

COMMENTARY: BLOOD TRANSFUSION STRATEGIES IN ELDERLY

PATIENTS

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Since the publication of the Transfusion Requirements in Critical Care (TRICC) trial in 1999¹, much recent progress has been made in implementing best transfusion practice based on clinical trials and clinical practice guidelines, but there continues to be considerable variation in transfusion practice.² One of the factors accounting for this may be disagreement about the validity of the evidence for restrictive transfusion practice across the many clinical settings where blood is used. A recent Cochrane systematic review on thresholds for red blood cell (RBC) transfusion identified a total of 31 randomised controlled trials (RCTs) in 12,587 participants across a range of clinical specialities, including surgery, critical care, and gastrointestinal bleeding.³ Restrictive transfusion strategies reduced the risk of receiving a RBC transfusion by 43% (risk ratio (RR) 0.57, 95% confidence interval (CI) 0.49 to 0.65). Overall, restrictive transfusion strategies did not increase or decrease the risk of 30-day mortality when compared with liberal transfusion strategies, nor affect any of the other assessed outcomes including cardiac events, stroke, thromboembolism, or infection. These findings provide good evidence that allogeneic blood transfusions are of no benefit and can be avoided in most haemodynamically stable patients with haemoglobin (Hb) levels above 70 g/L to 80 g/L. The presence or absence of comorbidities such as pre-existing cardiovascular disease has been recommended in decision making about the need for transfusion, specifically at a Hb threshold of 80g/L vs. 70g/L.⁴ However, there are insufficient data to inform the safety of restrictive transfusion policies in certain clinical subgroups, including acute coronary syndrome, myocardial infarction, traumatic brain injury, and acute neurological disorders such as stroke.

Another risk factor which could affect decision-making on the optimal RBC transfusion threshold is patient age. This issue of *Lancet Haematology* publishes a systematic review analysing the clinical outcomes of patients aged ≥ 65 years of age in RCTs of liberal vs. restrictive RBC transfusion strategies.⁵ Nine trials (5780 participants) were identified: five in an orthopaedic setting, three in cardiology and one in oncology. The 30 day mortality RR was 1.36 favouring liberal transfusion (95% CI 1.05 to 1.74; 4,969 participants, 7 trials), and the 90 day mortality was 1.45 favouring liberal transfusion (95% CI 1.05 to 1.98; 2,287 participants, 2 trials). The authors concluded that their data challenge the application of current guidelines for restrictive RBC transfusion strategies in elderly patients. The care of elderly patients receiving more liberal transfusions may increase the demand for blood as transfusion requirements increase progressively, especially so after the age of 65.⁶

Before accepting these conclusions and putting them into practice, the limitations of the review should be examined. Only 3 of the 9 included RCTs, with a total of 590 patients, were restricted to patients aged 65 years and above. Other trials included eligibility criteria starting at 16 or 18 years of age, although the median age of the patients included in all studies was at least 64 years. However, the authors did not include 11 trials (5 orthopaedic; 2 cardiac; 2 critical care; 1 vascular; 1 gastrointestinal bleeding: 2943 participants) included in the Cochrane review that all had mean or median participant age of at least 65 years.³ If data from these trials are included in an analysis of 30 day mortality, there was no longer any evidence of a difference in 30 day mortality (Figure 1). This puts in to question all of the findings from this review because at least 50% of the data from eligible participants are missing.

The authors should be congratulated on raising concern about the general adoption of restrictive RBC transfusion for elderly patients based on the results of RCTs which have included patients with broad age ranges. Several questions about optimal blood transfusion thresholds remain to be answered, and not just in relation to the clinical subgroups identified in the Cochrane systematic review.³ One way of achieving this would be through new trials designed to develop the evidence base, such as restrictive versus liberal RBC transfusion in elderly patients. Another approach would be to compare data for patients under or over 65 years of age, with or without known cardiovascular disease, from published RCTs of restrictive v liberal RBC transfusion. In the instance of age, the systematic review conducted by Simon and colleagues only included some of the RCTs where the median age of patients was above 64 years; this analysis excluded a substantial proportion of elderly patients, both within the missing eligible trials and in the other trials identified by the Cochrane review, which would provide additional data in developing the evidence base for this important issue.

Conflict of interest

The authors declare no conflicts of interest.

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Figure 1

Analysis including additional data from Carson 2016³

