Reviewer’s report

Title: Point-of-care ultrasound defines gastric content in elective surgical patients with type 2 diabetes mellitus: a prospective cohort study

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Reviewer: Silvia De Rosa

Reviewer's report:

The manuscript by Li Zhou, et al. is prospective cohort study of point-of-care ultrasound defines gastric content in elective surgical patients with diabetes mellitus: a prospective cohort study. One hundred and eight patients (54 diabetic patients and 54 non-diabetic controls) admitted for elective surgery were enrolled in this study between July 2017 and April 2018. The research question is interesting and highly clinically relevant.

The introduction

Please add in the introduction section that gastric emptying is delayed in 30%-50% of patients with longstanding diabetes mellitus. The prevalence of disordered gastric emptying in patients with "early" Type 2 diabetes is controversial, but it has been suggested that gastric emptying is often accelerated. Acute changes in the blood glucose concentration have a major effect on gastric motor function and gastric emptying.

The authors defined the research question at the end of the background section:

"Using this non-invasive technique for the assessment of gastric content, we aimed to determine the prevalence of full stomach following the present fasting guidelines in elective adult surgical patients with diabetes mellitus, and to investigate associated risk factors for delayed gastric emptying, in this prospective cohort study".

I miss a PICO-diagram specifying the research question:

Population: elective adult surgical patients with diabetes mellitus

Intervention: the prevalence of full stomach following the present fasting guidelines or the associated risk factors for delayed gastric emptying

Comparator: Not mentioned?

Outcome: Not mentioned?
In addition, you did not explain the reason of your prospective study. Which is you hypothesis? Please, consider the pico question

Methods: authors stated that the primary outcome was the prevalence of full stomach in diabetic elective surgical patients. The secondary outcome was the gastric emptying time of clear liquids and light retrospectively examined. Methods were well described

Discussion and Results: 102 patients (52 diabetic and 50 non-diabetic patients) completed the study and were included in the final analysis, with the dropout rate at 5.56%. Diabetic patients have a higher prevalence of full stomach when compared to non-diabetic patients (48.1% vs. 8.00%, P= 0.000), which is 44.0 % vs. 8.0% (P=0.000) for 2-hour fast after clear fluid and 51.9% vs. 8.0 % (P=0.000) for 6-hour fast after a light meal, respectively. The average time to empty stomach was significantly longer in diabetic patients than that of non-diabetic patients. Surprisingly, was not detect significant correlation between BMI with delayed stomach emptying. I am not agree with the statement that "Surprisingly, we did not detect significant correlation between BMI with delayed stomach emptying, inconsistent with previous studies, which showed obesity was a risk factor for delayed stomach emptying. This is possibly due to the fact that a relatively small sample size of obese patients was recruited"

Data in literature showed that overall 3 h gastric emptying rate was similar in obese (BMI=38.7 kg/m2) and normal weight males, and unaffected by a major weight loss. The anesthetic risks in the obese should be attributed to factors other than delayed gastric emptying (i.e., anatomic variation, increased rates of hiatal hernia and reflux). So, your data are consistent with data present in literature.

Conclusions: data should be confirmed in diabetic patients with complications

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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