A Better Prep School: Does an Interactive Instruction Video Improve Colon Cleanliness?

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The clinical value of colonoscopy, in particular the detection of pre-malignant lesions, is dependent in part on the quality of bowel preparation,^{1–3} which is dependent in turn on the patient correctly following the preprocedural preparation instructions (e.g., diet, schedule of laxatives and special instructions in patients with severe constipation). A number of factors could explain why some patients might not fully adhere to instructions, such as the simplicity of the instructions and patient understanding of the appearance of clear stools and of the importance of adequate preparation. These factors directly correlate with health literacy and the educational level of the patients.^{4,5}

Educational videos are among the tools which have been used to improve the quality of preparation.^{6,7} In this issue of *Digestive Diseases and Sciences*, Walker et al.⁸ added to the existing knowledge about the potential benefits of novel instruction methods used for bowel preparation. The authors hypothesized that adding the element of interactivity to the educational video (intervention arm) would achieve a desired improvement in bowel preparation quality, as compared to standard written and verbal instructions (control arm). The study population included adult English-speaking patients with accessibility to text messaging and the internet undergoing outpatient colonoscopy. The Boston Bowel Preparation Score (BBPS) was sensibly used as a primary outcome measure.

Though there was no statistically-significant improvement of the overall BBPS, African-Americans and elderly patients did benefit from the educational video, which was evident by significant shift of BBPS scale toward a score of 9. The percentage of patients with suboptimal preparation quality (BBPS <6 or <2 in any colonic segment) was similar for the African-Americans in the intervention and control arms. On the other hand, 7% more elderly patients had an adequate

bowel preparation quality in the intervention arm than in the control arm, influencing the repeat colonoscopy interval and qualifying that improvement as a clinically significant outcome.

The BBPS is reported after cleansing the colon, and the procedures done in the intervention arm could have needed less time cleansing and thus shorter procedural time than the procedures in the control arm. Clinically-important outcomes not reported by this study are total procedural and withdrawal times. Though BBPS was not significantly higher in the intervention arm, substantially shorter procedure duration would be an important goal to achieve, adding to the favorable cost-effectiveness of the educational video. It would be reasonable to consider inclusion of procedural and withdrawal times as outcomes when designing future studies that will investigate enhanced instruction methods.

While BBPS is meant to be an objective assessment tool, this scale is not devoid of bias by endoscopists since it depends on their experience and subjective interpretation of the scale.^{9,10} Despite these considerations, parameters that are more objective which were reported in this study (i.e., the number of polyps detected, adenoma detection rate (ADR) and polyp detection rate (PDR)) were not different between the two arms, either. Baseline BBPS (in control arm) was higher than estimated, obscuring the finding of a statistically significant difference with the intervention arm. It is plausible that practices with lower baseline BBPS could benefit more from such educational videos.

Of the 60% of patients with prior colonoscopy, many might have assumed that there was no change in preparation instructions over time or different practices, and thus might have not carefully reviewed the instruction materials. Countering this supposition is the observation that elderly patients had improved BBPS although they were probably more likely to have undergone prior colonoscopy.

Since the number of patients excluded for not showing up for the procedure or for lack of BBPS reporting is similar between both arms, it is very unlikely that these exclusions

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biased outcomes. On the other hand, only 48% of the studied patients completed the survey. Among those, more patients were randomized to the control arm (56% vs. 44%) raising concerns about reason for not completing the survey in the intervention arm being not watching the video.

The investigators also assessed patient satisfaction utilizing a validated questionnaire. Notwithstanding a relatively low response rate (48%), the survey showed that the preprocedural instructions were considered to be “very easy” to understand more frequently in the intervention arm, although it didn’t reveal a measurable difference in preprocedural anxiety and satisfaction.

In addition to its randomized-controlled design, the major strengths of the study include a successful randomization (evident by similarities between arms), inclusion of ADR and number of polyps, and providing a real-life intention-to-treat analysis. Important limitations include overall lack of statistical power, lack of procedural time reporting, and a relatively low rate of survey response.

Despite not showing a significant overall improvement of the bowel preparation quality by the addition of an interactive educational video to standard written and verbal instructions, this study certainly highlights the importance of enhanced educational tools as an important means of providing preprocedural instructions. This tool could improve bowel preparation quality in select patient populations and probably in practices with relatively low baseline preparation quality scores, which would translate into a positive impact on the clinical outcome of the colonoscopy.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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