Colonoscopy an Audit: Wiser the Decision Better the Outcome

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Abstract

Background and Aim of the Study: In a developing country like India, wherein routine screening colonoscopy is not a norm and prevalence of colonic polyps is considered to be rare, we conducted a study to analyse the indications, findings and our compliance with selected key performance indicators (KPI's): Cecal intubation, polyp detection rate, colonoscopy withdrawal time, adverse events and bowel preparation at a large tertiary care hospital in Bengaluru, India which would aid in improving the quality of our practice.

Materials and Methods: A retrospective study was conducted on 185 patients either admitted or seen on outpatient basis at Bowring and Lady Curzon hospital attached to Bangalore medical college and research institute (BMCRI), Bengaluru. The colonoscopy reports of all patients at our center from September 2017 to August 2018 were reviewed to obtain information on demographics, indications, findings and KPI's and the data was analyzed using appropriate statistical methods.

Results: Among 185 patients who underwent colonoscopy 63% were male and 53% were 31-59 years old. The major indications were bleeding per rectum (PR) [24%], colonic wall thickening on imaging(19%), chronic diarrhea (11%) and colorectal growth (8%). 82% of the patients had excellent bowel preparation with the cecal intubation achieved in 84%.The common pathological findings in the above mentioned indications were Colorectal cancer(CRC) [11%], ulcer(9%), Inflammatory bowel disease(IBD) [6%] and polyp(6%).

Conclusions: Colonoscopy is very much essential to evaluate lower GI symptoms. The quality of practice lies on the bowel preparation as well as cecal intubation. Bleeding PR was the most common indication whereas colorectal cancer was the most common pathological finding although more than half of the examinations were normal.

Keywords: Colonoscopy; Bleeding PR; Cecal intubation; Colorectal cancer

Abbreviations: GI: Gastrointestinal; KPI's: Key Performance Indicators; PEG: Polyethylene Glycol; CRC: Colorectal Carcinoma; IBD: Inflammatory Bowel Disease; BMCRI: Bangalore Medical College and Research Institute.

Introduction

Colonoscopy is a gold standard diagnostic tool for lower gastrointestinal (GI) symptoms and also the gold standard screening tool for CRC [1]. To maintain standards of colonoscopy a number of validated quality indicators have been developed to assess practice [2]. This article is an audit of all the colonoscopies done in a 12month period to assess the pattern of indications, findings and compliance with selected key performance indicators(KPI's)like cecal intubation, colonoscopy withdrawal time, polyp detection rate, adverse events and quality of bowel preparation. This audit is intended to provide feedback and help us in improving our quality of practice.

Materials and Methodology

A retrospective study of 185 cases either admitted or treated on outpatient basis in medical gastroenterology/Internal medicine department in Bowring and Lady Curzon Hospital attached to BMCRI, Bengaluru. The study period was between September 2017 to August 2018.Irrespective of the sex of the patient all aged more than 18 years with lower gastrointestinal (GI) symptoms or screening for CRC were considered for colonoscopy. Patients without bowel preparation, uncooperative or unfit were excluded. Colonoscopy was performed after single dose preparation of Polyethylene glycol (PEG) solution after taking written informed consent and under intravenous conscious sedation with midazolam and pentazocine. Cecal intubation was defined as the passage of the colonoscopy tip to a point proximal to the ileocecal valve and identification of cecal landmarks, intubation of the terminal ileum or passage of the scope to anastomosis with the small bowel [3]. Polyp detection rate was the proportion of patients in whom polyps were identified. Colonoscopy withdrawal time was the time in minutes and seconds that it took to withdraw the colonoscopy following cecal intubation [3]. Adverse event was defined as one that prevented completion of the planned procedure(excluding technical failure or poor preparation)and or resulted in admission to hospital or prolongation of existing hospital admission, another intervention procedure(endoscopic, radiologic or surgery)or subsequent medical consultation [3]. The quality of bowel preparation was characterized as excellent → if no or minimal solid stool and only clear fluid requiring suction, adequate if collections of semisolid debris that are cleared with washing/suction and inadequate → if solid or semisolid debris that cannot be cleared effectively [3].

The colonoscopy reports of all the patients were reviewed and data on demographics; indications; endoscopic findings; cecal intubation; adverse events; bowel preparation and colonoscopy withdrawal time was collected. Data was analyzed using simple statistical methods and represented categorically in tables and figures.

Age(Years)	Number of Cases
≤30	39
31-44	43
45-59	55
≥60	48

Table 1: Age distribution of the cases.
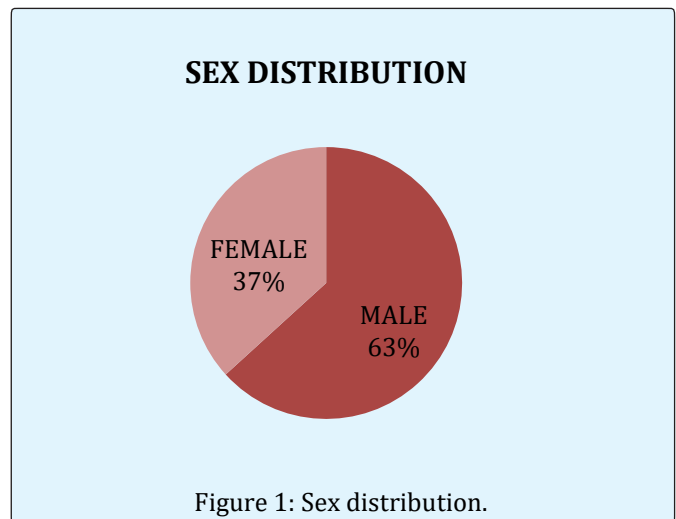
Figure 1: Sex distribution.

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Others* include surveillance colonoscopy, fistula in ano, stricture, sub acute bowel obstruction etc.

Figure 2: Indication for colonoscopy.

Figure 3: Findings on colonoscopy.

Figure 4: Bowel preparation.
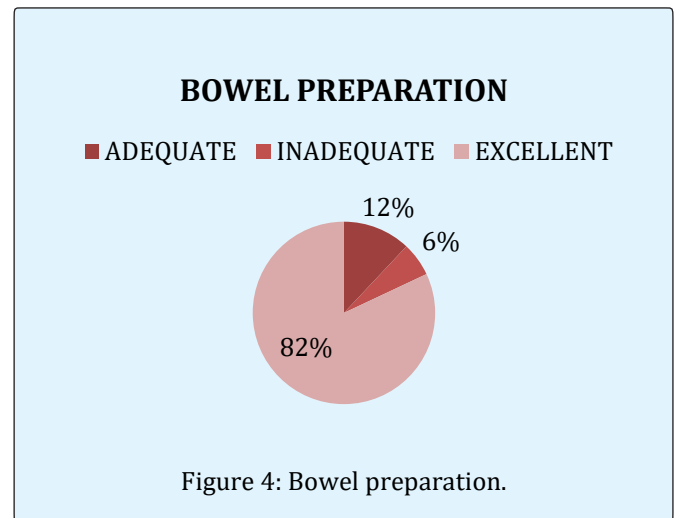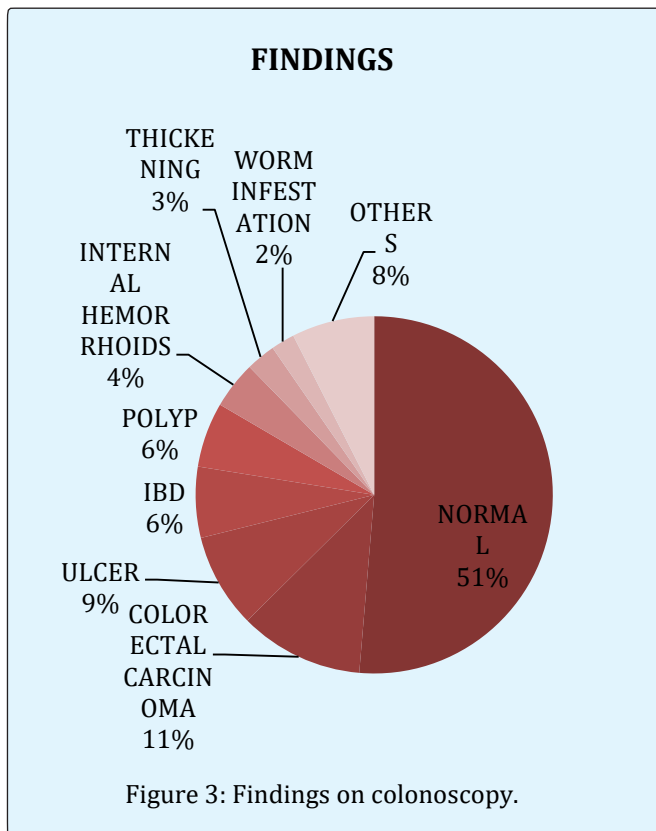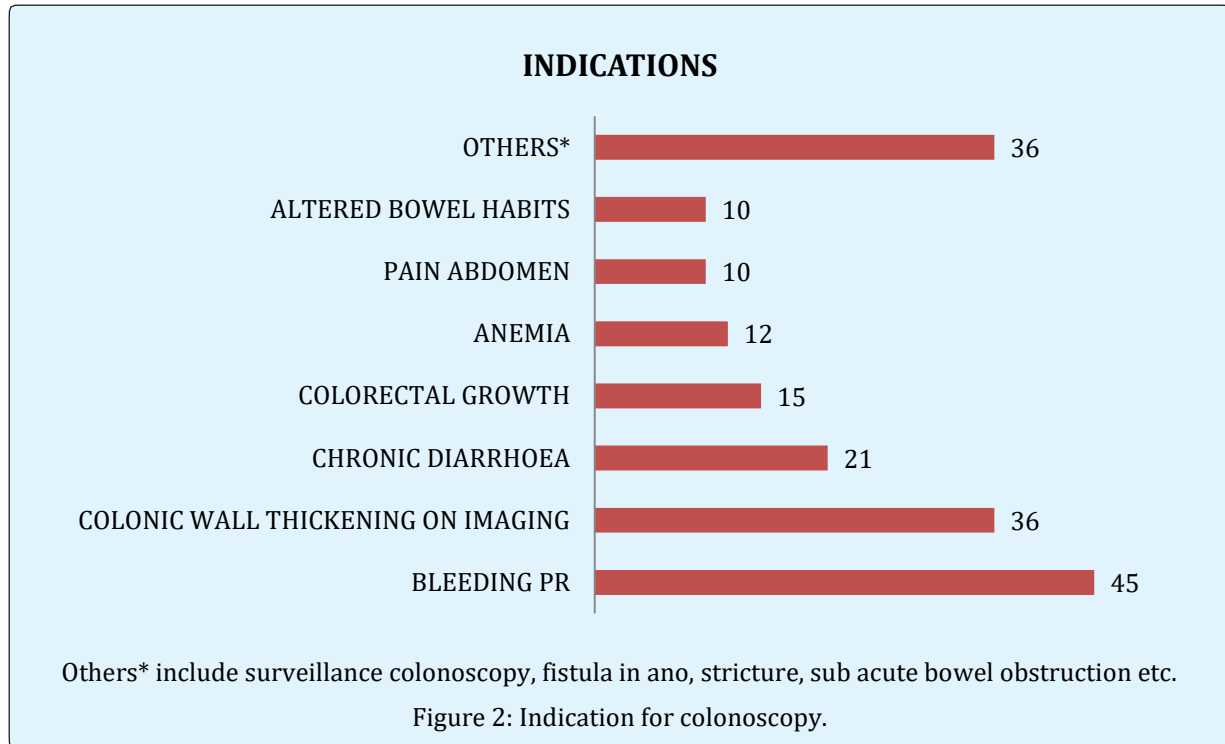
Results

Colonoscopy was performed in 185 patients. Male sex preponderance was seen (n=117) (Figure 1). Mean age group of the study population was 31-59 years (53% of the total population, Table 1). Among the patients who underwent colonoscopy, Bleeding PR (n=45) and colonic wall thickening on imaging (n=36) were the most common indications. Other indications were chronic

diarrhea (n=21), colorectal growth (n=15), anemia (n=12), altered bowel habits and pain abdomen (n=10), surveillance colonoscopy (n=5). Other rare indications were fistula in ano, chronic pancreatitis, anorectal stricture etc. (Figure 2).

As quality of colonoscopy mainly lies on bowel preparation and Cecal intubation in our study, 82% of the patient had excellent bowel preparation and 84% achieved Cecal intubation (Figure 3). 30 patients had incomplete colonoscopy examination. Out of which 10 were because of strictures/ rectal growth; 5 due to stenosis elsewhere in the colon due to growth; and the rest due to technical failure/acute angulation or due to inadequate bowel preparation. There were no significant adverse events recorded during the performance of colonoscopy. Colonoscopy withdrawal time was 6minute and 30seconds on an average in normal colonoscopy.

Overall, 96 of the cases had normal colonic mucosal study. Colorectal carcinoma (CRC) was the most common pathological finding (n=21), 15 were located in the recto sigmoid colon, 1 in the descending colon and 5 in the right colon.9% of the cases had ulcer and 6% (n=11) of them had Inflammatory bowel disease (8 patients had ulcerative colitis with majority having pan colitis and 3 patients had crohn's disease) & polyp were seen in 6%(n=11) 3 polyps were located in the rectum and 2 each were located in the sigmoid colon, descending colon, transverse colon and right colon.80% of the polyps were adenomatous and 20% were hyperplastic polyps on histology. Other findings were internal hemorrhoids, diverticula, anorectal fistula, stricture, radiation proctitis etc. (Figure 4).

Discussion

There is very sparse data from this part of the world regarding colonoscopy audit. So we compiled our data and published it so that it might aid in improving the quality of our practice in the future. In this study all cases were assessed and all the colonoscopy were performed by a single medical gastroenterologist there is very little scope for any errors in the results, assessment and evaluation even though our data set is small compared to some of the large western studies [4,5]. There is a low rate of CRC screening using colonoscopy in our setting even though majority (105 out of 185) were above 45years of age. The bowel preparation was excellent in 82% of our patients. PEG full dose/single dose preparation prior to colonoscopy is used at our center. >90% of bowel

preparation being described as excellent is the standard set by BSG-JAG [6].

The cecal intubation was achieved in 84% which is slightly below the recommended ASGE average [7]. A study done in a Vancouver hospital listed reasons for incomplete colonoscopy as follows-poor bowel preparation, pain or inadequate sedation, structural anomaly including tortuous colon, diverticular disease and obstructing mass lesion [8]. Since we do our colonoscopies under conscious sedation; unlike deep sedation used in developed countries; which lead to pain during the procedure and make the complete examination difficult in some patients.

The polyp detection rate in our study was around 6% which is far less than western data by Daniel R Gavin, et al. where it was around 32% [9]. This finding can be explained with low incidence of adenomatous polyp and CRC in our country [10]; whereas in western countries colorectal cancer is a most common malignancy and the third leading cause of cancer death [11]. There were no adverse events recorded in our study. The two most feared complications of colonoscopy are perforation and bleeding (usually post polypectomy) was not seen in any of the patients. Colonoscopy withdrawal time in our study was on an average 6minutes and 30seconds.Results of a recent analysis in 2015 suggested that a median withdrawal time for normal colonoscopies of 9minutes is needed to maximize adenoma and proximal serrated polyp detection. Whereas withdrawal times of 6minutes had an Adenoma detection rate (ADR) of 23.8%, a withdrawal time of 9minutes was associated with an ADR of 33.6% [12].

Conclusion

Colonoscopy is very much essential to evaluate lower GI symptoms. The audit revealed that our cecal intubation could be improved by a more effective bowel preparation i.e., using split-dose PEG preparation prior to colonoscopy and by using deep sedation with PROPOFOL thereby making the procedure more comfortable to the patient. These measures will undoubtedly reduce the gap between our performance and key performance indicators. Bleeding PR was the most common indication whereas CRC was the most common pathological finding.

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