

Is routine monitoring of gastric residual volume measurement necessary?

Ahmet Çakır[✉], Hasan Memiş[✉]

Department of Clinical Pharmacy, Faculty of Pharmacy, İnönü University, Malatya, Türkiye

Cite this article as: Çakır A, Memiş H. Is routine monitoring of gastric residual volume measurement necessary?. *Clin Sci Nutr.* 2024;6(1):54-55.

Gastric Residual Volume (GRV) monitoring is a procedure used to assess the nutritional status of patients receiving enteral nutrition in the intensive care unit (ICU).

We read with interest the paper titled "KEPAN Enteral Nutrition (EB) Guide", published in the journal.¹ The sentence you have mentioned in the aforementioned study which is "In a meta-analysis of five studies [n = 998], it was shown that in patients undergoing mechanical ventilation, GRV examination had no effect on nutritional intolerance [relative risk 0.61, 95% CI 0.51-0.72], mortality [0.97, 95% CI 0.73-1.29] and the frequency of ventilator-associated pneumonia [1.03, 95% CI 0.74-1.44]." in your study was misspelled due to an overlooked error. The cited study found that "Compared with monitoring gastric residual volume, not monitoring gastric residual volume decreased the rate of feeding intolerance in critically ill patients (RR = 0.61, 95%CI 0.51–0.72), and did not result in an increment in the rate of mortality (RR = 0.97, 95%CI 0.73–1.29, P = 0.84) or the rate of ventilator-associated pneumonia (RR = 1.03, 95%CI 0.74– 1.44, P = 0.85)".²

In the randomized controlled trial, nutritional goals were achieved faster, and there was no increase in the rate of complications in the group without GRV monitoring. The group with GRV monitoring did not show a significant association between GRV and gastroesophageal reflux disease.³

In parallel to the study by Wang *et al*, patients with or without GRV monitoring showed no notable difference between the groups in terms of ICU-acquired infections, duration of mechanical ventilation, length of ICU stay, or

mortality rates, according to another study. In addition, the percentage of patients achieving 100% of their calorie target was higher in the group with GRV monitoring.⁴

In another study, GRV monitoring was associated with a reduced incidence of vomiting, whereas no gastric residual volume monitoring was associated with a reduced incidence of unnecessary interruptions of enteral nutrition.⁵

Administration of additional enteral nutrients in people with high GRV can cause aspiration and lead to increased intra-abdominal pressure, which increases the risk of respiratory and circulatory failure as well as intestinal necrosis. It is therefore particularly important to monitor GRV in the early stages of EN feeding, especially in critically ill individuals.⁶

More studies should be done to emphasize the importance of GRV monitoring in critically ill patients.

Author contributions: Concept – A.Ç., H.M.; Design – A.Ç., H.M.; Supervision - A.Ç.; Resources - H.M.; Materials – A.Ç., H.M.; Data Collection and/or Processing – A.Ç., H.M.; Analysis and/or Interpretation – A.Ç., H.M.; Literature Search - A.Ç., H.M.; Writing Manuscript - A.Ç., H.M.; Critical Review - A.Ç., H.M.

Funding: The authors declare the study received no funding.

Conflict of interest: The authors declare that there is no conflict of interest.

REFERENCES

1. Doğanay M, Akçay K, Çil T, et al. KEPAN Enteral Beslenme (EB) rehberi. *Clin Sci Nutr*. 2023;5:1-29. [\[Crossref\]](#)
2. Wang Z, Ding W, Fang Q, Zhang L, Liu X, Tang Z. Effects of not monitoring gastric residual volume in intensive care patients: A meta-analysis. *Int J Nurs Stud*. 2019;91:86-93. [\[Crossref\]](#)
3. Ozen N, Tosun N, Yamanel L, Altintas ND, Kilciler G, Ozen V. Evaluation of the effect on patient parameters of not monitoring gastric residual volume in intensive care patients on a mechanical ventilator receiving enteral feeding: A randomized clinical trial. *J Crit Care*. 2016;33:137-144. [\[Crossref\]](#)
4. Reignier J, Mercier E, Le Gouge A, et al. Effect of not monitoring residual gastric volume on risk of ventilator-associated pneumonia in adults receiving mechanical ventilation and early enteral feeding: a randomized controlled trial. *JAMA*. 2013;309:249-256. [\[Crossref\]](#)
5. Feng L, Chen J, Xu Q. Is monitoring of gastric residual volume for critically ill patients with enteral nutrition necessary? A meta-analysis and systematic review. *Int J Nurs Pract*. 2023;29:e13124. [\[Crossref\]](#)
6. Yasuda H, Kondo N, Yamamoto R, et al. Monitoring of gastric residual volume during enteral nutrition. *Cochrane Database Syst Rev*. 2021;9:CD013335. [\[Crossref\]](#)