Investigating the Underlying Pathology of Cardiovascular Events in High Risk Surgical Patients.

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Introduction

Worldwide, 230 million operations take place annually and a high risk cohort of patients account for 80% of mortality. Reduced haemoglobin is associated with poor outcome in a number of areas, but exists in a complicated relationship with red cell transfusion. This study was undertaken to further characterise the role of anaemia in the high risk patient population at the Royal London Hospital.

Methods

This was an observational cohort study and patients were eligible if they were >45 years, staying overnight in hospital after non-cardiac surgery and received a general anaesthetic. Data were uploaded to a central database, cleaned and re-coded to allow analysis. Outcomes were major adverse cardiac events (MACE), complications and infection within 30 days of surgery. Backward conditional multiple logistic regression was used to account for confounding variables.

Results

A total of 1,285 patients were analysed. MACE occurred in 2.9% of the cohort, complications in 35.5% and infection in 9.6%. Following adjustment, haemoglobin <7.9g/dL was associated with an increased risk of 30 day MACE (OR 83.6[3.9-1774.6] p=0.005). Preoperative haemoglobin was not associated with infection or complications. Patients receiving any transfusion were at an increased risk and those transfused on the first day alone were at a decreased risk of MACE.

Discussion

This cohort study found that preoperative haemoglobin <7.9g/dL was significantly associated with increased risk of 30day MACE. The relationship between transfusion and 30 day MACE is complex and requires further investigation. Analysis of a larger data set looking at anaemia and timing of transfusion is required.