Abstract: P2532

Incidence and outcome of perioperative myocardial infarction/injury after non-cardiac surgeries diagnosed by high-sensitivity cardiac troponin I

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Background: In order to differentiate perioperative myocardial infarction/injury (PMI) after non-cardiac surgery from preexisting cardiomyocyte injury from chronic disorders, recent studies have shown the importance of using an acute absolute increase as a criterion for PMI. For high-sensitivity troponin T (hs-cTnT), PMI defined as an absolute increase of ≥14ng/L (the 99th percentile) has been shown to be strongly associated with 30-day mortality. Until now, no data on hs-cTnI are available. This is a major unmet clinical need, as relevant differences between hs-cTnT and hs-cTnI have recently been identified and, as worldwide hs-cTnI is more commonly used as compared to hs-cTnT. We hypothesized that applying the same criterion to hs-cTnI, would reveal a similar association with outcomes.

Purpose: To evaluate the incidence and outcome of PMI diagnosed by hs-cTnI after non-cardiac surgery.

Methods: We included prospectively consecutive high cardiovascular risk patients undergoing non-cardiac surgery. Hs-cTnI concentrations were measured before surgery and, daily after surgery, for three days. PMI was defined as an absolute rise of ≥26ng/L (the 99th percentile of the assay studied) from baseline values. The primary outcome was major adverse cardiovascular events (MACE), a composite of cardiovascular death, myocardial infarction, acute heart failure and arrhythmias, and the secondary outcome was all-cause mortality, within 30 days and one year.

Results: We included 2,018 patients submitted to 2,551 surgeries. Patients had median age of 73 years (IQR 68–79) and 56% were male. After surgery, 231 patients (9%, 95% CI 8–10%) fulfilled PMI diagnostic criterion. Patients with PMI had higher rates of MACE than patients without PMI, at 30 days (13% vs. 2%; P<0.001) and, at one-year follow-up (25% vs. 8%; P<0.001). All-cause mortality was also higher in PMI patients within 30 days and one year (9% vs. 1.5% and, 22% vs. 8%, respectively; P<0.001). In multivariate cox regression analysis, PMI showed a hazard ratio (HR) of 4.7 (95% CI, 2.9–7.6; P<0.001) within 30 days, and a HR of 2.7 (95% CI, 2.0–3.7; P<0.001) within one year for the occurrence of MACE. For total mortality, PMI showed a HR of 3.8 (95% CI, 2.1–6.8; P<0.001) within 30 days and a HR of 2.0 (95% CI, 1.4–2.7; P<0.001) after one year.

Conclusion: PMI is frequent and associated with high rates of MACE and mortality in short- and long-term follow-up after non-cardiac surgery, regardless of the high-sensitivity troponin assay used for diagnosis.