論 文 要 旨

Estimation of the risk of postoperative hypertension following minor to moderate surgery using an echocardiogram biomarkers

Rumi Shidou

This study aimed to determine independent factors of developing postoperative hypertension using four biomarkers in patients receiving oral and maxillofacial surgery under general anesthesia. Brain natriuretic peptide (BNP), N-terminal pro-B-type natriuretic peptide (NT-proBNP), high-sensitivity myocardial troponin T (hs-TnT), and high-sensitivity myocardial troponin I (hs-TnI) were measured and preoperative echocardiograms were examined. Episodes of systolic blood pressure (SBP) ≥170 mmHg or diastolic blood pressure ≥100 mmHg within 1 week after surgery were considered postoperative hypertension. We analyzed 213 (130 men; 83 women) patients, who were divided into the postoperative hypertension group (HT group, n=32) and the normal group (N group, n=181). The HT group showed a higher LVMI (113.5 vs 100.1), E/e' of the lateral wall (9.1 vs 7.7), and BNP (39.2 vs 22.9 pg/mL), NT-proBNP (400.1 vs 143.9 pg/mL), hs-TnT (15.6 vs 10.3 ng/L) concentrations than the N group. NT-proBNP and hs-TnT concentrations positively associated with E/e', but BNP and hs-TnI did not. NT-proBNP (AUC =0.64, cutoff value: 117.0 pg/mL) and hs-TnT (AUC=0.61, cutoff value: 11.0 ng/L) concentrations were effective for discriminating E/e' ≥12 . Multivariate logistic regression analyses showed that risk factors responsible for developing postoperative hypertension were NT-proBNP and hs-TnT using biomarkers and E/e' as independent variables, and NT-proBNP and SBP at admission using biomarkers and SBP at admission as independent variables. These findings suggest that NT-proBNP and hs-TnT concentrations, and SBP at admission, are useful to predict postoperative hypertension after minor to moderate surgery, and that left ventricular filling pressure is a primary factor associated with postoperative hypertension.