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Letters to the editor

Comment on "Development of a prediction index for persistent acute kidney injury following orthotopic liver transplant"

Dear Editor:

Toro-Cisneros et al. [1] recently conducted a study aimed at creating a prediction index for persistent acute kidney injury (pAKI) following orthotopic liver transplant (OLT). The research sought to identify key preoperative, intraoperative, and postoperative factors that could forecast the onset of pAKI, a significant complication known to worsen outcomes after liver transplantation. Several factors were found to be strongly associated with an increased risk of pAKI, including male gender, the need for reoperation, transfusion of more than six units of red blood cells, anhepatic time exceeding 50 min, and the use of norepinephrine at dosages greater than 0.25 mg/kg/min. The authors created a prediction model and scoring system utilizing these risk factors to identify patients at an elevated risk for pAKI following OLT. The model demonstrated robust discriminatory capability, with the area under the receiver operating characteristic curve (AUC) indicating its efficacy in predicting pAKI within the study cohort. However, several issues merit further exploration.

First, as described in the study [1], "***Baseline SCr was defined as the mean SCr value corresponding to 6 months before hospitalization or the minimum SCr value obtained during hospitalization if the previous values were not available***." The method employed to define baseline serum creatinine (SCr) introduces considerable bias and may result in inaccuracies in evaluating kidney function prior to transplantation. In certain cases, baseline serum creatinine (SCr) may be established using values from six months preceding hospitalization, potentially failing to accurately represent the patient's true renal function prior to orthotopic liver transplantation (OLT), particularly if renal function has fluctuated during that interval. Alternatively, for certain patients, baseline serum creatinine (SCr) may be established using SCr values from the three days preceding hospitalization, which would more accurately represent the patient's renal function immediately prior to transplantation. The variation in baseline definition may affect the accuracy of the study's risk predictions and their clinical implications.

Second, while the study [1] highlights the long-term effects of pAKI on kidney function, the 5-year follow-up period may be inadequate to comprehensively assess the full range of chronic kidney disease (CKD) progression. Chronic kidney disease progresses through various stages over an extended timeframe, and the 5-year assessment period may overlook earlier or later stages of CKD development that are essential for comprehending long-term renal outcomes. Furthermore, alterations in renal function over time can be affected by other factors beyond pAKI, including the kind and length of immunosuppressive treatment, pre-existing comorbidities, and subsequent problems that may occur following transplantation. The study inadequately considered these parameters, thereby restricting the generalizability and precision of the findings related to CKD development post-transplantation.

Third, a notable difference in surgical bleeding was observed between the persistent AKI and no AKI groups (3 [IQR 1.6–6] liters vs. 2 [IQR 1.2–3] liters, $p < 0.01$; Table 1) [1], suggesting a possible link between surgical bleeding and the onset of persistent AKI. Nonetheless, this clinically significant variable was conspicuously missing from both the bivariate and multivariate logistic regression analyses investigating pAKI risk factors (Table 2). The omission signifies a notable methodological limitation, given that surgical bleeding is a recognized risk factor for postoperative acute kidney injury (AKI) through various mechanisms, including hypotension, hemodilution, and transfusion-related effects. The exclusion of this essential predictor from the final model may have introduced selection bias and potentially compromised the integrity of the proposed risk index. Future investigations should thoroughly evaluate the independent impact of surgical blood loss on the risk of pAKI, while considering potential confounding variables.

Uncited references

[2,3].

Declaration of competing interest

None.

References

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