

EDITORIAL

The times, they are a-changin'; a fundamental change to perioperative cardiac risk stratification for noncardiac surgery

Preoperative cardiac risk stratification for noncardiac surgery was officially formalised with the publication of the American College of Cardiology/American Heart Association Task Force Practice Guidelines in 1996.¹ This landmark publication, set the foundation for all subsequent risk stratification guidelines for noncardiac surgery. The guideline was built around three pillars; i) the patient's risk factors or comorbidities, ii) the patient's functional capacity and iii) the risk associated with the surgical procedure.¹ Despite, the limited evidence to inform these original guidelines, they provided sensible guidance in the management of noncardiac surgical patients at cardiac risk. Subsequent, iterations of the guidelines,²⁻⁴ continued to follow and re-inforce the importance of the three pillars identified in the original guidelines.¹ Importantly, this philosophical approach to cardiac risk stratification crossed the Atlantic and was adopted in Europe too.^{5,6}

However with time, and accumulating evidence, the foundations of the pillars on which these guidelines of perioperative cardiac risk stratification for noncardiac surgery had been built, were slowly being eroded. Firstly, the evidence that functional capacity could successfully discriminate between patients at risk of cardiac events from those who aren't, has been questionable for a while.⁷ It was the data from the Gupta MICA (myocardial infarction and cardiac arrest) model,⁸ which allowed a demonstration of the limitations of functional capacity in risk stratification in these patients.⁹ Secondly, although the majority of the cardiac risk factors identified in the original guideline¹ have continued to be associated with adverse cardiac events,^{10,11} the evidence has shown that they discriminate poorly between patients at intermediate risk for adverse cardiac events. The addition of B-type natriuretic peptides however significantly improves clinical risk stratification in these difficult patients.^{12,13} Subsequently, B-type natriuretic peptides have shown clinical utility in preoperative risk stratification for all noncardiac surgical patients.¹⁴ Finally, it is now clear that over ¾ of patients are asymptomatic in the postoperative period, even in the presence of a myocardial injury following noncardiac surgery which is independently associated with 30 day mortality.¹⁵ This would suggest that routine postoperative troponin screening should be considered in patients at risk of cardiac events.¹⁶

To this end the Canadian Cardiovascular Society have produced their first guidelines on the preoperative evaluation of the cardiac patient for noncardiac surgery.¹⁷ This guideline has been the first to integrate the three major developments highlighted above, which have continued to erode all other guidelines; they have removed functional capacity as a discriminator, they have included preoperative B-type natriuretic peptide risk stratification, and finally, they have also included postoperative troponin screening for at-risk patients.¹⁷

The times are certainly a-changin' and this guideline is a major deviation from what we have grown up with.¹⁴ This is a timeous and necessary change. It is hoped that the Canadian guidelines will encourage future guideline committees from both the United States and Europe to reconsider the weight of the evidence which underpin their guidelines, and consider moving away from the dogma and philosophy which was once useful, but now appears to be holding them back.

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