Frailty and Other Indicators for Predicting Mortality and Hospitalization in Patients with Cirrhosis

To the Editor:

I read with great interest the article published by Singh *et al.*[1] The authors compared four frailty scales scores in 116 patients with cirrhosis for predicting mortality and hospitalizations within 6 months. They also reported that the adjusted odds ratios (ORs) (95% confidence intervals [CIs]) of frailty, alcohol-related cirrhosis, Child–Turcotte–Pugh, and chronic liver disease questionnaire scores for mortality were 14 (1.4–54.2), 4.2 (1.1–16.3), 2.1 (1.4–2.9), and 0.1 (0.1–0.4), respectively. I have some questions regarding statistical methods.

First, the authors mentioned in the "Statistical Analysis" section, that receiver operating characteristic (ROC) curve analysis was performed to compare the screening performance of frailty scale scores, presenting no significant difference. The authors mentioned that all statistical analyses were performed with the SPSS software. Comparison of ROC curve analysis can be selected for validation studies,[2,3] but the SPSS software does not support statistical comparison of the area under the curve (AUC) of each ROC curve. Instead, the SPSS software prepares statistical test of significance in each AUC, whether AUC is equal to 0.5. I suppose that any other statistical software might be used to compare AUCs.

Second, the authors mentioned that they adopted stepwise Cox regression model for multivariate analysis. If they use each clinical event by corresponding to time, hazard ratio may be calculated. As the authors presented OR, I suspect that binary data on mortality and hospitalization within 6 months may be predicted by several independent variables with logistic regression analysis.

Finally, the number of hospitalization and death within 6 months were 50 and 22, respectively. Peduzzi *et al.* evaluated the effect of events per independent variable (EPV) in multivariate regression analysis,[4,5] and EPV value less than 10 might have problems of unstable estimation in prediction model. This means that the number of independent variables exceeds the recommended values, and a longer follow-up or handling of much larger sample size is needed for stable prediction with keeping EPV of 10 or higher.

FUNDING

None.

CONFLICTS OF INTEREST

None.

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19 June 2022.