How should we measure risk?

Dr Doug Campbell

Anaesthesia Specialist, Auckland City Hospital

Risk is the potential of gaining or losing something. In the context of surgery, risk is the potential for having an adverse outcome or complication. However, the risk of adverse outcomes following surgery often follow a characteristic course with risk being highest immediately following the procedure and then reducing over time. This highlights an additional problem. When should we measure risk? The timing of measurement needs to be adequate to determine the cumulative incidence of risk. An additional problem is that most complications of surgery are exacerbations of existing medical disease eg myocardial infarction, pneumonia, or new manifestations of medical disease. There will be a background incidence of these diseases, so determining if the event is caused by surgery or merely associated with surgery can be problematic. Differentiating between perioperative and background events is difficult. These issues will be highlighted during the presentation using examples of perioperative mortality in low and high-risk groups. [1]

Mortality risk information is often presented to patients as it is meaningful and important outcome for healthcare providers. We often have reasonable data so it used as a basis for discussions around risk during shared decision making and informed consent. But mortality is an unlikely outcome, even in high-risk patients. Some risk calculators such as the American College of Surgeons National Surgical Quality Improvement Programme (ACS-NSQIP) risk calculator [2] provide risks for non-fatal outcomes. The range of outcomes make it difficult for the clinician to interpret the overall impact on the patient. Days Alive At Home (DAAH) has recently been validated in surgical patients [3]. It may be a useful metric for measuring a patient-centred non-fatal outcome that is easily interpretable by patients and clinicians alike.

Similarly, disability is measured in clinical trials of perioperative medicine with metrics such as WHODAS 2.0. However, even experienced researchers have difficulty interpreting the results. In ischaemic stroke trials, disability is measured using the modified Rankin Scale at 3 months [4]. This simple ordinal scale ranks patients' disability into 7 categories using a short 10 point questionnaire. Examples will be provided during the presentation to show how easily understandable these metrics are for describing non-fatal risk in surgical patients and provide a pathway for future description of risk in surgical patients.

References

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