
COLONOSCOPY PRACTICE IN JOS UNIVERSITY TEACHING HOSPITAL, JOS, NIGERIA.

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ABSTRACT

Background: Colonoscopy is a safe and effective procedure that enables visualization and inspection of the large bowel from the distal rectum to the caecum. It is a widely used screening modality for reducing colorectal carcinoma incidence and mortality. Colonoscopy remains the gold standard for the detection of colorectal cancer and polyps. Polyps can be removed during colonoscopy, thereby reducing the risk of colon cancer. Colonoscopy can also be utilized to evaluate the colon in patients with large-bowel pathology, iron deficiency anaemia, abnormal results on radiographic studies of the colon, positive results on colorectal cancer (CRC) screening tests, etc. Our study was aimed at describing the common indications and the common colonoscopy findings in JUTH and to compare some indications such as lower gastrointestinal bleeding and the colonoscopy diagnosis.

Method: It was a retrospective descriptive study that reviewed reports of colonoscopy in JUTH between January 2021 and April 2022. Patients who were referred to the endoscopy unit for colonoscopy were received and counselled by the endoscopy nurse. Bowel preparations were done in split-dose fashion, using either low-volume polyethylene glycol (PEG) or 1 liter of 20% mannitol. Written and informed consent and vital signs were done on the mornings of the procedure, by the endoscopy nurse. Pethidine analgesia and midazolam were used for pain control and mild sedation. Colonoscopy was done by the consultant gastroenterologist using Olympus CV-240 colonoscope. Reports of the procedure findings were documented by the gastroenterologist who had performed the procedure. The data from the report books were entered into an excel sheet and a descriptive statistical analysis performed.

Results: One hundred and twenty-five patients who had colonoscopy at our center between January 2021 and April 2022, with fully documented reports, (when the service was uninterrupted) were enrolled. Males were 74(59.2%) while females were 51(40.8%) the mean age of the population was 51.55 years, (males = 51.43; females = 51.72; p-value = 0.1021), age range was 16 – 85 years, median age was 53years. Most patients had bowel preparation using 20% mannitol (78%). The duration of colonoscopy ranges between 24 to 67minutes (mean = 44minutes), while the caecal intubation rate (excluding patients with large rectal tumors) was 83.2% (99 out of 119). The commonest indication for colonoscopy was lower gastrointestinal bleeding (37.6%), followed by colorectal cancer screening (22.4%), and chronic diarrhea (15.2%). The leading colonoscopic finding was normal finding (41.6%), followed by haemorrhoids (28.8%) and colorectal tumor (10.4%). Majority of the patients with lower GI bleeding had rectal haemorrhoids (46.8%). Colonic

tumor and diverticulosis were seen in 17% each. Majority of the patients with chronic diarrhoea (52.6%) had a normal colonoscopy finding.

Conclusion: Our study provided some basic and relevant information about colonoscopy practice in JUTH, North-Central Nigeria.

INTRODUCTION:

Colonoscopy is a safe and effective procedure that enables visualization and inspection of the large bowel from the distal rectum to the cecum.¹ The technology for colonoscopy has evolved to provide a very clear image of the mucosa through a video camera attached to the end of the scope¹. Colonoscopy is a widely used screening modality for reducing colorectal cancer (CRC) incidence and mortality². Other screening modalities used for colorectal cancer includes: Faecal occult blood test (FOBT), Faecal immunochemical tests (FIT or IFOBT), Faecal DNA test, Flexible sigmoidoscopy and Radiographic screening procedures^{3,4}. Colonoscopy remains the gold standard for the detection of colorectal cancer and polyps.⁵ Colonoscopy can also be utilize to evaluate the colon in patients with other large-bowel pathology, iron deficiency anaemia, abnormal results on radiographic studies of the colon, positive results on colorectal cancer (CRC) screening tests, post-polypectomy and post-cancer resection surveillance⁵.

There is therefore a need to ensure thoroughness and completeness during the procedure. The effectiveness of the procedure depends on many variables related to the quality of the examination which varies among endoscopists in different centres^{2,6}. Many indices have been validated as indicators of quality of colonoscopy from both the patient and endoscopist perspective to optimise performance, these includes; caecal intubation rate (CIR), adenoma detection rate (ADR), withdrawal time, quality of colonoscopy reporting, bowel preparation quality^{2,5-7}. According to American Society for Gastrointestinal Endoscopy (ASGE) guideline, the minimum CIR is 90% for all colonoscopy procedures while the minimum recommended ADR is 25 for men and 15 for women above 50 years⁶. This is relevant in the occurrence of interval colorectal cancer (CRC), a marker of poor-quality colonoscopy. Most interval CRCs occurs because Adenoma or a CRC was missed during a colonoscopy⁶. A high-quality bowel preparation is an important factor in quality colonoscopy as it is crucial in the detection of polyps. Suboptimal bowel preparation may lead to failed detection of flat or subtle polyps. The impact of an inadequate preparation may be particularly pronounced in the proximal colon, reducing detection of both adenomas and sessile serrated lesions.^{2,7} The most widely used rating scales are the modified Aronchick score, a single score reflecting the overall quality of the bowel preparation (excellent, good, fair, poor, or inadequate), and the Boston Bowel Preparation Scale (BBPS), which grades bowel preparation from 0 (unprepared colon) to 3 (entire segment of colon well seen) for each colon segment (right, transverse, and left colon)². The BBPS is preferred because it is applied after cleaning and has been thoroughly validated. Adequate preparation is defined as an overall BBPS score of ≥ 6 , with each segment score ≥ 2 , this score should be achieved $\geq 90\%$ of screening and surveillance endoscopies². The European society for gastrointestinal endoscopy (ESGE) recommends a low

fibre diet a day preceding the procedure.² Polyethylene glycol (PEG) (or other acceptable alternatives) should be prescribed for the patient as a split dose bowel preparation regime for elective cases while for patient undergoing afternoon colonoscopy, a same-day bowel preparation is an acceptable alternative⁷.

The duration of a colonoscopy depends on the characteristics of both the patient and the endoscopist. Studies have founded a duration of 20-60 minutes for most colonoscopies. A colonoscopy has two components, the cecum intubation and the withdrawal. “Difficult colonoscopy” is a term used to describe cases that require longer than usual to achieve cecum intubation.⁸ Difficulty in achieving cecum intubation is predicted by the level of training of the endoscopist, quality of bowel preparation, intra-abdominal adhesions secondary to previous surgery, and presence of angulations among the large bowel loops^{8,9}. The American Society of Gastrointestinal Endoscopy (ASGE) recommends a minimum withdrawal time of 6 minutes in screening colonoscopy with negative findings to assure the quality of procedure⁸.

The common indications for colonoscopy are lower GI bleeding, screening and surveillance of colorectal polyps and cancers, inflammatory bowel diseases, acute and chronic diarrhoea, and therapeutic indications such as excision and ablation of lesions, treatment of lower GI bleeding, colonic decompression, dilation of colonic stenosis and foreign body removal.^{5,6}

Some common contraindications for colonoscopy include: a patient who is not willing to give informed consent, and uncooperative patients. Colonoscopy is also contraindicated for known or suspected colonic perforation and medical conditions associated with a high risk of perforation such as severe toxic megacolon and fulminant colitis.¹⁰

Our study was aimed at describing the common indications and the common colonoscopy findings in JUTH and to compare some indications such as lower gastrointestinal bleeding and the colonoscopy diagnosis.

METHODS:

It was a retrospective descriptive study that reviewed reports of colonoscopy in JUTH between January 2021 and April 2022, when the service was interrupted.

Jos University Teaching Hospital (JUTH) is a 520-bed tertiary health centre located in North-Central Nigeria, with a well-established Gastroenterology/Hepatology unit. The endoscopy unit in JUTH has four Gastroenterologist, four well-trained endoscopy nurses, two towers, four gastroscopes and two colonoscopes. In addition to diagnosis, it also offers therapeutic endoscopic procedures such as variceal band ligation, adrenaline injection therapy, thermocoagulation, foreign body removal and polypectomy.

Patients who were referred to the endoscopy unit for colonoscopy were received and counselled by the endoscopy nurse. The Nurse counselled them about the procedure, obtained relevant history and also administer the bowel preparation. Bowel preparations was done in split-dose fashion,

using either low-volume polyethylene glycol (PEG) or 1 liter of 20% mannitol. Patients were also asked to take low residue diet a day before the procedure.

Written and informed consent and vital signs were done on the mornings of the procedure, by the endoscopy nurse. Pethidine analgesia and midazolam were used for pain control and mild sedation. Colonoscopy was done by the consultant gastroenterologist using Olympus CF-140 colonoscope. Reports of the procedure findings were written by the gastroenterologist who had performed the procedure, and usually contain patients' bio-data, the indication, vital signs, type of anesthesia, average duration of procedure, colonoscopy findings and the recommendations.

The data from the report books including bio-data, indications, anaesthesia type, type of bowel preparation, duration of colonoscopy and findings at colonoscopy, were entered into an excel sheet and a descriptive statistics was performed.

RESULTS

One hundred and thirty-three patients had colonoscopy at our center between January 2021 and April 2022, when the service was uninterrupted. One hundred and twenty-five had fully documented reports which was analyzed with results as follows: Males were 74(59.2%) while females were 51(40.8%) the mean age of the population was 51.55 years, (males = 51.43; females = 51.72; p-value = 0.1021), age range was 16 – 85 years, median age was 53years. Most patients had bowel preparation using 20% mannitol (78%). The duration of colonoscopy ranges between 24 to 67minutes (mean = 44minutes), while the caecal intubation rate (excluding 6 patients with large rectal tumors) was 83.2% (99 out of 119).

The commonest indication for colonoscopy was lower gastrointestinal bleeding (37.6%), followed by colorectal cancer screening (22.4%), and chronic diarrhea (15.2%). The leading colonoscopic finding was normal finding (41.6%), followed by haemorrhoids (28.8%) and colorectal tumor (10.4%). See table 1. Overall, 58.4% of the study subjects had pathologies on colonoscopy. (see Fig 1.)

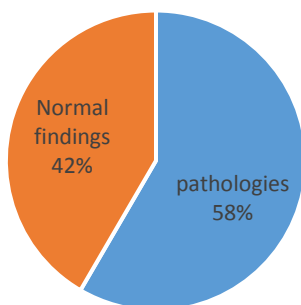


Figure 1. Diagnostic yield of colonoscopy

Table 1. Summary of findings.

<i>PARAMETER</i>	<i>FREQUENCY</i>	<i>PERCENTAGE</i>
Gender		
<i>male</i>	74	59.2
<i>female</i>	51	40.8
Age		
≤ 35	23	18.4
36-45	19	15.2
46-55	26	20.8
56-65	31	24.8
>65	26	20.8
Total	125	100
Indication		
<i>Lower GI bleeding</i>	47	37.6
<i>Chronic diarrhea</i>	19	15.2
<i>Screening</i>	28	22.4
<i>Lower abdominal pain</i>	10	8
<i>Chronic constipation</i>	4	3.2
<i>Weight loss</i>	3	2.4
<i>Alternating bowel habit</i>	2	1.6
<i>Others*</i>	12	9.6
Total	125	100
Colonoscopy diagnosis		
<i>Normal</i>	52	41.6
<i>Haemorrhoids</i>	36	28.8
<i>Diverticulosis</i>	8	6.4
<i>Rectal tumor</i>	8	6.4
<i>IBD-UC</i>	7	5.6
<i>polyps</i>	7	5.6
<i>Colonic tumor</i>	5	4.0
<i>Others#</i>	2	1.6
Total	125	100

*faecal incontinence, anal pain, anal protrusion, anemia, external haemorrhoid. #pseudomembranous colitis, anal fissure.

Majority of the patients with lower GI bleeding had rectal haemorrhoids (46.8%). Colonic tumor and diverticulosis were seen in 17% each. Majority of the patients with chronic diarrhoea (52.6%) had a normal colonoscopy finding. See table 2.

Table 2. Some indications with colonoscopy findings.

<i>INDICATIONS/FINDINGS</i>	<i>FREQUENCY</i>	<i>PERCENTAGE</i>
<i>Lower GI bleeding</i>		
<i>Haemorrhoids</i>	22	46.8
<i>Colo-rectal tumor</i>	8	17.0
<i>Diverticulosis</i>	8	17.0
<i>IBD-UC</i>	4	8.5
<i>Normal</i>	4	8.5
<i>Polyps</i>	1	2.1
<i>Total</i>	47	100
<i>Chronic diarrhea</i>		
<i>Normal</i>	10	52.6
<i>IBD-UC</i>	3	15.7
<i>Malignant tumor</i>	2	10.5
<i>Pseudomembranous colitis</i>	1	5.2
<i>Others</i>	3	15.7
<i>Total</i>	19	100
<i>Screening colonoscopy</i>		
<i>Normal</i>	16	57.1
<i>Haemorrhoids</i>	8	28.6
<i>Polyps</i>	3	10.7
<i>Diverticulosis</i>	1	3.5
<i>Total</i>	28	100

DISCUSSION:

From our study, the commonest indication for colonoscopy was lower gastrointestinal bleeding followed by colorectal cancer screening and chronic diarrhea. The leading colonoscopic finding was normal finding, followed by haemorrhoids and colorectal tumors.

Studies have shown that mannitol is not inferior to other acceptable bowel preparations (sodium picosulphate), both in terms of safety and quality.¹¹ The adjusted caecal intubation rate in our study was slightly below the acceptable global standard of 90%, recommended by

international endoscopy societies such as ASGE and ESGE.⁵ Although the overall quality of colonoscopy depends among other parameters, on bowel preparation, quality of bowel preparations were not reported consistently using standard criteria, hence we were not able to define and describe this in our study.

The diagnostic yield from our study was 58.4%. This is lower than what was previously reported in our centre and other parts of the country,^{12,13} and this may be due to evolving indications in our environment. For example, colorectal cancer screening, as

an indication for colonoscopy was much higher in our study than some previous studies.^{12,13} Generally, diagnostic yield varies depending on the indication for colonoscopy.¹⁴ Rectal bleeding, polyp follow-up and iron deficiency anaemia appear to have the highest diagnostic yields while cancer surveillance, abdominal pain and abnormal bowel habit have lower diagnostic yield.¹⁵

The commonest indication from studies in Nigeria (Lagos and Ilorin),^{6,13} were lower gastrointestinal bleeding (24.2% and 39.8%). This is the same with the finding in our study, however, may differ from findings in other parts of the world. For example, in a systematic study done in U.S. of 459,503 colonoscopies reviewed, 242,756 (52.8%) were screening colonoscopies.¹⁶ The lower screening rate in our environment is explained by limitations in resources including colonoscopy capacity, and the organization of structure of healthcare delivery.¹⁷ Colonoscopy for screening purpose was done in 22.4% of our study subjects. The rates of screening for colorectal cancer were much lower in older studies in Nigeria.^{6,12,13} For example, in a previous prospective study in our centre, about 10 years ago (2010-2012), there was no patient that had colonoscopy for colorectal cancer screening purpose.¹⁸ This may suggest increased awareness about screening colonoscopy in our environment, however, will require further study to ascertain.

Most study subjects had normal colonoscopy finding, which is in keeping with other studies.^{6,12,13} The commonest

pathology in our study was rectal haemorrhoids (28.8%), similar to previous studies in our centre¹² and in Lagos.⁶ The commonest finding in patients with lower GI bleeding in our study was haemorrhoids. Although diverticular bleeding is the leading cause of lower gastrointestinal bleeding globally,¹⁹ most studies in Africa reported rectal hemorrhoids as the leading cause.²⁰ It was also found to be a leading cause of lower GI bleeding in a study among African-Americans and Hispanics.²¹

CONCLUSION:

Our study like most studies in Nigeria showed that lower gastrointestinal bleeding is the leading indication for colonoscopy in JUTH. It also suggest that screening colonoscopy rate for colorectal cancer may be on the increase in our environment, this however, requires further study to ascertain.

CONFLICT OF INTEREST:

There is no conflict of interest.

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