Kidney Function Alters the Relationship between Postoperative Troponin T Level and Death

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Received for publication June 3, 2014.
Accepted for publication January 13, 2015.

Abstract

Cardiac troponin T (cTnT), even at low concentrations, is a risk factor for 30-day mortality in patients undergoing noncardiac surgery, but it is uncertain whether that risk is generalizable to patients with poor kidney function. We, therefore, evaluated the relationship between cTnT concentration and kidney function on the outcome of 30-day mortality in a post hoc analysis of a prospective cohort study of patients undergoing noncardiac surgery. cTnT was measured for 3 days after surgery and considered abnormal if the peak was ≥0.02 ng/ml. Of the included 14,037 patients, 267 (1.9%) patients died within 30 days of surgery. The adjusted hazard ratios for death with an abnormal cTnT concentration were 4.37 (95% confidence intervals [95% CI], 3.21 to 6.22), 6.15 (95% CI, 2.95 to 140.9), 6.30 (95% CI, 3.12 to 21.23), 1.33 (95% CI, 0.56 to 4.85), and 1.46 (95% CI, 0.46 to 9.21) for eGFR ≥60, 45 to <60, 30 to <45, 15 to <30, and <15 ml/min per 1.73 m² or on dialysis, respectively. Compared with patients with eGFR ≥60 ml/min per 1.73 m², the adjusted hazard ratio was significantly lower for patients with eGFR = 15 to <30 ml/min per 1.73 m² (interaction P value=0.02). Redefining abnormal cTnT concentration as ≥0.03 ng/ml or a change of ≥0.02 ng/ml did not alter results. Because the risk associated with postoperative cTnT levels may be different for patients with eGFR <30 ml/min per 1.73 m², additional research is required to determine how to interpret perioperative cTnT values for patients with low kidney function.

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