

Do Histamine-2 Receptor Antagonists and Proton Pump Inhibitors Really Have No Effect on the Gastric Emptying Rate?

TO THE EDITOR: We read with great interest the report by Nonaka et al¹ about the effects of histamine-2 receptor antagonists and proton pump inhibitors (PPIs) on gastric emptying. The authors clearly showed that a single intravenous injection of famotidine and omeprazole had no effects on gastric emptying using the continuous real-time ¹³C breath test (Breath ID System) in a randomized placebo-controlled crossover study.¹ The study provided reliable results using a scientific methodology, providing useful insights into the nature of acid-suppressive agents, for which many pharmacological approaches have been performed including the studies that investigated the effects on gastric motility. In fact, 13 previous investigations have researched the effects of gastric acid suppressants (PPIs or histamine-2 receptor antagonists) on gastric emptying.²⁻⁷ However, results from those studies have been controversial. We suspect that differences in the test meal may influence the study results. Acid suppressants have shown no effects on the rate of gastric emptying when liquid meals were used, but have shown delayed gastric emptying in studies using solid meals. The study by Nonaka et al¹ used liquid meals, and we suggest that the results may well have differed if solid meals had been used. Data for solid meals are necessary to be able to generalize their results to actual clinical settings.

In addition, many researchers have recently suggested the necessity of measuring not only gastric emptying, but also gastric accommodation in order to evaluate gastric motility. Some papers have reported that PPIs reduced gastric wall tonus to induce accommodation.⁸ Regarding the delayed gastric emptying of acid-suppressive drugs, we should be aware of the possibility that PPIs improve gastric reservoir function by reducing gastric tonus. Despite several limitations, the study by Nonaka et al¹ gives important clues to understanding the effects of acid-sup-

pressive drugs on the rate of gastric emptying. However, we consider the necessity of further comprehensive studies on gastric motility to truly provide useful information for real clinical setting.

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Conflicts of interest: None.