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Simple Index for Prediction of Cardiac Risk in Stable Patients Undergoing Nonurgent Major Noncardiac Surgery: What About the More Severely Compromised Patients?

To the Editor:

In their recent article, Lee et al¹ mention that their index, which is derived and validated by a superb methodology, can identify which stable patients undergoing nonurgent major noncardiac surgery are at a higher risk for complications. In fact, the assessment of preoperative cardiac risk is complicated by many interposed problems. In the surgical decision-making process, it is precisely the assessment of all general risks (and not only cardiac risk) that could be of clinical interest, inasmuch as general risk factors can indeed be the indirect cause of postoperative cardiac complications and general complications can be the consequence of overlooked cardiac risk factors. Furthermore, the authors do not consider data from emergency surgery patients, although emergency is a widely reported independent predictor of operative risk.

As general surgeons working next door to busy cardiology and cardiac surgery services, we developed expertise with elective and emergency noncardiac surgery after cardiac surgery. We realize that our model, which was validated in 1990² using a cohort of severely compromised patients, identifies simple independent predictors, which are relatively similar to those derived by Lee et al, that assess cardiac risk and general risk (including death) in patients undergoing elective or emergency surgery.

To eliminate potential sources of error that can compromise the preoperative assessment of a patient, many statistically derived predictive models have been proposed as substitutes for qualified surgical and/or anesthesiological judgment. Interestingly, in the study by Lee et al,¹ no relationship existed between risk class and cardiac complications among the patients who underwent abdominal aortic aneurysm surgery when compared with other types of noncardiac surgery. Thus, the proposed index is not predictive in the group of the most fragile patients from the cardiovascular point of view. This lends weight to the assertion that although clinical judgment can be reinforced by the use of statistical methods, models cannot predict with certainty the outcome of an individual patient.² Therefore, blind adherence to the results presented by Lee et al¹ carries the potential danger that the indiscriminating clinician may become so bemused by analytical and statistical techniques applied to large amounts of data that he or she will lose sight of the following simple rule: "each patient should always be assessed individually by the clinician."² Finally, we would like to mention that every surgical patient should be treated perioperatively with strategies to reduce oxygen consumption, regardless of his or her classification according to any predictive index of cardiac risk.

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1. Lee TH, Marcantonio ER, Mangione CM, et al. Derivation and prospective validation of a simple index for prediction of cardiac risk of major noncardiac surgery. *Circulation*. 1999;100:1043-1049.
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Response

We focused our article on patients undergoing nonemergency, noncardiac surgery because it is in this population that physicians must most often make management decisions such as whether to perform noninvasive tests of ischemia, coronary angiography, or coronary revascularization. In patients undergoing emergency surgery, the option of an elective coronary disease evaluation is usually not possible. Furthermore, the focus on nonemergency surgery allowed us to collect data prospectively and to perform analyses in which the findings were not distorted by the presence of emergency noncardiac operations.

Emerging data indicate that interventions such as β -blockers can reduce the risks of noncardiac surgery, and we support such interventions.^{1,2} We strongly agree with the point that physicians must assess patients individually and that decision aids are just that—aids to a physician's judgement. A decade ago, Dr Michel and his colleagues found the original cardiac risk index to be helpful in stratifying risk for noncardiac surgery among patients with prior cardiac surgery.³ We hope that they will find our new index even more helpful in the future.

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