Author’s response to reviews

Title: A comparison of Child-Pugh, APACHE II and APACHE III scoring systems in predicting hospital mortality of patients with liver cirrhosis

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Version: 2 Date: 22 Dec 2002

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The Editor
BioMed Central

Heraklion, 23 December 2002

Dear Sir,

I apologize for the delay in resubmitting our manuscript, but according to the reviewers’ comments, we had to make a number of changes, particularly in the section of statistical analysis. Taking into account your very useful comments, we went through the list of points and we resubmit it for further review.

Sincerely yours,

Dr Maria Roussomoustakaki

Reviewer’s report
Title: A comparison of Child-Pugh, APACHE II and APACHE III scoring systems in predicting hospital mortality of patients with liver cirrhosis
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According to your very useful comments, we added calibration analysis, using the Hosmer-Lemeshow goodness-of-fit test with tables of deciles risk. As you can see, the results of our paper have been changed entirely, supporting the hypothesis that APACHE scores do not work accurately outside ICU settings.

2. Introduction
a. In the second paragraph, we state more clearly that the APACHE scores are being used mainly for critically ill patients admitted to the intensive care units.

3. Methods
a. We added a paragraph and two references about the clinical diagnosis of cirrhosis.
b. We explain the rational of excluding these patients in a new paragraph of the discussion. As we report, the aim was to define within a 24 hour interval patients not sick enough to be admitted in a medical ICU, but who are likely not to benefit from standard therapy and for whom a more intensive monitoring and treatment might be tried.
c. As we report in the discussion, because mathematical equations for APACHE III have not been published and for APACHE II this equation is available only for admission, these equations have not been used to calculate the relative risk of death. In agreement with a lot of published studies [34,35,37,39,40], we wanted to test the accuracy of single-score values.
d. In the section of statistical analysis, we clarify that descriptive statistics were expressed as mean +/- SD unless otherwise stated.
e. Calibration was assessed using the Hosmer-Lemeshow goodness of fit statistic, which divides subjects into deciles based on predicted probabilities of death and then computes a chi-square from observed and expected frequencies. Lower chi-square values and higher P values are associated with a better fit. A good fit was defined as P > 0.05.
f. We used the classification for AUC according to your suggestion (AUC between 0.7 and 0.8 as "acceptable" and between 0.8 and 0.9 as "excellent")
g. We clarify that the Pearson correlation analysis has been used.

4. Results
a. Three patients died in the ICU. The majority of the rest patients refused or were denied "resuscitation" and ICU admission. The other reason we treated a proportion of patients outside the ICU is the lack of available ICU beds.
b. The causes of death were liver failure in seven cases, kidney failure in two, hepatorenal syndrome in seven, variceal bleeding in one, and infection in six cases.
c. We corrected this section of results, according to your suggestions.
d. The results have been modified and the comments about the correct classification of APACHE III and CPS have been removed.
e. We have removed these results.
f. We made the proposed corrections in table 2.

5. Discussion
a. The discussion section has been changed a lot. We tried to make it shorter.

6. References
a. We deleted reference 37. Because of the removal and the addition of new references, the numbering
has been changed.
Discretionary comments
We made the proposed corrections.