

Bowel preparation: The elderly, the hospitalized, and the colonoscope

See articles on pages 87 and 93

Colonoscopy is a crucial part in any gastroenterology practice. In addition to the procedure's role in the management of acute and chronic digestive ailments, it forms the backbone of any effective colorectal cancer screening program. Significant advances have been made in improving the quality of images during colonoscopy. The endoscopist's ability to interpret any findings is significantly influenced by the quality of bowel preparation.

Inadequate cleansing remains a major challenge in most endoscopy units with an estimated 1 in 5 procedures labeled as having a suboptimal preparation.^[1] Furthermore, patients who fail colonoscopy due to poor preparation are at higher risk of failing subsequent procedures for the same reason. In a retrospective study looking at this patient population, failure rate reached 25% even in the third and fourth attempts.^[2]

Previous publications revealed multiple factors that are associated with inadequate colon cleansing. A Dutch study evaluated a score to predict adequacy of preparation. The use of opioids, tricyclic antidepressants, American Society of Anesthesiologist score of 3 or more, chronic constipation, current hospitalization, previous endoscopy with poor bowel preparation were all included in the score. It showed a good discriminative ability with an area under the curve of 0.77.^[3]

In this issue of the Journal, Almadi *et al.* performed a retrospective assessment comparing quality of bowel preparation between hospitalized and ambulatory patients.^[4] The authors looked retrospectively at 3000 procedures done at an academic tertiary care center. Subjects having their colonoscopies done as outpatients were more likely to have good bowel preparation compared to those who were hospitalized at the time of their procedure (67.23% vs. 56.64%, P -value < 0.01). Ambulatory patients were more likely to have complete colonoscopies; however, the polyp detection rate was similar between the two groups (18.90% vs. 20.83%, P -value = 0.22). The following factors were associated with

suboptimal bowel preparation in the univariable modeling: age, chronic kidney disease, hypertension, and anemia. However, diabetes mellitus was the only factor associated with suboptimal preparation in the multivariate analysis; odds ratio (OR) = 1.70 [95% confidence interval (CI), 1.21–2.39]. The study excluded patients with inflammatory bowel disease in keeping with previous publications in the field.

The study has limitations that were addressed by the authors. The Boston Bowel Preparation Score was only used at the latter part of the study. It is the most validated score for bowel cleansing.^[5] It consists of 10 points (0–9). Each of the three colonic segments is scored independently. Patients who score <5 have lower polyp detection rate compared to those who score 5 or higher.^[6] Regardless of the score used, the endoscopist should be able to detect polyps >5 mm in size to categorize the preparation as acceptable.^[7]

Endoscopy units should monitor the rate of procedures rescheduled due to poor bowel preparation. Adequacy of bowel preparation is an important quality indicator in colorectal cancer screening programs. The United States Multi-Society Task Force of Colorectal Cancer recommends that a minimum of 85% of patients achieve adequate bowel preparation. Similar to adenoma detection rate and cecal intubation rate, this quality indicator should be monitored on per physician basis.^[7] In addition to the potential waste of resources, poor bowel preparation is associated with prolonged procedure time and complications.^[1]

In another article in this issue of the Journal Zhang *et al.* looked at incidence and risk factors for inadequate bowel preparation among elderly patients.^[8] In this prospective trial, the rate of inadequate bowel preparation among ambulatory patients above the age of 60 was 34.6%. In a unique aspect of the study, subjects were required to walk at least 30 min while taking the laxative. Failing to comply with this recommendation was an independent risk factor for poor preparation (OR = 2.474; CI = 1.261–4.855; P = 0.008).

Zhang *et al.* used same day bowel preparation and all procedures were done in the afternoon. The practice of same day bowel preparation was supported by

two meta-analyses published in 2017. They showed noninferiority when compared to split dosing. In one of these studies, same day preparation was associated with lower rates of bloating and sleep disturbance.^[9,10] It might be an acceptable alternative to split dose preparation, particularly for afternoon procedures.^[11]

As health care providers, we should strive to improve patient's compliance with cleansing instructions. Liberalizing patients' diet the day prior to the procedure may help immensely in achieving this goal. A meta-analysis looking at the diet of patients prior to colonoscopy found no difference between low-residue diet compared to clear liquid diet.^[12] Low-residue diet excludes nuts, seeds, complex grains, and raw vegetables and fruits, especially those with skin.^[11]

Turki AlAmeel

Division of Gastroenterology, King Fahad Specialist Hospital-Dammam, Kingdom of Saudi Arabia

Address for correspondence: Dr. Turki AlAmeel,
Department of Medicine, King Fahad Specialist Hospital-Dammam,
Dammam 31444, Saudi Arabia.
E-mail: talameel@gmail.com

REFERENCES

1. Froehlich F, Wietlisbach V, Gonvers JJ, Burnand B, Vader JP. Impact of colonic cleansing on quality and diagnostic yield of colonoscopy: The European Panel of Appropriateness of Gastrointestinal Endoscopy European multicenter study. *Gastrointest Endosc* 2005;61:378-84.
2. Ben-Horin S, Bar-Meir S, Avidan B. The outcome of a second preparation for colonoscopy after preparation failure in the first procedure. *Gastrointest Endosc* 2009;69:626-30.
3. Dik VK, Moons LM, Hüyük M, van der Schaar P, de Vos Tot Nederveen Cappel WH, Ter Borg PC, *et al.* Predicting inadequate bowel preparation for colonoscopy in participants receiving split-dose bowel preparation: Development and validation of a prediction score. *Gastrointest Endosc* 2015;81:665-72.
4. Almadi MA, Alharbi O, Azzam N, Altayeb M, Thaniah S, Aljebreen A. Bowel preparation quality between hospitalized patients and outpatient colonoscopies. *Saudi J Gastroenterol* 2018;24:93-9.

5. Parmar R, Martel M, Rostom A, Barkun AN. Validated scales for colon cleansing: A systematic review. *Am J Gastroenterol* 2016;111:197-204; quiz 205.
6. Lai EJ, Calderwood AH, Doros G, Fix OK, Jacobson BC. The Boston bowel preparation scale: A valid and reliable instrument for colonoscopy-oriented research. *Gastrointest Endosc* 2009;69:620-5.
7. Johnson DA, Barkun AN, Cohen LB, Dominitz JA, Kaltenbach T, Martel M, *et al.* Optimizing adequacy of bowel cleansing for colonoscopy: Recommendations from the U.S. Multi-Society Task Force on Colorectal Cancer. *Gastrointest Endosc* 2014;80:543-62.
8. Zhang YY, Niu ME, Wu ZY, Wang XY, Zhao YY, Gu J. The incidence of and risk factors for inadequate bowel preparation in elderly patients: A prospective observational study. *Saudi J Gastroenterol* 2018;24:87-92.
9. Cheng YL, Huang KW, Liao WC, Luo JC, Lan KH, Su CW, *et al.* Same-day versus split-dose bowel preparation before colonoscopy: A meta-analysis. *J Clin Gastroenterol*. 2017. Doi: 10.1097/MCG.0000000000000860. [Epub ahead of print].
10. Avalos DJ, Castro FJ, Zuckerman MJ, Keihanian T, Berry AC, Nutter B, *et al.* Bowel Preparations administered the morning of colonoscopy provide similar efficacy to a split dose regimen: A meta analysis. *J Clin Gastroenterol*. 2017. doi: 10.1097/MCG.0000000000000866. [Epub ahead of print].
11. Rutherford CC, Calderwood AH. Update on bowel preparation for colonoscopy. *Curr Treat Options Gastroenterol* 2018;16:165-81.
12. Nguyen DL, Jamal MM, Nguyen ET, Puli SR, Bechtold ML. Low-residue versus clear liquid diet before colonoscopy: A meta-analysis of randomized, controlled trials. *Gastrointest Endosc* 2016;83:499-507.e1.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.saudijgastro.com
	DOI: 10.4103/sjg.SJG_137_18

How to cite this article: AlAmeel T. Bowel preparation: The elderly, the hospitalized, and the colonoscope. *Saudi J Gastroenterol* 2018;24:73-4.