Reviewer’s report

Title: The Geriatric Nutritional Risk Index Independently Predicts Adverse Outcomes in Patients with Pyogenic Liver Abscess.

Version: 0 Date: 09 Oct 2018

Reviewer: Xiaoyin Li

Reviewer's report:

This study was aimed to examine the relationship between a useful nutritional measure Geriatric nutritional risk index (GNRI) and the adverse health outcomes of Pyogenic Liver Abscess (PLA) patients. The author also used Receiver operating characteristic (ROC) to determine the optimal cutoff of GNRI for predicted mortality and other adverse outcomes. It seems that GNRI is a comparatively novel evaluation tool for evaluating and predicting the health status of PLA patients. In general, the study design matches the purpose of the study. Here are some comments on each session:

Abstract: The authors did not mention ROC in methods.
Introduction: The authors need to illustrate the importance of this study. Why study the "uncommon" disease? How does prognosis, timely and aggressive resuscitation make differences to the health outcomes of PLA patients? What is the mortality rate/ recovery rate of PLA? Can you provide any information about the relationship between liver disease and malnutrition? Can you provide background information about GNRI cutoff point?

Methods:
1. I suppose that height and body weight were also collected from individual medical records on admission. Please confirm.
2. How to define all adverse outcomes? There is a number for adverse outcomes in table 3. How did you obtain that number? Is this the number of people who have all or any of the adverse outcomes?
3. Line 110-112. The multivariate analysis plan was not clear. According to the tables, it seems that GNRI, age, male, anemia, PLT, PT, operation, size, creatinine, diabetes, and hypertension are all included as independents, and you have two separate models for mortality and all adverse outcomes. If you did two separate models for two outcomes, they are not multivariate analysis. Multivariate regression is a technique that estimates a single regression model with more than one outcome variable. If you only have one outcome (dependent variable) for each model, then it is not multivariate analysis. When you have more than one predictors (independent variables), you have multiple regression. Please confirm and revise your statement in these three lines.
4. You have a reference for GNRI cutoff. Is it necessary to do ROC?

Results:
1. Surgery/operation seems very rare (n=4). Why and how did this variable make to the "multivariate" analysis?
2. Table 4 and table 5, the notes of multivariate analysis seems to be unnecessary.
3. Figure is blurry and not well labeled.

Discussion:
Line 180-181. Do you mean higher BMI and serum albumin were associated with reduced risk of infection-related death?

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

No

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

Unable to assess

**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 recommend additional statistical review

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

Needs some language corrections before being published

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