

The Success Rate of Unsedated Colonoscopy Examination in Adult

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Abstract

Aim: . Aim of the study was to evaluate the feasibility of unsedated colonoscopy examination in the increasing trend of deep sedation colonoscopy examination in our country. **Material & Methods:** The endoscopy reporting system images of single-handed (one-man) method unsedated colonoscopy examinations were evaluated. Patients with history of colorectal surgery were excluded from the analysis. We evaluated the success rate of caecal intubation by unsedated colonoscopy. Non parametric binomial test was applied for statistical analysis with $p < 0.05$. **Results :** There were 244 patients included in the study with 143 (82.66%) patients caecal intubated successfully (success group) and 30 (17.34%) patients failed to reach the caecum due to severe abdominal pain only (failure group) ($p < 0.0001$). The lesions that obstructed the colonoscopy examination were 38 distal colon cancers, 9 proximal colon cancers, and 4 colon strictures. Eight patients with unfinished colonoscopy examination due to haemodynamic worsening, and 12 patients with unfinished colonoscopy examination due to bad bowel preparation (fecal obstruction). The success rate of endoscopic diagnosis confirmation was 86.61% (194) vs 13.39% (30) ($p < 0.0001$). No complication or mortality was found in this study. **Conclusion :** the unsedated colonoscopy is still significantly feasible procedure for colon examination.

INTRODUCTION

The increasing trend to perform sedated colonoscopy, especially deep sedation/general anesthesia, than unsedated has an impact on the high cost¹ of the procedure that might not be appropriate for most of the people in developing country like us. On the other hand, the avoidance of unsedated colonoscopy is commonly related with abdominal discomfort or patient distress during examination despite the benefits.

In the United States, gastroenterologist perform unsedated colonoscopy only in 2-6% of colonoscoped patients underline the popularity of sedated colonoscopy in the developed countries². The questions are should the unsedated colonoscopy be avoided?, how about the safety profile of this procedure, the caecal intubation achievement and the diagnosis confirmation of this procedure?. Our center perform unsedated colonoscopy routinely and only very few of adult patients underwent moderate, deep sedation or general anesthesia. Many patients still can not afford the cost even colonoscopy examination is without sedation. Pediatric colonoscope, variable stiffness colonoscope³, and hypnosis, were examples of efforts to

reduce the abdominal discomfort during examination⁴. Aim of our study was to evaluate the success rate of unsedated colonoscopy especially in our developing country because it was not evaluated yet.

MATERIALS AND METHODS

The single-handed (one-man) unsedated colonoscopy were performed consecutively in routine examination setting and evaluated the results of caecal intubation examination from endoscopy reporting system. We evaluated the colonoscopy examination results that were only performed by one of the author (Putut Bayupurnama) to reduce the skill-based variation, with standard technical examination using standard type of adult videocolonoscope (Fujinon EC-250WL5) with flexible portion diameter 12.8 mm. An endoscopy nurse helped the endoscopist only to keep the position of the colonoscope during examination without pulled or pushed the colonoscope. Our standard operating procedure suggested that only patients without serious cardiac problems and had colonoscopy indication were allowed to be examined. According to our prothocol, porridge with ketchup and sodium phosphosoda were given as part of bowel preparation, tramadol hydrochloride

(analgesic) 50-100 mg and hyoscin-N-butylbromide (antispasmodic) 20 mg IV/IM were administered before examination was started. Oxygen was administered to the patient with nasal cannula and blood oxygen saturation was monitored during examination. Patients with history of colorectal surgery were excluded from analysis. This unsedated colonoscopy was performed in Dr Sardjito Hospital (affiliated with Faculty of Medicine, Gadjah Mada University), Yogyakarta, Indonesia, from January 2007 until March 2009. We evaluated the number of caecal intubation cases as a final target of colonoscopy examination, the complications, and the endoscopic diagnosis confirmation of the procedure. based on colonoscopy examination image reports. Due to the abdominal pain or discomfort is the only distinctive feature between sedated and unsedated colonoscopy, therefore the difference between the number of caecal successfully intubated cases (success group) and the number of caecal intubation failure cases who only related with abdominal pain without diagnosis confirmation (failure group) was become our main outcome. Informed consent was signed before the procedure was started. Non parametric binomial test was applied for statistical analysis with $p < 0.05$.

RESULTS

There were 244 patients (143 men and 101 women) indicated and underwent unsedated colonoscopy examinations. There were 143 patients (37 patients with normal colonoscopy, 6 patients with proximal colon tumors, 2 patients with distal colon tumors, and the rest of 98 patients with non obstructing lesions) to whom the caecum were intubated successfully (success group) with 24 cases were also intubated into the terminal ileum based on the indication. The mean of age of the success group was 53.43 ± 15.72 years old (range : 20 - 85 years old), and 90 patients were male sex and 53 were female. There were 30 patients with unfinished colonoscopy due to severe abdominal pain only without any haemodynamic or cardiopulmonary problem (failure group), 8 patients with unfinished colonoscopy examination due to haemodynamic worsening, and 12 patients with unfinished colonoscopy examination due to bad bowel preparation (fecal obstruction). Comparison of the success group and failure group showed 82.66% success rate and 17.34% failure rate ($p < 0.0001$). The lesions that obstruct the colonoscopy examination were 38 distal colon tumors, 9 proximal colon tumors, and 4 colon stricture. When we added the number of these obstructing lesions to the success group, then the success rate of endoscopic diagnosis confirmation of this

unsedated colonoscopy study was 86.61% (194 patients) against 13.39% (30 patients) of failure group ($p < 0.0001$). No complication or mortality was found in this study.

DISCUSSION

This study showed that unsedated colonoscopy was still feasible in the increasing trend of deep sedation or general anaesthesia for basic endoscopy examination in our country. The advantages of the unsedated colonoscopy are sedation risk-free², patient still conscious so that they can follow the examination from the monitor and easier to change patient position during examination, lower cost, and patient can back to work and drive vehicle as soon as the procedure was finished, and also patient may come for examination unescorted. The main disadvantage of this procedure that differentiate it with deep sedation is the abdominal pain or discomfort that can not be overcome by patient which is may caused by technical difficulties or patient distress, even though the pain itself is an "alarm sign" that useful for the endoscopist to be more careful and perform more appropriate endoscopic maneuver. Colonoscopy skill has very important role to increase the success rate of total colonoscopy examination while one-man (single handed) colonoscopy examination is better tolerated than the two man method³. The only main purpose of sedation in colonoscopy is to reduce (moderate sedation) or abolish (deep sedation/general anaesthesia) the abdominal pain or discomfort during examination⁵. Elderly or patient with comorbidity may experience higher risk of sedation adverse effect.

Many efforts have been done to increase the success rate of caecal intubation in unsedated colonoscopy examination, such as the use of pediatric colonoscope, variable stiffness colonoscope, gastroscope, nitrous oxide inhalation or carbondioxide insufflation, hypnosis, music, etc⁶, even though the result of these studies were still inconclusive. In sedation on-demand colonoscopy examination with water infusion showed 52% patients finished the colonoscopy examination unsedated⁷. An uncontrolled study² in the United States (US) showed 81% patients completed colonoscopy unsedated which almost similar with our result (82.66%) and increasing demand of unsedated colonoscopy in that US endoscopy center during the study. Another study from Taiwan showed only 9.6% patients actually needed sedation in colonoscopy examination⁸. Our colonoscopy study also showed that about 87% patients achieved the diagnosis confirmation endoscopically. It might be caused by the high frequency of distal colon lesions, especially

colorectal cancer, in our center. Tramadol hydrochloride, which was administered before colonoscopy procedure, was an analgesic intended to reduce the abdominal discomfort even though it did not abolish the symptoms. A study showed that tramadol was only had modest analgesic effect and less effective than fentanyl even in moderately sedated colonoscopy examination⁹. The limitation of this study was not prospectively studied, even though it possibly reduce the endoscopist bias in colonoscopy examinations.

In conclusion, the unsedated colonoscopy is still a feasible and safe procedure with high diagnostic value, sedation risk-free, and lower cost, in the increasing trend of basic endoscopy examination with deep sedation or general anaesthesia in our country. No mortality was recorded in our study.

References

1. Aisenberg J, Brill JV, Ladabaum U, Cohen LB. Sedation for gastrointestinal endoscopy: new practices, new economics. *Am J Gastroenterol.* 2005;100(5):996-1000
2. Leung FW, Aharonian S, Guth PH, Jackson G, Chu SK, Nguyen BD, Simpson P. Unsedated colonoscopy: time to revisit this option?. *J Fam Pract.* 2008;57(12):E1-4
3. Chen PJ, Shih YL, Chu HC, Chang WK, Hsieh TY, Chao YC. A prospective trial of variable stiffness colonoscopes with different tip diameters in unsedated patients. *Am J Gastroenterol.* 2008;103(6):1365-71.
4. Lee IL, Wu CS. Less patient discomfort by one-man colonoscopy examination. *Int J Clin Pract.* 2006;60(6):635-8
5. Rex DK. Moderate sedation for endoscopy: sedation regimens for non-anaesthesiologists. *Aliment Pharmacol Ther.* 2006;24(2):163-71
6. Leung FW. Methods of reducing discomfort during colonoscopy. *Dig Dis Sci.* 2008;53(6):1462-7.
7. Leung JW, Mann S, Leung FW. Options for screening colonoscopy without sedation: a pilot study in United States veterans. *Aliment Pharmacol Ther.* 2007;26:627-31.
8. Liao WC, Chiu HM, Chen CC, Lee YC, Wu MS, Lin JT, Wu AS, Wang HP. A prospective evaluation of the feasibility of primary screening with unsedated colonoscopy. *Gastrointest Endosc.* 2009; DOI: 10.1016/j.gie.2009.03.020
9. Hirsh I, Vaissler A, Chernin J, Segol O, Pizov R. Fentanyl or tramadol, with midazolam, for outpatient colonoscopy: analgesia, sedation, and safety. *Dig Dis Sci* 2006;51:146-51.

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