

# A Randomized Controlled Trial Comparing Polyethylene Glycol Solution Plus Prucalopride with Polyethylene Glycol Solution Alone on the Efficacy of Bowel Preparation for Colonoscopy

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**Background:** Colonoscopy is currently the standard method for diagnosis and treatment for a number of colonic diseases. The patient needing colonoscopy has to undertake bowel preparation before the investigation. This process is very important as it can determine diagnostic accuracy and therapeutic success in the patients. Prucalopride is a substance that helps stimulate colonic movement. This study aimed to assess the effectiveness of the combination between prucalopride and polyethylene glycol solution (PEG-P) for bowel preparation before colonoscopy relative to PEG alone.

**Materials and Methods:** This study used a prospective, randomized, double-blinded, controlled design. Eighty-six patients undergoing colonoscopy in Bhumibol Adulyadej Hospital were enrolled in the study (44 in PEG arm vs. 42 in PEG-P arm). The effectiveness of the colonic bowel preparation was assessed using Boston Bowel Preparation Score (BBPS), satisfaction, side effects and polyp detection rate also served as secondary outcomes.

**Results:** PEG-P significantly showed better bowel preparation relative to PEG, as reflected by the higher BBPS in all parts of colons: caecum ( $2.1 \pm 0.6$  vs.  $1.6 \pm 0.7$ ,  $p = 0.002$ ), transverse colon ( $2.6 \pm 0.7$  vs.  $2.1 \pm 0.6$ ,  $p = 0.001$ ), sigmoid ( $2.8 \pm 0.6$  vs.  $2.4 \pm 0.6$ ,  $p = 0.002$ ) and rectum ( $2.8 \pm 0.6$  vs.  $2.4 \pm 0.6$ ,  $p = 0.002$ ). Five out of forty-two patients in the PEG-P arm had nausea and three had vomiting. Two patients in the PEG arm group had nausea and none had vomiting. The incidence of side effects in both arms did not show a statistically significant difference. PEG-P arm showed higher polyp detection rate than the PEG arm (59.5% vs. 36.4%,  $p = 0.032$ ).

**Conclusion:** PEG-P showed many preferable outcomes over PEG. These include better bowel cleansing and increasing the sensitivity of polyp detection with indifferent rate of side effects. With these advantages, the quality of life and compliance of the patients can be improved as repeated colonoscopy due to inadequate bowel preparation can be avoided.

**Keywords:** Prucalopride, Polyethylene glycol solution, Colonoscopy, Bowel preparation, Boston bowel preparation score

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Colonoscopy is currently the standard method for diagnosis and treatment for a number of colonic diseases. Patients undergoing colonoscopy need to have adequate bowel preparation, which is done by ingesting a colonic cleansing agent. This process is very crucial for the whole treatment course as it definitely determines diagnostic accuracy and therapeutic success<sup>(1)</sup>. Sidhu, et al<sup>(2)</sup> discovered that about one quarter of the patients did not receive colonoscopy due to inadequate bowel preparation. Tharasak and Polmanee<sup>(3)</sup> found that an addition of prokinetic agents, such as domperidone, helped increase the effectiveness of bowel

preparation. Nagler et al<sup>(4)</sup> reported that an administration of bisacodyl to polyethylene glycol solution (PEG) did not clearly contribute to an improvement of the quality of life of the patients due to the increased side effects. Wu et al<sup>(5)</sup> found that simethicone was capable of treating some side effects (such as flatulence) during bowel preparation but the drug itself did not help enhance bowel cleanliness.

Prucalopride is an agent that helps stimulate colonic movement by triggering the 5-HT<sub>4</sub> receptor<sup>(6)</sup>. It also helps improve defecation with minimal side effects. Additionally, the quality of life of the patients is found to be improved amongst those ingesting prucalopride compared to other laxative agents.

The aim of this study is to assess the quality of bowel preparation and other clinical outcomes between the combination of prucalopride and PEG (PEG-P) and PEG alone.

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