224	31
More than 60	166	23
Total	721	100

In our study, the most common cause of lower bleeding was benign anorectal disease (hemorrhoids and fissure), followed by colorectal polyps, colon

diverticulum, inflammatory bowel disease (IBD), malignant tumors, vascular ectasia, and single rectal ulcer (SRUS) were the other causes of lower bleeding. About 1% of patients, despite a full colonoscopy, did not find the cause for rectal bleeding (Table 2).

**Table 2:** Frequency distribution of causes of lower gastrointestinal bleeding.

Disease	Number	Percent
Benign anorectal diseases (hemorrhoid and fissure)	489	67.82
Colorectal polyps	82	11.37
Diverticulum of the colon	48	6.65
Inflammatory diseases (IBD)	43	5.96
Malignant tumor	21	2.91
Vascular ectasia	20	2.77
Solitary rectal ulcer Syndrome (SRUS)	9	1.24
Normal	9	1.24
Total	721	100

Benign anorectal disorders (Hemorrhoids and fissure) were the most common cause of underlying gastrointestinal bleeding in our study population, which included 489 people. Of these patients, 279 (57%) of them were male and 210 (43%) were female.

Of all patients with benign anorectal disorders, 401 patients (82%) had internal hemorrhoids, 56 patients (11%) had external hemorrhoids and 36 patients (7%) had anal fissure. In our study, all benign anorectal disorders were more common in men and more patients were in the age group of 46-60 years old

**Table 3:** Frequency distribution of patients with lower gastrointestinal bleeding have a variety of benign anorectal disorders based on colonoscopy.

Anorectal disorder	Number	Percent
Internal hemorrhoids	401	82
External hemorrhoids	56	11
Anal Fissure	36	7
Total	489	100

The second most common cause of lower gastrointestinal bleeding in the studied patients was colorectal polyps. Colorectal polyps were seen in 82 cases (11.37%) of those with lower gastrointestinal bleeding, of which 45 (55%) were men and 37 (45%) were female. The prevalent age of patients with

colorectal polyps was in the age range of 46-60 years. As shown in the chart above, although 29 patients with colorectal polyps are in the age group of 46 to 60 years old, the percentage of age group of colorectal polyps was more common in the age group over 60, because the total number of patients in this age group was less than the age group of 46 to 60 years old.

In terms of the place of colon polyp, the most common site of the polyps were in the rectosigmoid region and then, the ascending colon polyps were more prevalent. In terms of size, 85 percent of the polyps were 1 cm or less, and 11 percent of them were 1 to 2 cm in size, and 3 percent of them had a size of 2 cm or more. Of the 82 patients with colorectal polyps, 17 (20%) had hemorrhoids at the same time, of which 11 cases had internal hemorrhoids grade 1 and 6 cases internal hemorrhoids grade 2. The third common cause of lower gastrointestinal bleeding in our study population was colonic diverticulum. Diverticular colon was seen in 48 cases (6.65%) of people with lower gastrointestinal bleeding, of which 25 cases (53%) were male and 23 cases (47%) female.

In terms of age, colon diverticulum was more prevalent in the age group over 60 and then more prevalent in the age group of 46 to 60 years. From the site of the conflict, the most common site of the colon diverticulum was in the sigmoid region, followed by colon descending diverticulum.

The inflammatory bowel disease was the fourth most common cause of lower gastrointestinal bleeding in the study population. In our study, 43 cases (5.96%) of patients with lower gastrointestinal bleeding in colonoscopy study have an inflammatory bowel disease, of which 20 cases (47%) were male and 23 cases (53%) female. Inflammatory bowel disease was more common in the 46-60 age group. Rectum was the most common site in inflammatory bowel disease, so that of the 43 patients with inflammatory bowel disease 26 cases (60%) only had a proctitis. In some people with inflammatory bowel disease, total colonoscopy was not performed as there was a risk of perforation of the colon due to acute inflammation.

Colorectal cancers, the most common cause of lower gastrointestinal bleeding, were the fifth common cause of lower gastrointestinal bleeding in our study. In our study, 21 cases (2.91%) of subjects had lower colon bleeding in colonoscopic studies of colorectal cancer. Of the 21 patients with the colorectal cancer, 12 cases (57%) were male and 9 (43%) female. Colorectal cancers were seen more in the age group of 46-60 years, and then more prevalent in the age group over 60 years. But as if we calculate the number of people with

colorectal cancer, based on the percentage of the corresponding age group, the number of people with colorectal cancer increases with age. Colorectal cancers were observed more often in the rectosigmoid region, and then colon cancer was more prevalent. Out of 21 patients with colorectal cancer, 5 cases (23%) simultaneously had hemorrhoids, of which 2 cases were have the internal hemorrhoid grade 1 and 3 cases internal hemorrhoid grade 2.

The sixth common cause of lower gastrointestinal bleeding in our study was vascular eczema.

In our study, 20 cases (2.77%) of subjects had lower gastrointestinal bleeding in colonoscopic vascular eczema, of which 11 cases (55%) were male and 9 cases (45%) female. Vascular eczema was more prevalent in the age group over 60 years. The most common contention involvement of vascular eczema were ascending colon and cecum, so that 20 cases of vascular ectasia 16 cases have vascular eczema in the ascending colon and cecum.

The last cause of underlying gastrointestinal bleeding in our study was solitary rectal ulcer syndrome (SRUS). In our study, 9 patients (1.24%) with lower digestive tract bleeding in colonoscopic study had a SRUS, of which 7 (78%) were male and 2 (22%) were female. SRUS was more prevalent in the age group of 45-60 years.

## DISCUSSION

In our study, 721 patients with lower gastrointestinal bleeding were studied. The most common cause of lower gastrointestinal bleeding in these patients was benign anorectal disease, which was seen in 62.87% of our patients. Among the benign anorectal disorders, hemorrhoid and fissure were the most common cause of LGIB. This result is in line with the results found in the medical reference books, because in well-known medical sources hemorrhoids are also considered as the most common cause of lower gastrointestinal bleeding(10,11,12). The results of the Eemeka studies in Nigeria and Manzoor in Pakistan also cited hemorrhoids as the most common cause of lower gastrointestinal bleeding (13,14). In the studies of Saint Louis, Strate LL and Barnet J, the incidence of various causes of lower gastrointestinal bleeding in patients referred to US university hospitals colon diverticulum was introduced as the most common cause of lower gastrointestinal bleeding, and hemorrhoid was not the most common cause (15,16). Given that these studies

have all been conducted in hospitals in the United States University Center and most patients referring to them were patients with lower health levels, hence the incidence of hemorrhoids was reduced in the studies mentioned. Most people with hemorrhoids are diagnosed and treated at lower levels of health. In addition, in the Western countries, a diet rich in protein and fiber is lower than in developing countries, which may justify a high incidence of colon diverticulum in these countries. Diverticulum colon is present in regions with a protein-rich diet containing less fiber and less cereal.(17)

Colorectal polyps were the second most common cause of lower gastrointestinal bleeding in our patients, which included 11.37% of patients. Colorectal cancer was the fifth common cause of lower gastrointestinal bleeding in our study, which was seen in 2.91% of the patients studied. Therefore, in general, colorectal neoplastic lesions (including polyps and cancer) were seen in 14.28% of our patients. In the Strate LL study, the prevalence of colorectal neoplasms was reported to be 3-11%, and in the Saint Louis study, colorectal neoplasms had an incidence of 14%(15,16) Therefore, the prevalence of colorectal neoplasms in our study is almost consistent with the prevalence of the Saint Louis study. In our study, colorectal neoplasms were found more often in the rectosigmoid region, which Strate II and Saint Louis showed the same results. In addition, in the study of Manzoor in Pakistan and Korkis study in England, the most common place for colorectal neoplasms was in rectosigmoid site(13,18). In our study, about 20% of patients with colorectal polyps and 23% of patients with colorectal cancer simultaneously had hemorrhoids. With this finding, it can be concluded that the lower gastrointestinal bleeding should not be attributed solely to the presence of hemorrhoids and total colonoscopy is recommended in all patients with lower gastrointestinal bleeding. The third common cause of lower gastrointestinal bleeding was colonic diverticulum in our study, which found in 6.65% of patients.

Colon diverticulum has been suggested to be the most common cause of lower gastrointestinal bleeding. As said, dieting may be involved in the low incidence of colon diverticulum in our study because Iran's diet is rich in fiber and cereals, it may prevent colon diverticulum. In the Manzoor study in Pakistan, colon diverticulum had the lowest incidence among the various causes of lower gastrointestinal bleeding, which may be justified by the diet of the Pakistani people, because in Pakistan, like Iran, the diet of people is rich in fiber and cereals(14). In our study, the most common site was diverticulum in the sigmoid region. In a study the most common site of the diverticulum was sigmoid region.

Korkis study in the UK and Manzoor study in Pakistan and Emeka study in Nigeria also found the sigmoid area as the most common site for diverticulosis. (14,18).

In our study, inflammatory bowel disease (IBD) was the fourth leading cause of referral due to lower gastrointestinal bleeding. In our study, about 5.96 % of patients in colonoscopy examination had IBD. The Saint. Louis study reported a high prevalence of IBD of about 21%(15) Maybe the difference between the prevalence of IBD in our study and the study of Saint Louis is due to differences in the socioeconomic status, genetic issues, environmental issues and patterns of nutrition of individuals(19,20). From the point of view of socioeconomic issues, the Saint louis study was conducted in an developed country, and given that IBD is more prevalent in developed countries, it may be possible to justify the prevalence of IBD in this study(21). In the study of Emeka in Nigeria and Manzoor in Pakistan, the prevalence of IBD was nearly as prevalent in the Iran, which could be justified by the socioeconomic and other factors mentioned such as diet and hygiene (13,14).

## CONCLUSION

Anorectal disorders (hemorrhoid and fissure ) are the most common causes of lower gastrointestinal bleeding. Also, in our study, about 20% of patients with colorectal polyps and 23% of patients with colorectal cancer simultaneously have hemorrhoids. With this finding, it can be concluded that the lower gastrointestinal bleeding should not be attributed solely to the presence of hemorrhoids. Total colonoscopy is recommended in all patients with lower gastrointestinal bleeding, especially patients over 40 years of age.

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