Reviewer's report

Title: Early predictors of mortality in critically ill elderly patients with sepsis

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Reviewer: Ariane Boumendil

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The paper seek to identify risk factor of early mortality in elderly patients with sepsis. The justification of the research conducted in this study is mainly the fact that mortality in septic patients is higher in elderly patients than in younger patients. The statistical analysis is rather simple and well conducted. But I'm not sure what the objective of the paper really is.

Major Compulsory Revisions

1. The fact that the mortality is higher in elderly patients is rather natural. The odds of dying increases with increasing age. What we would like to know is whether the excess mortality observed in septic patients is higher in elderly patients.

What you observe from your data is that elderly patients are more severe that younger patients (higher APACHE III and higher SAPS II). You should maybe compare the differential between actual and predicted mortality in young and older patients in order to investigate if the higher mortality is entirely explained by this greater severity. Or at least compare adjusted mortality in both age groups.

2. I think it would be interesting to know whether the predictors of early mortality are the same in younger patients.

Why did you limit the study of predictors of mortality to patients older than 65? Especially (as I think it is the case here) if data regarding younger patients are available.

3. If you wish to understand whether age itself is an independent predictor of mortality in septic patients why don’t you build a logistic model including all patients and testing the effect of age (or only being over 65)?

Minor Essential Revisions

Results

1. You state that “there was no differences in duration of ICU or hospital stay, the need for further care but that ICU and hospital mortality were higher in older patients”, you only compare crude lengths of stay and rates but you might want to adjust on severity.

2. Table 1&3 – You write Mean age (SD) but I think you give median and IQR (which is quite appreciable)
**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.