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Cecal and Ilial Intubation Rates in Colonoscopy; Comparative Study

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Abstract

Background: Colonoscopy is considered to be the procedure of choice for both the diagnosis and treatment of large bowel diseases. Inspection of the whole colonic and distal portion of terminal ilial mucosa is usually feasible during colonoscopy.Colonoscopy is the best diagnostic tool to evaluate the large intestine and distal Ilium in patients complaining from bowel symptoms, anemia resulting from malabsorption, those with radiographic abnormalities of the colon, screening for colorectal carcinoma, after both polypectomy and cancer resection surveillance, surveillance in Ulcerative Colitis, and in those with suspicion of neoplastic masses. Quality examination of large bowel includes intubation of the whole colon and a thorough mucosal visualization. The investigators demonstrate that terminal ilium intubation is possible in endoscopy practice and at many times yields additional clinical details. Furthermore, it may be used as an indicator of colonoscopy completion.

Objectives: Is to estimate the rate of Cecal and Ilial Intubation in by a single well trained endoscopist as quality Indicator of colonoscopy and compare it with the same rates of heterogeneous group of endoscopists.

Patients and Method: This is a retrospective comparative study that estimate the rate of Cecal and Ilial Intubation in a Private Endoscopy Center in which all endoscopic procedures conducted by a single endoscopist who has fellowship in gastroenterology and compare it with the rates of a governmental center in which colonoscopy is done by five endoscopists including general surgeons, general physicians and trained in endoscopy as well as gastroenterologists who has gastroenterology fellowship. The study population included (442 patients); 245 males (55.42%) and 197 females (44.58%); ranging from 14 up to 85 years age.

Results: Overall Cecal and Ilial intubation rates were 88% and 47.5% Respectively; After considering cases of anatomic colonic obstruction and when the clinical indications don't justify total colonic intubation; the adjusted rates were 49.2% & 50.8% for cecal & Ilial intubations respectively; and these figures were superior in comparison to the results of multioperator study in which the cecal intubation rate was 51.81% and the ilila intubation rate was 30.69%.

Conclusions: Cecal and Ilial intubation are important quality indicators for colonoscopy and in this study they are found to be superior in qualified gastroenterologist than in general surgeons & physicians; this result points to the importance of providing endoscopy units in Iraq with qualified well trained endoscopy personnel.

Keywords:

Colonoscopy • Colon • Terminal ilum • Bowel preparation

Introduction

Colonoscopy is considered to be the procedure of choice for both the diagnosis and treatment of large bowel diseases. When done by well-trained person, colonoscopy is quite hazardless and quite tolerable procedure in most instances. Inspection of the whole colonic and distal portion of terminal ilial mucosa is usually feasible during colonoscopy. Colonoscopy is the best diagnostic tool to evaluate the large intestine and distal Ilium in patients complaining from bowel symptoms, anemia resulting from malabsorption, those with radiographic abnormalities of the colon, screening for colorectal carcinoma, after both polypectomy and cancer resection surveillance, surveillance in Ulcerative Colitis, and in those with suspicion of neoplastic masses. Quality examination of large bowel includes navigating through the whole colon and a comprehensive mucosal visualization [1]. Intubation of cecum improve the sensitivity and reduces expenses by obviating the indication for imaging studies or to perform a second colonoscopy aiming at visualization of the whole

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colon. Detailed mucosal examination is mandatory during screening for colorectal carcinoma in order to prevent colorectal cancer and reduce its mortality. There is a great variability in reported rates of Terminal ilium intubation at colonoscopy among different studies. The investigators demonstrate that terminal ilium intubation is possible in endoscopy practice and at many times yields additional clinical details. Furthermore, it may be used as an indicator of colonoscopy completion. It may be particularly helpful when investigating patients with chronic diarrhea, abnormalities seen on other radiographic modalities and when there's suspicion of Crohn's disease. The maximal benefit of colonoscopy depends on patient role in the procedure, which depends mostly on performance of the bowel preparation. The quality of preparation affects the extent of examination, duration of the procedure, and the decision to abort or defer colonoscopy early. Poor bowel cleansing can substantially increase the costs of the procedure. Longer detailed examination and prolonged extubation times are important factors to enhance the rate of adenoma detection [2]. A high rate of adenoma detection is crucial to make the recommended intervals between screening and surveillance colonoscopy secure. High quality performance is required to guarantee a high chance of dysplasia detection in ulcerative colitis and Crohn's Disease. lastly, hand skills and personal expertise are essential to avoid unpleasant events that might be encountered during removal of neoplastic lesions.

Objectives

Is to estimate the rate of Cecal & Ilial Intubation in by a single well trained endoscopist as quality Indicator of colonoscopy and compare it with the same rates of heterogeneous group of endoscopists to clarify the impact of the edoscopist skills and expertise on the quality of colonoscopy.

Patients and Method

This is a retrospective comparative study that estimate the rate of Cecal and Ilial Intubation in a Private Endoscopy Center in which all endoscopic procedures conducted by a single endoscopist who has fellowship in gastroenterology and compare it with the rates of a governmental center in which colonoacopy is done by five endoscopists including general surgeons, general physicians and trained in endoscopy as well as gastroenterologists who has gastroenterology fellowship. The study data were taken from electronic records of the center over three years, for the period from December 2016 up to December 2020; all the colonoscopies were done by a single endoscopist using (Pentax EC-3430 LK) colonoscope connected to Pentax EPK-3000 Video System. All the procedures were conducted under conscious sedation using Midazolam (3-5 mg) or without sedation if there are medical contraindications. The study population included (442 patients); 245 males (55.42%) and 197 females (44.58%); ranging from 14 up to 85years age. The results were compared with those of a study conducted by the same investigator at Al-Diwaniyah Gastroenterology center and published in 2020 [3].

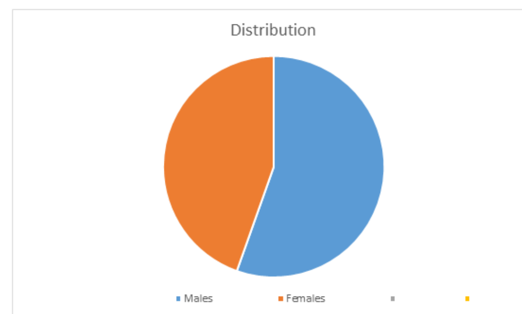

Figure1: Distribution of the study population.

Table (1) Demonstrates the Extent of Colonic Intubation: It shows that Cecal intubation achieved in 389 out of 442 patients which represents (88%) of Cases; while Terminal Ilium was intubated in 210 out Of 442 representing (47.5%) of Patients.

Total	Cecum and Terminal Ilum	Cecum Alone	Hepatic Flexure	Splenic Flexure
442(100%)	210	179	23	30
-	-0.475	(%40.5%)	-0.052	-0.068

Table1: Extent of colonic intubation.

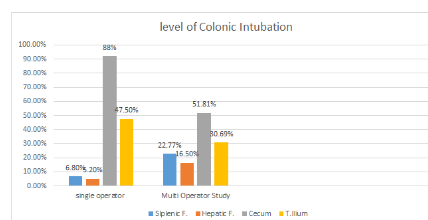

Figure2: Demonstrates comparison of the extent of colonic intubation between single operator and mullti operator study.

Total	Clinical Indication	In adequate Sedation	Bad Preparation	Anatomical Obstruction
53 (100%)	11 (20.8%)	10 (18.9%)	14 (26.4%)	18 (33.9%)

Table2: Demonstrates causes of incomplete colonic intubation.

Discussion

The distribution of the study population (Figure 1); 55.5% males versus 44.5% females does not reflect the normal distribution of the province society with sleight female dominance; this might be attributed to the reluctance of some females to undergo colonoscopic procedure by a male operator due to the social and religious considerations held by the population. This problem is often faced in this city due to absence of female endoscopist in most of the cities of central & Southern Iraq. Table (1) Demonstrates the extent of colonic intubation; overall rate of Cecal intubation is found to be (88%); and that of Ilial Intubation (47.5%); but if cases of anatomic obstruction beside the conditions that there were no indications for further progress (for Example Solitary Recal Ulcer and Sigmoid Volvolus);

the intubation rates will raise to (94.2%) for cecal intubation & (50.8%) for Ilial intubation.International studies have shown variable figures regarding rates of Cecal and Ilial Intubation; John B. Marshal &James S. Barthel reported 97% and 74% for Cecal and Ilial Intubations respectively provided thal malignant colonic obstruction was excluded (24), reviwed 5477 colonoscopies over 6 years' period conducted by 10 faculty endoscopist and found that the overall (adjusted) Cecal Intubation rate was 90.3% and increased over the last year to the highest adjusted rate of 93.7% . studied 279 colonoscopies; the cecum was intubated in 91% and terminal Ilium in 79% of cases. From the preceding studies we can conclude that the rate of cecal intubation is comparable to the international figures, yet the rate of Ilial intubation is still inferior; this might be attributed mainly to the indications of colonoscopy and certain epidemiological factors; since its well-known that Crohn's disease is less common in developing countries than western industrialized countries so there must be less indications for Ilial intubation in developing nations and that would be reflected on the rate of Ilial intubation; Besides that this study was done on procedures conducted in a a private endoscopy clinic in a country in which the local regulations prohibits the use of general anesthesia or Propafol or Ketamine and only small doses of Midazolam (3-5mg)of Midazolam is used in Private clinics for endoscopy and that will affect the quality and the extent of colonoscopy as we found that (18.1%) were terminated early due to patient irritability attributed mainly to inadequate sedation. The rate of ilial intubation not only depends on the endoscopist intent to do so, but on several other factors such as the medical indications, bowel preparation, adequacy of patient sedation and also on the time factor as well as the endoscopist expertise and hand skills [4]. Anatomic obstruction (mainly malignant obstruction) was the most common cause for failure of cecal intubation (33.9%) followed by bad preparation (26.4%) and Inadequate sedation (18.1); and in (20.8%) the clinical indications were the main determinant factor for early termination such as Solitary Rectal Ulcer, resection of rectal polyp diagnosed in previous colonoscopy or endoscopic deflation for sigmoid volvulus and in similar conditions in which there was no rationale to do complete colonoscopy especially in a critical or poorly sedated patient. Figure (2) represents a comparison of extent of colonoscopic intubation between this study I which colonoscopy done by one qualified gastroenterologist and another study done by the same investigator in gastroenterology center in which colonoscopic procedures were done by five endoscopist three of are general physicians or surgeons trained for endoscopy & two qualified gastroenterologist; the cecal and ilial intubation rates were higher in the specialty (single operator group) than in the general (Multi operator) group in a study conducted in Cleveland Clinic comparing the results of screening colonoscopy between gastroenterologist group and colorectal surgeons group; the study found difference in cecal intubation rate but adenoma detection rate was higher in gastroenterology group; withdrawal time was longer bowel preparation level was lower in colorectal surgeon group [5]. In this study the rate of both cecal and Ilial intubation were superior in the single operator gastroenterology specialist than in mixed specialty multioperator group pointing to the importance of proper training to improve hand skills & technical expertise of the endoscopists.

Conclusion

Cecal and Ilial intubation are important quality indicators for colonoscopy and in this study they are found to be superior in qualified gastroenterologist than in general surgeons & physicians; this result points to the importance of providing endoscopy units in Iraq with qualified well trained endoscopy personnel.

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