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Letter to the Editor

Methodological issues on prediction of early- and long-term mortality in adult patients acutely admitted to internal medicine

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Nutritional Risk Screening 2002
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Prediction models
Methodological issue

Dear Editor,

We read with great interest the study by Sanson et al. The aim of the authors was to explore the predictivity and the relative weight of NRS-2002 screening tool to predict in hospital and post-discharge (up to 1 year) mortality [1]. For this purpose, Data were extracted from three different sources for 5698 consecutive patients that acutely admitted to an Internal Medicine Department. Then, to test the predictive power of the Nutritional Risk Screening 2002 (NRS-2002), several logistic regression models were developed on patient mortality at different times intervals (Hospital mortality, 30-days, 90-days, 180-days and 360-days mortality). Confounders such as age, sex, Charlson comorbidity index, GPS, BUN/creatinine ratio, MEWS, and Norton index were adjusted. Also, the different time of death between patients scored upon admission as NRS-2002 < 3 or NRS-2002 ≥ 3. The receiver operating characteristic (ROC) curves and c-statistic was used to evaluation the performance of the five logistic models in five time intervals. The result showed the c-statistic (0.84) for the hospital-mortality model had the best discriminatory capability and progressive decrease in predictive accuracy observed with the lengthening of the follow-up interval (one-year mortality: c-statistic: 0.77) [1]. Patients with high risk of malnutrition (NRS-2002 ≥ 3) showed a higher and earlier mortality. NRS-2002 ≥ 3 was an independent significant ($p < 0.01$) predictor of hospital mortality at every time intervals [1].

There are notes about the concept of prediction. To develop a prediction model, the interactions between important variables should be evaluated and when qualitative interactions are present, final results can be impacted dramatically [3]. To develop and validate a prediction model, we need data from two different cohorts or at least from one cohort divided to (groups consist of patients with both failure and success outcome) and if the model is not validated, the main outcome of research is generally misleading results [2–5]. Different methods apply for validation of a prediction model such as the split file, bootstrapping, or other well-known validation methods [2–5]. In this study the ROC curve used to assess the performance of the developed models. The AUC is usually used to evaluate the accuracy of a diagnostic model and statistically significance of AUC do not guarantee prediction [3]. In this letter, we discussed methodological issues in the study and suggest that any prediction study should consider above points.

Conflict of interest

None declared.

Source(s) of support

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