Reviewer’s report

Title: The New Trauma Score (NTS): A Modification of the Revised Trauma Score for Better Trauma Mortality Prediction

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Reviewer: Fabián Alberto Jaimes

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Jin Hee Jeong et al developed and validated a new trauma score (NTS) for inhospital mortality risk composed of actual Glasgow coma scale, coded systolic blood pressure and coded oxygen saturation. Based on AUC-ROC analysis, discrimination in derivation and validation cohort were 0.93 and 0.91, respectively. Calibration, according to the H-L goodness of fit test, was adequate at least in the derivation model (p = 0.52).

The paper is nicely written, the hypothesis and the results are interesting and valid and the research may be useful for readers of the journal. I have some suggestions that may improve substantially the manuscript:

1. The results in the abstract should include measurements of discrimination (AUC-ROC) instead of p values

2. The conclusions, both in the abstract and in the manuscript, are not fully supported by the results: NTS may be better in discrimination or prediction, but this does not mean that it "will lead to improved survival of trauma patients".

3. The excluded patients because of missing score/predictive data (417 and 154 in the derivation and validation cohort, respectively) are really problematic, mainly because the outcome of inhospital mortality was also approximately 10%. Thus, the justification of "instead of using statistical correction, we excluded the cases because the number of patients excluded due to missing data was not substantial" is not valid. the options are to describe the mortality rate in these two subgroups of missing data, to perform some classes of sensitivity analysis or, probably better, to perform a multiple imputation analysis

4. The discussion, in general, is so poor. There are no comparisons/contrasts with another similar studies. This sentence is not supported or explained: "Despite the inconclusive results, the superiority of the NTS over the MGAP and GAP is clear"...Why? I am not sure about this. Indeed GAP use only and immediately available clinical data, but NTS use a pulse oxymeter. Please clarify and improve the discussion

Thanks and good luck

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.

Yes

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

No

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I am able to assess the statistics

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