



# Measurement of gastric emptying time by ultrasonography

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Received: 10 December 2019 / Accepted: 4 January 2020 / Published online: 20 January 2020  
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**Keywords** Pupil size · Hypotension · General anesthesia

To the editor:

We have read with great interest the recently published article by Sugita et al. [1], which investigated gastric emptying times after a normal Japanese breakfast containing various types of foods in healthy adult volunteers using ultrasonography. The authors showed that the gastric volume (GV) from the gastric antral area after 8 h fasting was 53.1 ml and the gastric emptying time was  $276.4 \pm 58.9$  min. We appreciate the authors on their efforts. However, we found a flaw that calls the findings into question.

In the method section, the authors stated that GV was obtained using an existing model validated in adults as follows:

$$GV \text{ (ml)} = 27.0 + 146 \times CSA \text{ (cm}^2\text{)} - 1.28 \times \text{age (year)}.$$

However, according to the original literature [2] quoted by the authors, the correct formula for calculating GV is as follows:

$$GV \text{ (ml)} = 27.0 + 14.6 \times CSA \text{ (cm}^2\text{)} - 1.28 \times \text{age (year)}.$$

Obviously, we will overestimate the GV if we use the wrong formula provided by Sugita et al. For example, a CSA

of  $10 \text{ cm}^2$  corresponds to a 1448 ml of GV in a 30-year-old patient using the wrong formula, but in fact only 134 ml of GV in a 30-year-old patient using the correct formula. Hence, we here are wondering whether the mistake was just a clerical error. We also believe that this kind of error should not exist in the scientific journal.

**Funding** None.

## Compliance with ethical standards

**Conflicts of interest** None.

## References

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2. Van de Putte P, Perlas A. Ultrasound assessment of gastric content and volume. *Br J Anaesth.* 2014;113(1):12–22.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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This comment refers to the article available online at <https://doi.org/10.1007/s00540-020-02734-6>.

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