Reviewer's report

Title: Plasma glutamine levels in patients after non-elective or elective ICU admission

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Reviewer: Daniel Dante Yeh

Reviewer's report:

In this manuscript, Buter et al describe the results of a single center, observational study where they measured plasma glutamine levels in ICU patients at admission and for several subsequent days. They divided the patients into two groups (elective surgery and non-elective) and report that plasma glutamine levels were significantly higher in the elective surgery patients. They next performed a backward linear regression and report that glutamine levels were independently associated with severity of illness (APACHE IV) and presence of infection, but not with the type of admission.

General Comments: Overall, I found the manuscript enjoyable to read. The authors adhere to most standards of scientific writing and there are few, if any, errors in spelling, grammar, or style.

Please number your comments and divide them into

- Major Compulsory Revisions

1. Title: I recommend modifying the title to reflect your findings and also the type of study design.

2. Introduction: please elaborate more about why it is important to know about plasma glutamine levels in patients who are admitted after elective surgery (third paragraph)

3. The main issue with this study is the question of relevance. In light of the two recent large RCTs (ref 14 and 15) what does your study add to the existing literature and our overall scientific understanding of glutamine in critical illness? Before this manuscript is acceptable for publication, the authors need to do a better job convincing the reader of the scientific importance of their findings. As they correctly point out in their discussion, it is debatable whether low glutamine levels in the critically ill are pathologic or adaptive. The current evidence does not support routine glutamine supplementation, especially in the critically ill or in renal failure. Given the low mortality rate and short ICU/hospital stay of the elective ICU admission group, I highly doubt that anyone would routinely supplement glutamine or measure it as a prognostic indicator.

4. I am having a little trouble understanding the statistical findings and I would like to request that the authors make it a little clearer. They first state that the
glutamine levels were statistically significantly higher in elective compared to non-elective patients. However, on their regression model, they state that type of admission is not predictive. Does this not mean that the type of admission was strongly confounded by severity of illness and presence of infection? Is it accurate, then, to state that the levels were significantly higher when it was actually reflecting a confounder?

5. Discussion: please described the two large RCTs (ref 14 and 15) in more detail. Also, please discuss your findings in the context of the findings of these RCTs.

6. Discussion: there is only very limited discussion of the limitations of your study. This is usually discussed in a paragraph immediately preceding the final Conclusions.

- Minor Essential Revisions

1. Methods/Setting - first sentence: it is currently written as "every morning at 6.00 hrs pm" Do you mean "am"?

2. Methods/Setting - second to last sentence: Please also specify how you handled BMI > 30.

3. Results: please maintain consistency in your terms. In the first paragraph of the Results section, you state, "The acute patients stayed longer...." By "acute" are you referring to the "non-elective" group?

4. Results: what is the significance of the 0.420 mmol/l cutoff? How did you choose this cutoff? Is it based on prior literature? If so, this should be referenced.

5. Figures: the figures do not add meaningfully to the results or the manuscript and I recommend deletion.

6. Table: please also include BMI in your descriptive statistics

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.