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Predicting Postoperative Morbidity: In What Procedures and What Patients?

To the Editor:

In an extensive effort, Moonesinghe *et al.*[1] summarize risk-stratification tools for predicting morbidity and mortality after major surgery and conclude that studies have limitations and further international studies are required regarding clinical decision making and patient outcome. Although this review is a laudable effort, unfortunately the review predominantly is based on studies published before 2010 and may otherwise not provide a critical reassessment to the question raised in 2013 for several reasons:

1. First of all, the review fails to discuss that surgical techniques have changed over the last decade regarding the use of different minimal invasive techniques which may decrease postoperative morbidity, and thereby hindering translation of previous prediction studies from open procedures to minimal invasive surgery.

2. There is a need for procedure-specific studies and not a combination of prediction studies from different surgeries, because different procedures have different outcome problems and different pathogenic mechanisms.

3. There is no mentioning in the review by Moonesinghe *et al.*[1] of the implications of the fast-track methodology (or Enhanced Recovery Programs) for the value of predictive scores. This may be important, because these optimized perioperative care programs have been demonstrated to decrease postoperative morbidity,[2–4] but neither included nor mentioned in the reported studies. Therefore, valid future predictive tools must be based on well-defined, procedure-specific, evidence-based care programs including details on choice of anesthetic and analgesic techniques, which may also modify outcomes. Such assessments may preferably be based on studies based on the question "Why is the surgical high-risk patient at risk?,"[3] or in other words whether new predictive tools will show whether the previous risk indices may or may not be exported to fast-track surgery.[3,4]

In conclusion, there is an urgent need for new and better tools to predict postoperative morbidity after major surgery compared with previous data. Such efforts should consider developments in surgical techniques, surgical care and anesthetic and opioid-sparing multimodal analgesic techniques, and then on a procedure-specific basis. Otherwise, we will continue to look at data which reflect the past surgical and perioperative care programs which may not be able to provide relevant information where modern care principles have been introduced.

Competing Interests

The authors declare no competing interests.

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In Reply:

We thank Dr. Kehlet for his comments on our article.[1] His letter raises important issues which we broadly agree with. The implementation of fast-track or "enhanced recovery" programs and the increasing use of minimally invasive surgical approaches are two examples of how surgical practice has changed in recent years, at least in some parts of the world. These may have impact on the risk of patient morbidity and mortality, particularly in the short term. Furthermore, improvements in the medical management of some chronic illnesses (*e.g.*, ischemic heart disease) mean that the implications of such illnesses for patient health and perioperative prognostication are quite different today, compared with 20 yr ago when some of the risk-stratification tools featured in our systematic review were first developed and validated.

Thus, we agree that an approach to risk stratification is warranted which is responsive to such changes in practice and will also enable specialty-specific risks to be taken into consideration. The use of technology (such as mobile apps) and large datasets ("big data") present opportunities to refine existing risk-stratification methodology for the modern era, leading to the development, validation, and regular reevaluation and recalibration of risk-prediction tools. However, the challenge of implementing the collection of such large datasets in a systematic manner remains significant in many