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Chapter

Full Colonoscopy in Patients under 50 Years Old with Lower Gastrointestinal Bleeding

Mahsa Khodadoostan, Ahmad Shavakhi, Reihaneh Padidarnia, Alireza Shavakhi and Mehdi Ahmadian

Abstract

The aim of this study is to compare sigmoidoscopy with full colonoscopy in these patients. In this cross-sectional study, 120 eligible patients under 50 years old with acute rectal bleeding were enrolled. Pain, the comfort of the test by physician and patient, duration of the procedure, and pathologic findings were recorded during sigmoidoscopy and proximal colonoscopy (from splenic flexure to ileocecal valve) in the same patient. The variables in the two stages were compared with each other. There were 66 women (55%) and 54 men (45%), and the mean of age was 41 ± 7.9 years. Proximal colonoscopy from splenic flexure to reach cecum was relatively easier for the physician and the patient than sigmoidoscopy ($P < 0.001$). Furthermore, the time spent to carry out proximal colonoscopy was less than the time taken for sigmoidoscopy ($P < 0.001$). Pathologic findings recorded in full colonoscopy were more than sigmoidoscopy ($P < 0.001$). Therefore, full colonoscopy that includes sigmoidoscopy and proximal colonoscopy is relatively easier than sigmoidoscopy for patients, and it also proves to be more advantageous than sigmoidoscopy for physicians to perform in Iranian patients because of the more tortuous and elongated sigmoid colon in these patients.

Keywords: colonoscopy, gastrointestinal bleeding, sigmoidoscopy

1. Introduction

Lower gastrointestinal bleeding (LGIB) is one of the most common problems that gastroenterologists and surgeons encountered [1]. LGIB prevalence increases with aging, using aspirin, anticoagulants, and nonsteroidal anti-inflammatory drugs (NASIDs). LGIB is associated with death, hospitalization, and medical costs [2]. Therefore, diagnosis of the cause of LGIB and its proper management are of critical importance [3]. These causes include bleeding from the diverticulum, ischemic colitis, angiodysplasia, hemorrhoids, colorectal cancer, inflammatory bowel disease, infectious colitis, NSAID, radiation, and solitary ulcers [4, 5]. For diagnosing the causes of lower bleeding (LGIB), there are different modalities such as total colonoscopy, radionuclide scan, angiography, computed tomography angiography, and sigmoidoscopy [6].

Some authors believe that in 90% of patients <50 years who present with LGIB, most causes are benign anorectal diseases, and on the other hand, the prevalence of colorectal cancer increases with aging. Hence, patients <50 years who present

with LGIB are examined excessively in whom there is no need for total colonoscopy and sigmoidoscopy alone is enough [7, 8]. In some researches, it is expressed that total examination of the colon in these individuals through total colonoscopy will impose stress on them and longer hospitalization [9]. On the other hand, some researchers believe that colonoscopy should be applied on all individuals who present with LGIB for its high authority in diagnosing other damages such as polyp and colorectal cancers [10]. Furthermore, they believe that in patients who were under sigmoidoscopy, performing colonoscopy is causing more diagnosing dangerous and deadly diseases through neoplasms, but, in total colonoscopy, it is required for complete preparation and totally clean intestines which may impose strong pain. In some circumstances, there arises the need for using anesthetics and longtime hospitalization [11]. Currently, there is no any definite consensus about whether the patients with LGIB would be under total colonoscopy or only sigmoidoscopy can be enough. The purpose of this study is to analyze and compare the methods of colonoscopy and sigmoidoscopy regarding the additional findings and easiness of them for patients and physician in patients <50 years with LGIB.

In this cross-sectional study performed from January 2016 to November 2016 in Al-Zahra Hospital in Isfahan, 120 patients with LGIB were referred, and informed consent for participation was obtained.

Ethical consideration is ir.mui.rec. 1394.3.606, the size of samples calculated according to the Cochran formula. That was 120 samples.

Participants aged <50 years and having LGIB in the form of hematochezia or rectorrhagia and with stable hemodynamic were included in the study. Participants with hemodynamic instability, history of colorectal cancer, history of consumption aspirin or anticoagulant, history of previous major abdominal surgery, fair colon preparation, intolerance to free sedation colonoscopy, advance heart and lung disease, documented acute diverticulitis, fulminant colitis, and definitive or suspected perforation were excluded from the study [12]. After cleaning the colon with polyethylene glycol powder with 4–6 l, all colonoscopies were performed without sedation by an experienced gastroenterologist using a Fujinon 4400 Tokyo, Japan Video Scope. If the patients had severe pain and hence used an analgesic, they were excluded. Endoscopic procedures were done in the left lateral position to inhibit aspiration. Details of bowel-cleansing preparation of the colon, initially the patients underwent sigmoidoscopy considered it by getting the scope of colonoscopy from anal canal to splenic flexure by the end of this stage; the levels of the pain and the comfort of the test by physician and patient were measured with visual analog scale from 0 to 10 (10: without discomfort and 0: the most discomfort), duration of procedure were calculated in minutes, and pathologic finding were registered and considered as sigmoidoscopy group. In same patients, the procedure continued until the splenic flexure passed in the ileocecal valve, and this stage was considered as proximal colonoscopy and then from the splenic flexure to ileocecal valve easy performance of this test for the physician and the patient were measured with visual analog scale from zero to ten (10: without discomfort and 0: the most discomfort), duration of procedure to the minute and diagnosed lesions were recorded.

1.1 Statistical analysis

Data were analyzed using IBM SPSS/PC statistical software version 20, the descriptive analysis was based on mean ± standard deviation, and quantitative variable analysis was based on number (%). Compression of comfort for patient and physician and time taken in sigmoidoscopy from splenic flexure to reach ileocecal valve were analyzed by paired *t*-test, and comparisons between the pathologic findings in sigmoidoscopy and full colonoscopy were analyzed by McNemar test.

2. Results

During this study, 120 patients were studied, among which 66 women (55%) and 54 men (45%) participated. The mean of age participants in this study was 41 ± 7.9 years.

According to **Table 1**, and using paired *t*-test, proximal colonoscopy from splenic flexure to reach cecum was relatively easier for the physician and the patient than sigmoidoscopy ($P < 0.001$). Furthermore, the time spent to carry out proximal colonoscopy was less than the time taken for sigmoidoscopy ($P < 0.001$).

In **Table 2**, and using McNemar test, pathologic findings were compared to each other on the basis of doing sigmoidoscopy alone from the anal phase to the splenic flexure or doing a complete colonoscopy from the anus to the cecum. The findings of sigmoidoscopy and the second phase of the procedure (from the splenic flexure to the cecum) have been gathered, and we infer that, based on the table, pathologic findings in full colonoscopy and the findings of sigmoidoscopy showed a significant difference. It means that if the patients underwent full colonoscopy, the pathologic findings show statistically significant differences compared to doing sigmoidoscopy alone.

Variable	Mean±SD		*P*
	Sigmoidoscopy	Splenic flexure till ileocecal	
Feasibility for patient	7.2±1.9	8.2±1.5	>0.001
Feasibility for physician	7±2.3	8.5±1.4	>0.001
Time (min)	6.9±2	3.9±1.4	>0.001

SD=Standard deviation

Table 1.
Compression of feasibility for patient and physician and time in sigmoidoscopy with splenic flexure till ileocecal valve.

Finding	Sigmoidoscopy, *n* (%)	Full colonoscopy, *n* (%)	*P*
Adenoma	10 (9.7)	16 (13.8)	0.014
Cancer	3 (2.8)	4 (3.5)	0.37
Colitis	5 (4.9)	8 (7)	0.04
Angiodysplasia	0	1 (0.9)	0.31
Lipoma	0	1 (0.9)	0.31
Hemorrhoid	70 (67)	70 (60)	1
Diverticula	14 (13.6)	14 (12)	1
Infectious colitis	2 (2)	2 (1.9)	1
Total	104	116	<0.001

Table 2.
The comparison between the pathologic findings in sigmoidoscopy and full colonoscopy.

3. Discussion

The purpose of this study was to investigate the easiness of physician and the patient and the rate of discovering pathologic findings through sigmoidoscopy and full colonoscopy in patients under 50 years old with LGIB. According to the results of this study, doing proximal colonoscopy compared to sigmoidoscopy is easier for the patient and the physician, and the time spent was also less compared to sigmoidoscopy. It seems logical that sigmoidoscopy is more difficult for the patient and physician despite intubation and passing from the rectosigmoid area. According to the pathological findings, it is assumed that the full colonoscopy has been of more diagnostic value for patients because of finding important pathologies. The results were compared with sigmoidoscopy, which indicate a significant difference between the levels of pathological findings in colonoscopy compared to sigmoidoscopy. The pathological findings in colonoscopy were higher than sigmoidoscopy.

LGIB or rectal bleeding is considered as a common concern in the young people, and there is difficulty in making decision about sigmoidoscopy or full colonoscopy. As a whole, it is accepted that full colonoscopy should be performed for the people older than 50 years old with rectal bleeding, but there is no consensus guideline for patients under 50 years yet. In many studies, the researchers have shown that due to this matter, the LGIB or rectal bleeding is considered a common concern in the young people and the benign anorectal pathologies such as hemorrhoids and other concerns are the cause of 90% of rectal bleeding; colorectal cancer increases with age, the method of sigmoidoscopy is sufficient, and there is no need for colonoscopy [11]. However, in several studies including the study performed by Wong et al. [13], 223 patients under 50 years old underwent colonoscopy. Among them, 4 patients (1.8%) had colon cancer in distal colon, 22 patients (9.9%) had adenoma, 6 patients had proximal polyps, and 60.5% of patients had hemorrhoids. They argued that colon cancer can occur in younger persons. Hence, in colonoscopy, it should be strongly considered that the results of this study are consistent with the current study [13], or in the study of Van Rosendaal et al. performed in 2002, from 66 patients, colonoscopy was done in 55 patients, and most of them had the lesion in 60 cm interval of the anus, but there was a cancerous and a polyp lesion upper than 60 cm [14]. In a study by Lewis et al. that was performed to investigate the cause of rectal bleeding in the young people, they concluded that doing colonoscopy in patients between 25 and 45 years is incremental cost-effectiveness [15]. Inconsistent with our study in the study of Aravindan [16], 516 patients were reviewed. They were treated by sigmoidoscopy because of rectal bleeding. Among them, 39 patients (39%) had polyps, and among them 31 cases were rectal, and 8 were sigmoid. Due to their histology, 1.7% was adenomatous, in one patient was rectal carcinoid, and in two patients (0.4%) was carcinoma, and in the other patients, there were hyperplastic polyps. The researchers showed that the prevalence of polyps with large size and advanced adenoma is very low in young people [16], or in another study performed by Khalid et al. [17], they showed that 379 patients who were under 40 years had LGIB and were treated by full colonoscopy. Among them, seven adenomatous polyps and malignant lesions were discovered that all were in the distal colon. In persons at the age of 40–50 years, ten polyps and malignant lesions were discovered that one of them was in the proximal colon. They concluded that most of the lesions were in the distal colon; therefore, flexible sigmoidoscopy is sufficient, and there was no need for full colonoscopy [17]. Furthermore, in another study performed by Nikpour et al. [18], 402 patients with rectal bleeding underwent colonoscopy. Among them, 54.2% had hemorrhoid, 14.2% had anal fissure, and 14.2 had ulcerative colitis which are the most prevalent pathologies. Among 121 patients, 30.1% had significant lesions, 6.5% had adenocarcinoma, and 7.5% had adenomatous

polyps, and they finally concluded that the flexible sigmoidoscopy for the patients under 50 years with LGIB can be sufficient [18].

In the current study, there were six pathologic findings beyond splenic flexure (5%) and one cancer beyond splenic flexure (0.8%) and totally 5.8% lesions beyond splenic flexure. These data are significant in young people. Most studies on young people with rectal bleeding recommended sigmoidoscopy for them; one reason is that most of these studies were performed in the west, and in these countries, the colorectal cancer is less common. However, the colorectal cancer in South Asian countries is more complex and is more frequent among young people [19, 20]. It seems reasonable that in these countries such as Iran, the young patients with rectal bleeding should be evaluated by full colonoscopy. On the other hand, in young people, most pathologies causing LGIB are the benign anorectal lesions, but it may be the colorectal lesions need the full colonoscopy. According to our results, most discovered lesions in these patients are anorectal lesions and hemorrhoids that these results are consistent with the other studies as the other observed lesions have been distal colon. According to our results, if in the patients, from the beginning, full colonoscopy was performed, the numbers of discovered pathologies in colonoscopy would be higher than sigmoidoscopy, and it is significantly different ($P < 0.001$). In our study, even though the cost of procedure was increased, the time and comfort of the procedure do not differ from sigmoidoscopy, and the rate of diagnosis of lesions increased; therefore, it is advised that in patients under 50 years and with LGIB, full colonoscopy was considered, especially in Iranian people. Anatomy of the colon was different in Iran from western countries. In Iran, because of high-fiber diet, the sigmoid colon is usually more tortuous and elongated than in western countries. Therefore, sigmoidoscopy is more complicated and time-spending procedure more than expected in western countries. As the result, total colonoscopy is more helpful than sigmoidoscopy as diagnostic procedure and needs less time to do.

Since our sample size is small and there is no personal guideline for doing colonoscopy or sigmoidoscopy in patients under 50 years, and due to ethical issues, we did full colonoscopy for all patients, and we did not have two distinct separate groups to investigate the variables such as age and sex individually in each group. It is recommended that this study be performed in larger sample size and done in two separate groups to use the results in the studies.

4. Conclusions

With regard to this matter, if these patients were under full colonoscopy from the beginning, the satisfaction level in colonoscopy has statistically significant difference with sigmoidoscopy, and it is recommended that the patients under 50 years with rectal bleeding should be under full colonoscopy.

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