A nomogram for predicting recurrence of primary hepatocellular carcinoma after resection

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The 5-year recurrence rate of hepatocellular carcinoma is as high as 60%. It is very important to establish a nomogram to evaluate the recurrence risk of patients with hepatocellular carcinoma after resection. Recently, Xu and his colleagues performed a nomogram model to predict the recurrence rate of primary hepatocellular carcinoma after resection (1), which was published in *Journal of Gastrointestinal Oncology*. The author built a good nomogram with high area under the curve (AUC =0.866) including seven independent predictors to predicting recurrence of primary hepatocellular carcinoma after resection. However, after carefully reviewing this study, we would like to put forward some suggestions to optimize the content of the article.

Firstly, there is an error in the process of building the prediction model. The nomogram diagram should be constructed based on the independent variable with P value less than 0.05 in the multivariate regression analysis. Rather than an independent predictor screened by single-factor COX analysis. In this article, tumor size and systemic immune-inflammation (SII) index are only significant in single-factor cox analysis, but not in multi-factor cox analysis, so they cannot be included in the construction of nomogram.

Secondly, the calculation formula for SII index is wrong in this article. The correct calculation formula should be platelet count × neutrophil count/lymphocyte count, rather than SII index = (the platelet count + neutrophil count)/

the lymphocyte count (2). We suggest that author should make a conceptual explanation for the SII index and put the calculation formula in the methodological data analysis part, rather than in the discussion part. A significant role is played by inflammation in the occurrence and development of tumors. Peripheral blood count coefficient is a relatively new index of inflammation, including lymphocyto-to-monocyte ratio (LMR), platelet-to-lymphocyte ratio (PLR), prognostic nutritional index (PNI) and neutrophil-to-lymphocyte ratio (NLR). These indexes can better reflect the systemic inflammatory response, which are readily available and at low-cost, and have been reported to be correlated with the prognosis of hepatocellular carcinoma. We suggest that LMR, PLR, NLR, etc. can be included in the analysis, and the nomogram model can be reconstructed according to the latest analytical results.

Thirdly, as we know, many factors affect the recurrence of liver cancer, such as cirrhosis, preoperative transarterial chemoembolization (TACE) therapy and postoperative targeted therapy (2,3). These factors are not analyzed in the paper. Therefore, we suggest to include these necessary factors for analysis to make the article more impeccable. In univariate and multivariate regression analysis, alpha-fetoprotein (AFP) should not be grouped by numerical value, but rather by whether the expression level is higher than 200 ng (4).

Fourthly, it is recommended to change the prediction of recurrence risk to the prediction of recurrence rate of 1-, 3-,

and 5-year recurrence rate. And we suggest to compare the accuracy and probability of this nomogram with the clinically used prognostic models, namely the 8th American Joint Committee on Cancer (AJCC) TNM classification and the Barcelona Clinic Liver Cancer (BCLC) staging system to demonstrate the superiority of this model.

In conclusion, Xu *et al.* performed an excellent nomogram model to predict the recurrence rate. We appreciate the contribution of the authors and believe that this is a valuable study. In our opinion, further high-quality studies are still needed to validate the findings.

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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