

Relationship between intraoperative hypotension, defined by either reduction from baseline or absolute thresholds, and acute kidney injury and myocardial injury after noncardiac surgery



Salmasi et al. Anesthesiology 2017

From
Cleveland, Ohio, USA.

Study design
Retrospective cohort study of 57,315 patients who had surgery between January 2005 and March 2014

Objective

Assess the relationships between mean arterial pressure (MAP) during surgery and postoperative acute kidney injury (AKI) and myocardial injury.

Methods

All study patients had noncardiac surgery at the Cleveland Clinic.

AKI was defined as a postoperative creatinine concentration within 7 days of surgery either more than 1.5-fold or more than 0.3 mg/dl greater than the preoperative concentration.

Myocardial injury was defined as a postoperative cardiac enzyme concentration within 7 days of surgery that was greater than or equal to the suggested necrosis limit for troponin T or for creatine kinase-MB.

MAP was recorded with an arterial catheter and with the oscillometric upper-arm cuff method in 40% and 60% surgeries, respectively.

Main findings

AKI and myocardial injury developed in 5.6% and 3.1% surgeries, respectively.

A MAP <65 mmHg or a decrease in MAP >20% for 1, 3, 5 or 10 minutes were related to both AKI and myocardial injury.

The risk of AKI and myocardial injury increased with the duration of hypotension (figure 1).

Discussion

The observed association between MAP and postoperative adverse events may not be causal. Randomized trials are required to determine whether outcomes improve with interventions that maintain an intraoperative MAP >65 mmHg.

Conclusion

A MAP < 65 mmHg during non-cardiac surgery was associated with an increased risk of AKI and myocardial injury. The risk of adverse events increased with the duration of hypotension.

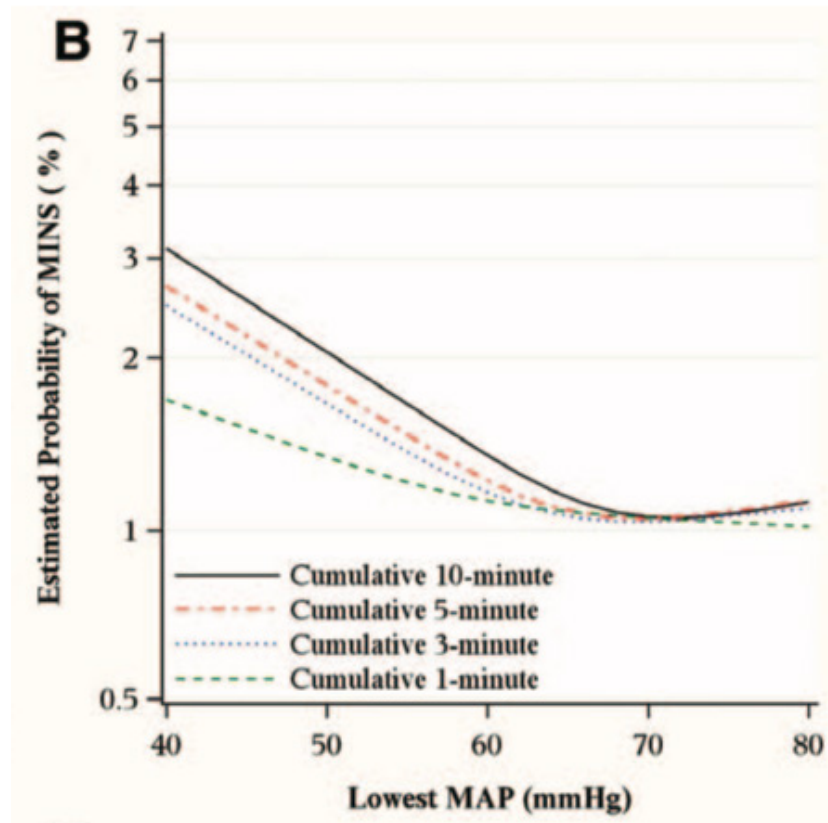


Figure 1. Relationship between the lowest MAP and the probability to observe postoperative myocardial injury (MINS). The risk of MINS increases when the MAP is <65 mmHg and with the duration of hypotension.

- For internal use only -

Edwards, Edwards Lifesciences and the stylized E logo are trademarks of Edwards Lifesciences Corporation.

© 2019 Edwards Lifesciences Corporation. All rights reserved.

Edwards Lifesciences • Edisonstr. 6, 85716 Unterschleißheim • edwards.com/de

