

■ *Original Article*

Colonoscopy in patients without sedation: an experience from Nepal

B Pradhan, N Pandey

Department of Internal Medicine

B.P. Koirala Institute of Health Sciences, Dharan, Nepal

Abstract

Background: Colonoscopy is considered a painful procedure requiring routine intravenous sedation, however there are number of potential advantages to performing colonoscopy without sedation. **Objective:** To determine the effect of unsedated colonoscopy on the success rate of caecal intubation. **Methods:** All charts of patients who had unsedated colonoscopy from September 2010 to August 2011 were reviewed. Patient characteristics including age, gender, and mode of presentation were collected. The reasons for incomplete colonoscopy and sites reached were recorded. **Results:** During the study period, 127 examinations were performed without sedation. The mean age of the patients was 41.9 years with 79% males. The most common indication for performing colonoscopy was irritable bowel syndrome and the predominant endoscopic finding was colitis other than inflammatory bowel disease. The completion rate was 80.3%. **Conclusion:** In this study, sedation probably affects the overall success rate of cecal intubation. But unsedated colonoscopy can be used in resource poor settings to minimize direct and indirect costs of colonoscopy.

Keywords: colonoscopy sedation, completion rate

Introduction

Colonoscopy is one of the most commonly performed medical procedures worldwide. Although recent advances in endoscopy have improved endoscope imagery and flexibility, colonoscopy remains a difficult and lengthy endoscopic procedure that causes the patient considerable discomfort or pain and it is usually performed with the patient under sedation and receiving analgesics.¹⁻³ The combination of benzodiazepine and an opioid, mostly midazolam^{3,4} and pethidine⁵, has become standard sedative practice for this procedure in most countries. Sedation enhances patient tolerance and acceptance of endoscopic procedures, but adds cost, risk of complication, and delays the resumption of normal activity.^{6,7} Unsedated colonoscopy has been an evolving subject ever since its initial description four decades ago. A recent report in the primary care literature, however, suggested that sedation may be a barrier to colonoscopy screening.⁸ Sedation and analgesia is also associated with a small but definite risk of cardio-respiratory complications,

which have been reported in 0.10% to 0.54% of patients, with fatalities occurring in 0.03%.² It has been estimated that between 50% and 60% of all morbidity and mortality occurring during endoscopic procedures is directly related to the administration of sedatives and narcotics.⁹ Finally, potential time lost from work for the patient and the accompanying person adds to the overall cost to society. Thus, the ability to perform colonoscopy without sedation and without compromising its efficacy rate could be highly advantageous in a developing country like Nepal. The aim of this study was to determine the effect of unsedated colonoscopy on the success rate of caecal intubation.

Methods

The files of all the patients who underwent colonoscopy from September 2010 to August 2011 were reviewed. Patients who had an intravenous sedation were excluded from the analysis. Patient characteristics including age, gender, and indication for colonoscopy were recorded. Satisfaction of the bowel preparation was also collected. Endoscopic and histological findings were obtained.

Address for correspondence:
Dr Bickram Pradhan, Associate Professor
Department of Internal Medicine, BPKIHS
Email: bickram_11@hotmail.com

A completed procedure was defined as the ability to visualize the cecum/ terminal ileum as per the procedure report. Any procedure that could not reach cecum was considered incomplete. The reasons for incomplete colonoscopies and sites reached in incomplete examinations were recorded. All procedures were performed by experienced endoscopists using video-colonoscopes. Colon cleansing was achieved by oral administration of 2 liters of Peglac powder, given 12-18 hrs before the examination. A liquid diet was also recommended to patients 24 hours before the procedure. For all patients, heart rate and oxygen saturation were monitored by pulse oxymeter. The data were entered into a statistical software program (Microsoft excel files) and analysis done using SPSS software version 10.

Results

During that period a total 127 colonoscopies were performed out of which 79(62.2%) were males. The mean age was 41.9 ±14.11 years.

Table 1: Indications for performing colonoscopy

Indications	n (%)
Irritable bowel syndrome	35 (27.6%)
Bleeding P/R	29 (22.8%)
Chronic abdominal pain	14 (11.02%)
Chronic diarrhoea	14 (11.02%)
Constipation	7 (5.5%)
Altered bowel habit	6 (4.7%)
Abnormality on other imaging studies	5 (3.9%)
Presence of fecal occult blood	3 (2.4%)
Follow up of ulcerative colitis	2 (1.6%)
others	12 (9.5%)

The indications for performing colonoscopy is listed in table 1. The most common indication was Irritable bowel syndrome to rule out organic disease (27.6%). The other common indications were bleeding P/R (22.8%), chronic abdominal pain (11.02%) and chronic diarrhea (11.02%). The bowel preparation was found to be adequate in 98 (77.2%) patients. The final endoscopic diagnosis are listed in table 2. The finding was normal in 51.9% of the patients. Colitis other than Inflammatory bowel disease (IBD) was found in 15.8% while ulcerative colitis was detected in 12 % of cases. Diverticulosis of the colon was found in only one case, while colonic polyps were found in 5.5% of cases.

Table 2: Endoscopic findings during colonoscopy

Endoscopic findings	n (%)
Normal	66 (51.9%)
Colitis/ proctitis other than IBD	20 (15.8%)
Ulcerative colitis	12 (9.5%)
Haemorrhoids	11 (8.7%)
Polyps	7 (5.5%)
Ileo-caecal tuberculosis	6 (4.7%)
Colorectal mass	4 (3.2%)
Diverticulosis	1(0.8%)

The overall completeness rate of colonoscopy was 80.3%. Poor bowel preparation was the dominant cause of incomplete insertion seen in 56% followed by abdominal pain seen in 20% of the cases. The completeness of colonoscopy increased to 88.8 % if inadequate preparations were excluded from the analysis.

Table 3: Completeness of colonoscopy

Completeness rate in all patients. n = 127.	102 (80.3%)
Completeness rate in patients with normal findings. n= 66.	56 (84.9%)
Completeness rate in patients with abnormal findings. n= 61.	46 (75.4%)
Completeness rate in adequately prepared bowel. n= 98.	87(88.8%)
Level reached in incomplete colonoscopy. n= 25	
Ascending colon	5 (20%)
Transverse colon	14 (56%)
Sigmoid	4 (16%)
Rectum	2 (8%)
Reason for termination of procedure.	
Inadequate preparation	14 (56%)
Pain	5 (20%)
Technically difficult	3 (12%)
Strictures	2(8%)
Not specified	1(4%)

Discussion

A grave concern regarding unsedated colonoscopy is the belief that the procedure is painful.^{10,11} The major limiting factor is discomfort, in part because air lengthens the colon and exaggerates angulations at all the flexures and redundant segments making it more difficult to perform unsedated colonoscopy Besides being expensive, sedation significantly increases the demand on medical resources and personnel and the risk of cardio pulmonary complications limiting the use

of colonoscopy. However any effort to minimize side effects and total cost of sedated colonoscopy should not compromise the effectiveness of this procedure

Overall, the average success rate of cecal intubation with unsedated colonoscopy is about 80%.¹² In 451 patients who underwent screening unsedated colonoscopy, Thiis-Evensen et al showed that cecum can be intubated in 82% of the patients, 50% of these individuals found the examination to be uncomfortable.¹³ These results are very similar to this study where the caecal intubation rate was 80.3%. However the crude cecal intubation under deep sedation is 98%.¹⁴

A novel method of water infusion in lieu of air insufflation significantly improved the success rate of cecal intubation to 97% in an observational study.¹⁵ The significant impact was confirmed in a subsequent randomized controlled trial with a cecal intubation rate of 98%.¹⁶

Conclusion

This report confirms the feasibility of unsedated colonoscopy. Sedation does affect the overall success rate of cecal intubation. But unsedated colonoscopy can be used in resource poor settings to minimize direct and indirect costs of colonoscopy. However a prospective randomized study comparing sedated with unsedated colonoscopy in terms of completion rate and patient satisfaction is needed.

References

1. Keeffe EB, O'Connor KW. 1989 A/S/G/E Survey of endoscopic sedation and monitoring practices. *Gastrointest Endosc* 1990; 36: S13--S18.
2. Arrowsmith JB, Gerstman BB, Fleischer DE, Benjamin SB. Results from the American Society for gastrointestinal Endoscopy/ US. Food and Drug Administration collaborative study on complication rates and drug use during gastrointestinal endoscopy. *Gastrointest Endosc* 1991; 37: 421-7.
3. Froehlich F, Gonvers JJ, Fried M. Conscious sedation, clinically relevant complications and monitoring of endoscopy: Results of a nationwide survey in Switzerland. *Endoscopy* 1994; 26: 231-4.
4. Keeffe EB, O'Connor KW. 1989 A/S/G/E Survey of endoscopic sedation and monitoring practices. *Gastrointest Endosc* 1990; 36: S13--S18.
5. Lazzaroni M, Bianchi PG. Preparation, Pre-medication and Surveillance. *Endoscopy* 2003; 35: 103-11.
6. Aisenberg J, Brill JV, Ladabaum U, Cohen LB. Sedation for gastrointestinal endoscopy: new practices, new economics. *Am J Gastroenterol*. 2005;100:996-1000.
7. Zubarik R, Ganguly E, Benway D, Ferrentino N, Moses P, Vecchio J. Procedure-related abdominal discomfort in patients undergoing colorectal cancer screening: a comparison of colonoscopy and flexible sigmoidoscopy. *Am J Gastroenterol*. 2002;97:3056-3061.
8. Denberg TD, Melhado TV, Coombes JM, Beaty BL, Berman K, Byers TE, et al. Predictors of nonadherence to screening colonoscopy. *J Gen Intern Med*. 2005;20:989-995.
9. Bianchi PG, Lazzaroni M. Preparation, Pre-medication and Surveillance. *Endoscopy* 1992; 24: 1-8.
10. Leo RA. Unsedated endoscopy: you don't get a medal for it! *South Med J* 2004; 97:797-8.
11. Madan A, Minocha A. Who is willing to undergo endoscopy without sedation: patients, nurses, or the physicians? *South Med J* 2004; 97:800-5.
12. Leung FW, Aljebreen AM, Brocchi E, Chang EB, Liao WC, Mizukami T, et al. Sedation risk-free colonoscopy for minimizing the burden of colorectal cancer screening. *World J Gastrointest Endosc*. 2010;2:81-9.
13. Thiis-evensen E, Hoff GS, Sauar J, Vatn MH. Patient tolerance of colonoscopy without sedation during screening examination for colorectal polyps. *Gastrointest Endosc* 2000; 52: 606-10.
14. Hsu CM, Lin WP, Su MY, Chiu CT, Ho YP, Chen PC. Factors that influence cecal intubation rate during colonoscopy in deeply sedated patients. *J Gastroenterol Hepatol*. 2011 Jun 7. doi: 10.1111/j.1440-1746.2011.06795.
15. Leung FW, Aharonian HS, Leung JW, Guth PH, Jackson G. Impact of a novel water method on scheduled unsedated colonoscopy in U.S. veterans. *Gastrointest Endosc* 2009; 69:546-50.
16. Leung FW, Harker JO, Jackson G, Okamoto KE, Behbahani OM, Jamgotchian NJ, et al. A proof-of-principle, prospective, randomized, controlled trial demonstrating improved outcomes in scheduled unsedated colonoscopy by the water method. *Gastrointest Endosc* 2010; 72:693-700.