

How Does Drinking Warm Water Affect Esophageal Preparation Before Peroral Endoscopic Myotomy in Patients With Achalasia?

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Article: Effect of drinking warm water on esophageal preparation before peroral endoscopic myotomy in patients with achalasia
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Peroral endoscopic myotomy (POEM) has been established as an effective treatment for achalasia.¹ Achalasia is a disease of impaired lower esophageal sphincter (LES) relaxation, and, in result, food retention in the esophageal lumen seems to be inevitable.² In this context, after routine fasting for upper gastrointestinal endoscopy, the esophagus may not be well prepared before POEM. POEM procedures are performed usually under general anesthesia, and there is a high risk of aspiration, especially during intubation.³ In addition, debris-filled esophagus can interfere with the POEM procedure and increase the risk of some procedure-related complications such as mediastinitis. In case of late-stage achalasia, namely, “sigmoid esophagus,” or when the contrast dye remains in the esophagus more than 1-2 hours after the barium ingestion in esophagography, fasting more than 2-3 days prior to POEM, or pre-operative endoscopy with a large channel should be considered before the POEM procedure or laparoscopic Heller myotomy to ensure the clearance of the esophageal contents.⁴

On the other hand, the effect of drinking warm water on esophageal pressure and motility has been well documented. That is,

warm water ingestion relieves esophageal symptoms in patient with achalasia. One study reported that warm water drinking increased the transit of esophageal propagated waves, shortened the duration of the distal esophageal contraction, and decreased the amplitude of LES pressure after contraction.⁵ Another study reported the changes in esophageal motility in warm temperature among treatment-naive achalasia patients. In the study, warm water may reduce the resting LES pressure, improve deglutitive LES relaxation, shorten the duration of esophageal body contraction, and relieve the achalasia symptoms.⁶ A recent study reported that drinking carbonated beverages can reduce the duration of pre-operative endoscopy and improve the esophagus cleansing degrees comfortably and safely.⁷

From this background, Yoon et al⁸ evaluated the clinical usefulness of drinking warm water for the proper esophageal preparation before POEM. The warm water preparation was applied to 29 patients with achalasia before the POEM procedure. They were instructed to drink 1 L of warm water (60°C) the night before POEM. The authors evaluated the esophageal cleanliness and determined the preparation quality. All subjects were prospectively

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recruited and compared to historical control group (1:2 propensity score-matching). In the warm water preparation group, only 1 of 29 patients (3.4%) had some solid retention, but it did not interfere with the POEM procedure. Interestingly, the grade of cleanliness ($P = 0.016$) and quality of preparation ($P < 0.001$) were significantly better in the warm water preparation group than in the matched control group. There was no adverse event related to warm water preparation protocol. The authors concluded that drinking warm water can reduce esophageal food retention and significantly improves the quality of esophageal preparation thus it is useful, safe, and cost-effective in the preparation of achalasia patients for POEM.

However, this study has several limitations. First, it was a single institution study. Therefore, the generalizability of the results of the study may be limited. Second, the warm water drinking group was enrolled prospectively but the control group was collected retrospectively from the historical cohort. To minimize selection bias, propensity score matching was performed using covariates including age, sex, achalasia type, and previous achalasia treatment history. However, there was no matching on the severity of esophageal dilatation or the presence of sigmoid esophagus. Without the information, the 2 groups may not be properly matched. Third, there is no information on the length of time instructed to fast before the POEM procedure. Actually, it is recommended to fast for more than 2 days in patients who are predicted to have severe esophageal food retention. For some patients, endoscopy with large channel may be performed before POEM to evacuate or remove retained food in the esophageal lumen. However, there is no information on this.

Nevertheless, the study of Yoon et al⁸ is the first study that evaluated the usefulness of warm water drinking before POEM,

and it has clinical implications. To confirm the results of this study, a multi-center, prospective study with a larger sample size is needed. Also, studies on the protocols for warm water drinking instructions or co-administration of LES relaxants such as nifedipine or nitroglycerin before POEM are warranted in the future.

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