Introduction

The quality of bowel cleansing preparation is an important factor on the completeness of colonoscopy. Optimal bowel preparation can lead to decreased procedure time, increased adenoma detection rate, one of the important quality indicators for colonoscopy. There are a lot of agents and protocols for bowel preparation, and an enormous amount of research has been performed on improving bowel preparations prior to colonoscopy. In this lecture, I will focus on the factors that may optimize bowel preparation prior to colonoscopy, including new agents, education and protocols.

New agents

Over the past decade, polyethylene glycol electrolyte lavage solution (PEG-ELS) has been accepted as a standard bowel preparation agent in terms of efficacy, safety, and effectiveness. However, the volume of PEG-ELS has been the hindrance for patients to complete the bowel preparation. The efforts to reduce the volume of agents led to the use of low-volume (2 L) of PEG-ELS with an adjunct, oral picosulfate, oral sulfate and other types of agents. A meta-analysis of randomized controlled trials comparing low-volume PEG-ELS and bisacodyl to 4 L PEG-ELS showed no difference in efficacy but did reveal improvement in side effects. However, most of these adjunctive agents failed to widespread use due to side effects such as abdominal cramping, ischemic colitis and nephropathy.

New hyperosmotic agents include sodium sulfate, and sodium picosulfate. Sodium sulfate is taken as a split-dose with total volume less than 4 L PEG-ELS. Although, sodium sulfate has not been shown to cause major electrolyte abnormalities or intravascular fluid shifts, it has not been fully evaluated in patients with significant co-morbidities including congestive heart failure, renal disease, or cirrhosis. As for a combination of sodium picosulfate and magnesium oxide, sodium picosulfate acts as a stimulant laxative while magnesium oxide acts as an osmotic agents. Efficacy in terms of bowel cleansing is comparable to NaP and PEG-ELS. Electrolyte abnormalities have been reported in the elderly with sodium picosulfate.
Education

Diet prior to colonoscopy is the important factor affecting bowel preparation quality, which should be educated to the patients. However, practices on the dietary instructions prior to bowel preparation vary globally, and there are just few studies that can provide definite direction for adequate bowel preparation. Recently, there is a meta-analysis comparing clear liquid diet to low-residue diet on the day prior to colonoscopy, in which the patients were more willing to have a repeat colonoscopy performed and improved tolerability of preparation with no differences in quality of bowel preparations or adverse effects with a low-residue diet. With this new information, a low-residue diet on the day before colonoscopy in outpatients should be strongly recommended not only for tolerability of preparation but also overall bowel preparation quality. However, for hospitalized patients, this diet may not be as effective given multiple other factors. Therefore, a clear liquid diet is beneficial to optimize the bowel preparation in hospitalized patients.

Protocols

The timing of bowel preparation prior to colonoscopy can change the quality. A shorter interval from completion of bowel preparation to colonoscopy is recommended. It has been reported that the ideal time interval between colonoscopy and completion of bowel preparation is 3-4 h. A meta-analysis comparing split-dose PEG-ELS to single-dose PEG-ELS the night before colonoscopy discovered that the number of satisfactory bowel preparations and willingness to repeat preparation were significantly increased in split-dose PEG-ELS group. But I think that bowel preparation on the same day of colonoscopy is important for improving the quality of examination regardless of split-dose bowel preparation and the preparation agents used. An individualized protocol can be applied according to the patient’s preference.

Conclusions

Many options on the agents, diet, and protocols are available for bowel preparations before colonoscopy and each option has its positives and negatives. Therefore, a colonoscopist should not only follow the evidence based guidelines but also individualize bowel preparations to achieve an efficient, tolerable, and safe bowel preparation based on the patient’s status and preferences.

References

