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High-sensitivity troponin T predicts perioperative adverse events in patients undergoing neurosurgical procedures

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Objective: Previous studies have shown that troponin is a valuable predictor of perioperative complications after non-cardiac surgery. However, the relation of preoperative troponin levels with perioperative adverse events has not been well described in patient's undergoing neurosurgical procedures. This study aimed to evaluate the impact of preoperative high-sensitivity cardiac troponin T (hs-cTnT) levels on outcome of patients undergoing neurosurgical procedures.

Methods: A total of 2519 patients who were aged over 18 years and undergoing elective neurosurgery between December 2014 and December 2018, were retrospectively evaluated. Patients' information, including medical and demographic data, routine preoperative laboratory tests including hs-cTnT levels was collected to assess the association between these factors and perioperative adverse events.

Results: Perioperative adverse events occurred in 251 (10.0%) patients. Older patients and those with more comorbid conditions tended to have a higher rate of perioperative adverse events. The preoperative hs-cTnT levels were significantly higher in the individuals that experienced complicated in-hospital course than in those who did not (21.6 ± 8.2 vs 6.3 ± 3.1 ng/L, $p<0.001$). Multivariate analysis showed that age (OR: 2.33, 95% CI 1.16-4.35, $p<0.01$), presence of diabetes (OR: 3.13; 95% CI: 1.15-6.32; $p=0.004$), and preoperative hs-cTnT > 18.3 ng/L (OR 4.51, 95% CI 2.34–7.82, $p<0.001$) were significant and independent predictors of perioperative adverse events.

Conclusion: This study showed that higher preoperative hs-cTnT is associated with perioperative adverse events in adult patients undergoing elective neurosurgery.

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