

BJA / RCoA Career Development Fellowship 2012

First Year Report

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Background

Over 230 million patients undergo major surgery each year. Previous work by our group has shown that more than 80% of patients who die after surgery could have been identified as high-risk beforehand. Over 170,000 high-risk surgical procedures are performed each year in the NHS, following which 100,000 patients develop complications resulting in over 25,000 deaths. Variations in mortality between hospitals and countries strongly suggest the potential to improve patient outcomes. One in four patients who develop complications will die without leaving hospital whilst those who survive suffer reductions in functional independence and one year survival. The high-risk surgical population consists primarily of older patients, with associated medical problems, who undergo major surgery. Common complications include pneumonia, myocardial infarction and acute kidney injury. Doctors frequently fail to identify these high-risk patients and to admit them to a critical care unit to provide enhanced care after surgery. Patients who choose to undergo surgery often do so without the information they need to make an informed decision. The overarching aim of this fellowship proposal is to define which patients are most in need of critical care after surgery and to investigate the benefits of this approach.

The first aim of the application was to assess the accuracy of exercise testing and blood tests (plasma biomarkers) in providing a detailed estimate of the risk of complications and death after surgery. The award has allowed four UK hospitals to make a major contribution to a large, international study taking place in Canada and Australia as well as the UK. The Measurement of Exercise Tolerance before Surgery (METS) study is now well under way with more than 300 patients recruited. At the time of writing, one of the UK sites was leading the recruitment table. The second aim was to develop a simple score which doctors and nurses can use before surgery to provide a broad but accurate estimate of a patient's risk of death after surgery. This will be achieved through analysis of an existing large patient database to create a simple bedside score to categorise patients as low, intermediate or high risk of death after surgery. The award has allowed my group appoint a statistician in order to develop this analysis which is shortly due to commence. The findings of this research will help to redefine current concepts of adequate care for patients undergoing major surgery and provide definitive evidence to ensure objective and meaningful assessment of risk is possible for every patient.