

Vasoactive-Inotropic Score as the predictor for postoperative acute kidney injury in patients with cardiovascular surgery

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Abstract

OBJECTIVE: The aim of this study was to evaluate the vasoactive-inotropic score (VIS) as the predictor for postoperative acute kidney injury (AKI) in adult patients with cardiovascular surgery. **DESIGN:** Retrospective cohort study. **SETTING:** Single center. **PARTICIPANTS:** 1935 adult patients with cardiovascular surgery between September 2017 and May 2019. **MEASUREMENTS AND MAIN RESULTS:** We calculated VIS-max by using the highest doses of vasoactive and inotropic medications during the first 24h after cardiovascular surgery. In 1935 patients, 291 patients (15.0%) developed postoperative AKI from second day to seventh day after cardiovascular surgery, and 30 patients (1.6%) needed RRT. Multivariate logistic regression analysis showed that VIS-max was associated with postoperative AKI (odds ratio[OR]: 1.18, 95% confidence interval [CI]: 1.10-1.27, $P<0.001$) and need for RRT in AKI patients (OR: 1.04, 95%CI: 1.01-1.06, $P=0.004$). The area under the ROC curve (AUC) of VIS-max as a continuous variable was significantly than the AUC of EuroSCORE, SOFA or APACHE II score as continuous variables (VIS-max vs EuroSCORE: 0.81 vs 0.71, $P<0.001$, VIS-max vs SOFA score: 0.81 vs 0.67, $P<0.001$, VIS-max vs APACHE II score: 0.81 vs 0.68, $P<0.001$), and the optimal cutpoint of VIS-max was 7.5 points. The AUC of VIS-max for predicting need for RRT in patients with postoperative AKI was significantly higher than EuroSCORE (0.75 vs 0.58, $P=0.024$), and the cut-off value was 12.5 points. **CONCLUSIONS:** VIS-max may be a useful tool in predicting postoperative AKI in adult patients after cardiovascular surgery.

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