Controversies in Perioperative Medicine

David M. Brabeck, MD[a,*], Michael C. Brabeck, MD[b]

KEYWORDS

• Perioperative • Myocardial infarction • Angiotensin-converting enzyme inhibitor
• Angiotensin receptor blocker • Comanagement service • Insulin management
• Tobacco use • Obstructive sleep apnea

HOSPITAL MEDICINE CLINICS CHECKLIST

1. Data are lacking for postoperative patients undergoing noncardiac surgery with asymptomatic increase in troponin level, leading to confusion about which patients should be screened with postoperative troponin assays.
2. Recommendations for continuation or discontinuation of angiotensin-converting enzyme or angiotensin receptor blockers in the perioperative period depend on the clinical context.
3. Comanagement services may contribute to improved outcomes; however, this benefit may be limited to circumstances in which the patients have significant comorbidities.
4. Absent wide fluctuations in blood glucose control, preoperative administration of 80% of a patient's usual dose of basal insulin is a reasonable choice, except in special circumstances.
5. Four weeks of preoperative smoking cessation preoperatively does not seem to increase risk of postoperative pulmonary complications (PPCs).
6. Patients with diagnosed obstructive sleep apnea (OSA) and patients at risk of OSA may have similar risks of PPCs. Consideration should be given to continuous positive airway pressure for those patients who screen positive on assessment tools for OSA, even without a confirmed diagnosis.

Disclosures: None.
[a] Department of Hospital Medicine, Lahey Hospital and Medical Center, 41 Mall Road, Burlington, MA 01805, USA; [b] Division of General Internal Medicine, Department of Hospital Medicine, New York University School of Medicine, 550 1st Avenue, New York, NY 10016, USA
* Corresponding author.
E-mail address: David.m.brabeck@lahey.org

Hosp Med Clin ■ (2016) ■–■
http://dx.doi.org/10.1016/j.ehmc.2016.11.002

I. Should troponins be used postoperatively in patients undergoing noncardiac surgery if they are asymptomatic for cardiac symptoms?

INTRODUCTION: POSTOPERATIVE TROPONINS

Patients undergoing noncardiac surgery have been shown to have 5% increased risk of postoperative myocardial infarction (MI).[1] Of those experiencing MI, the 30-day mortality was as high as 11.6%.[1] The mechanism for this risk has been proposed to be plaque rupture (type 1 MI) and/or oxygen supply-and-demand mismatch (type 2 MI).[2] Guidelines for the monitoring of postoperative troponin are lacking, because of a lack of data on how to best manage patients with increased postoperative troponin levels.

Why should clinicians screen with troponins postoperatively?

The Perioperative Ischemic Evaluation (POISE) study[1] showed that 5% of patients enrolled in the study experienced a postoperative MI.[1] Nearly three-quarters of these MIs occurred within 48 hours of surgery and approximately two-thirds of these patients had no symptoms.[1] The 30-day mortality was significantly higher for those who had a postoperative MI (11.6%) compared with those who did not (2.2%) ($P<.001$).[1]

Of note, outcomes were similar for those patient who experienced symptoms (9.7%; adjusted odds ratio [OR], 4.76; 95% confidence interval [CI], 2.68–8.43) compared with those who did not (12.5%; adjusted OR, 4.00; CI, 2.65–6.06).[1] The implication is clear. Patients may be at similar risks for increased mortality caused by MI with or without symptoms, but clinicians may fail to recognize those patients who lack ischemic symptoms without screening troponins postoperatively.

Why should clinicians not screen with troponins postoperatively?

The significance of postoperative troponin level increase is correlated with the patient's clinical risk factors. In the vascular events in non-cardiac surgery patients cohort evaluation (VISION) study, of the 282 patients who died within 30 days of surgery, 55% of deaths had a noncardiac cause, whereas 45% of deaths had a cardiac source.[3] Troponin level increase therefore may be a marker for mortality with other than cardiac causes. The POISE trial suggests that specific therapy, such as statins and aspirin, improves outcomes in those patients with clinical evidence of ischemia.[1] However, not all troponin level increases are have a cardiac cause. Other sources may include pulmonary embolism, sepsis, or stroke. Standard treatment of troponin level increase associated with a cardiac cause (aspirin, statin, beta-blockade, cardiac catheterization, anticoagulation) differs significantly from other causes of troponin level increase, therefore the question becomes how to manage patients who have increased troponin levels of unclear source.

Who should be screened with postoperative troponins?

At present, available evidence suggests that increased troponin levels have more utility when used with patients having an increased number of clinical risk factors, such as known coronary artery disease, renal insufficiency, diabetes, or history of stroke. Patients who have 1 clinical risk factor should not be screened.[3] The 2014