Reviewer’s report

Title: Predictors of mortality and validation of burn mortality prognostic scores in a Malaysian burns intensive care unit

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Reviewer: Federico Franchi

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Tan Chor Lip and colleagues try to identify the predictors of burn mortality in a Malaysian burn intensive care unit. This is a retrospective study involving 525 patients admitted to a Malaysian Hospital. The authors analyzed the predictors of death, the influence of time of burn injury to burn unit admission and the predictivity of burn predictive scores in their population. The topic is relevant but, unfortunately, the study suffers from several methodological limitations. The following are the Major Concerns:

Abstract.

The abstract and the objective of the study are not clear. Furthermore, there are too many goals. Unexplained abbreviations make reading even more difficult. The results are also not clear.

Introduction.

1. The introduction is too long for the concepts it expresses. It is completely focused on socio-economic aspects. It can be reduced by 30-40%.

2. L2-26 Pg 5. Final part of the introduction and Study Objective. This part is unclear and there are too many confusing goals. Please, clarify the objective of the study. In addition, you can explain the population of the study in method section and not in introduction. Finally, all the abbreviations must first be written in full.

Methods.

3. The enrollment period is different from that reported in the abstract. Please reported the correct period of the study.

4. L 7-15 Pg 7 "In this study, we also recorded the time of injury to BICU admission. The purpose of which was to determine if there was an association between duration to admission and mortality. In addition, the estimation of TBSA from the first centre of presentation was
recorded and compared to the TBSA estimation in the BICU.” All these objectives are confusing to the reader.

5. L 33 Pg 7. This reviewer suggests that you provide a detailed description of each score on the supplementary materials.

6. Statistical plan described only the analysis of mortality (that probably is the true aim of the study). On the contrary, the calculation of the sample size refers to the comparison between ROC curves. What is the objective of the study? The statistical analysis must be planned for the purpose of the study. In addition, the multivariate analysis conducted must be better described.

Results.

7. Pg 9 L 15. "A total of 525 patients were treated for burn injuries at the BICU of Hospital Sultan Ismail, Malaysia between January 2010 and December 2017, 372 males and 153 females, all of whom fulfilled the inclusion and exclusion criteria." It is not necessary to repeat the recruitment period again.

8. In the first part of the results, you present the data and comments that are not useful to any of the objectives of the study that you have declared (e.g., ethnicity of patients). Please eliminate unnecessary data to make reading easier.

9. In the current form the results are presented in a confused manner. Please reorganize the results in accordance with the objective of the study and with the related sub-analysis, if any.

10. The variables "length of stay and the duration of mechanical ventilation" cannot be considered predictors of mortality. Multivariate analysis should be repeated without introducing these variables into the model

11. What is the ROC of your multivariate model? Is it better than the ROC scores you've tested?

Discussion.

12. Pg. 11 L50. "Other identified predictors were longer length of stay and the presence of mechanical ventilation [16]." Why reference on your result? Furthermore, the cited manuscript does not report those predictors of mortality.
13. the discussion can be reduced by about 30%. The first part of the discussion (Predictors of burn mortality) must be reviewed in the light of the results obtained by repeating the multivariate analysis.

**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.

Yes

**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

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
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