

Perioperative populations are not homogeneous

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Editor—We read with interest the recent meta-analysis by Fominskiy and colleagues.¹ Their primary study finding was that no difference in mortality could be found between liberal or restrictive transfusion strategies in a population including both perioperative and critical care patients. Subanalysis found that a liberal transfusion strategy reduced mortality in perioperative patients [odds ratio (OR) 0.81, P-value=0.05, 95% confidence interval (CI) 0.66–1.00]. They conclude that ‘a liberal transfusion strategy improves survival in perioperative but not in critically ill patients.’

We believe that this broad conclusion about perioperative transfusion should be more nuanced. This perioperative population included both cardiac and non-cardiac surgery patients. Meta-analysis of these two groups, using data presented by Fominskiy and colleagues¹ (their Figs 1 and 2, respectively), demonstrates that the benefit seen from a liberal transfusion strategy is driven primarily by patients undergoing cardiac surgery [OR 0.69 (95% CI 0.47, 1.02, I²=14%)] compared with patients undergoing non-cardiac surgery [OR 0.87 (95% CI 0.68, 1.11, I²=30%)].

The finding that cardiac patients may benefit from a more liberal transfusion strategy is not unexpected, but this does not imply that a liberal strategy should be adopted for non-cardiac

surgery patients. The authors note that, ‘The most important finding of this meta-analysis of RCTs is to suggest that the effect of transfusion strategies on patients’ survival depends on the studied setting’. We echo this sentiment and wish to point out the danger of lumping both cardiac and non-cardiac surgery patients together.

Furthermore, it is important to acknowledge the wider implications of a liberal transfusion strategy in poorly resourced environments. With a number needed to treat of 97, more aggressive blood transfusion strategies run the risk of depleting blood stocks and paradoxically increasing mortality in other patient populations.

Declaration of interest

None declared.

Reference

1. Fominskiy E, Putzu A, Monaco F, et al. Liberal transfusion strategy improves survival in perioperative but not in critically ill patients. A meta-analysis of randomised trials. *Br J Anaesth* 2015; 115: 511–9

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Reply

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Editor—We would like to thank Dr Saha for his comments on our article suggesting benefits of a liberal transfusion strategy in perioperative patients.¹

We fully agree with Dr Saha that transfusion of red blood cells (RBCs), until safer alternatives are available, is the unique lifesaving intervention in active major bleeding to restore oxygen delivery to the tissues. We would like to emphasize that all the 17 perioperative randomized controlled trials (RCTs) of our meta-analysis included patients without active haemorrhage. Based on the nine RCTs reporting data about bleeding, the mean blood loss in the perioperative setting was 1017 and 870 ml in the liberal and the restrictive group, respectively. Moreover, in 10 RCTs active or uncontrolled bleeding were exclusion criteria or the trial protocols were abandoned in the event of uncontrolled haemorrhage. Only four of the 17 RCTs included patients with bleeding even though they represented a very small proportion of the patients included in these four trials and were

managed with protocol violations (e.g. received more RBC transfusions than those described in the predefined protocol).

Thus, the perioperative RCTs included in our meta-analysis had patients with relatively stable intra- and postoperative anaemia, with haemoglobin concentrations of at least 7 g dl⁻¹. Thereby, the conclusion of the meta-analysis refers only to stable anaemic intra- and postoperative patients, and we speculate that patients with intra- or postoperative active major haemorrhage will benefit even more from a liberal transfusion strategy.

Dr Saha referred to the National Institute for Health and Care Excellence (NICE) blood transfusion guidelines² that recommend the use of restrictive RBC transfusion thresholds for patients who need RBC transfusions and who do not have major haemorrhage or acute coronary syndrome or do not need regular blood transfusions for chronic anaemia. This guidance is based on 34 systematically identified relevant RCTs, with a search updated on January 29, 2015. Nevertheless, for the meta-analysis investigating restrictive vs