

Publication

A preliminary report on the prognostic significance of preoperative brain natriuretic peptide and postoperative cardiac troponin in patients undergoing major vascular surgery

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Author(s) Bolliger, Daniel; Seeberger, Manfred D; Lurati Buse, Giovanna A L; Christen, Peter; Rupinski, Brian; Gürke, Lorenz; Filipovic, Miodrag

Author(s) at UniBasel [Filipovic, Miodrag](#) ; [Seeberger-Stucky, Manfred](#) ;

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BACKGROUND: Associations between preoperative elevation of brain natriuretic peptide (BNP) or postoperative elevation of cardiac troponins (cTn) with major adverse cardiac events (MACE) after major surgery have been shown previously. In this study, we evaluated the added value of preoperative BNP with postoperative cTn levels for the prediction of MACE in patients undergoing major vascular surgery. **METHODS:** This is a prospectively prespecified, secondary analysis of data from a cohort of 133 clinically stable patients undergoing major vascular surgery enrolled in a clinical trial evaluating the effectiveness of the sympathetic nervous system-inhibiting drug moxonidine on reducing MACE. Concentrations of BNP and cTn were determined before surgery, and concentrations of cTn were measured immediately after surgery and on postoperative days 1, 2, 3, and 7. The primary end point was the occurrence of MACE (defined as any hospitalization for myocardial revascularization, acute coronary syndrome, acute congestive heart failure, or death by any cause) within 1 yr after surgery. Patients were evaluated for MACE by hospital chart review during hospitalization and by telephone interviews 12 mo after surgery. **RESULTS:** Within 1 yr after surgery, 19 patients (14%) had a MACE, including 14 patients (11%) who died. After adjustment for age, gender, and the revised cardiac risk index, preoperative BNP elevation ≥ 50 pg/mL was associated with MACE (adjusted hazard ratio [HR]: 6.5, 95% confidence interval [CI]: 1.4-29.5) regardless of the subsequent cTn I concentrations. The combination of preoperative BNP elevation ≥ 50 pg/mL and postoperative cTn I elevation ≥ 2 ng/mL was associated with MACE (adjusted HR: 25.2, 95% CI: 5.0-128.4) and all-cause mortality (adjusted HR: 18.7, 95% CI: 3.1-112.5). The negative predictive value of a normal preoperative BNP value for subsequent adverse events was 0.965 (95% CI: 0.879-0.996). **CONCLUSION:** These data suggest that measurement of preoperative BNP concentrations in addition to postoperative cTn concentrations provides additive prognostic information for MACE and mortality after major vascular surgery.

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