

EDITORIAL

Transfusion of a disillusion? When well-meant clinical intuition meets individualised physiology

D.W. Donker^{1,2}¹Department of Intensive Care Medicine, Division of Anesthesiology, Intensive Care and Emergency Medicine, University Medical Center Utrecht, the Netherlands²Department of Cardiovascular and Respiratory Physiology, TechMed Centre, Faculty of Science and Technology, University of Twente, Enschede, the Netherlands

Correspondence

D. W. Donker - d.w.donker@umcutrecht.nl

We all realise that blood transfusions can be beneficial but may also potentially harm our patients. Generally accepted restrictive transfusion thresholds for red blood cells (7 g/dl or 4.3 mmol/l) in a general ICU population of non-bleeding, critically ill patients find widespread acceptance.^[1] Yet, with the emergence of precision medicine being so closely related to our daily clinical commitment to every single patient, we feel more than ever the need to individualise therapy in the best possible way. This obviously includes blood transfusions when deemed necessary, but don't we doubt the appropriateness of the presumed necessity on a very regular basis and isn't the evidence scarce?^[1]

This year, the REALITY trial created quite some new reality in this context, challenging the latest practice guidelines.^[1,2] In patients with an acute myocardial infarction, a restrictive transfusion strategy, i.e. triggered by a haemoglobin threshold of 4.9 mmol/l and aiming for a target of 4.9-6.2 mmol/l, compared with a more liberal transfusion strategy, i.e. 6.2 mmol/l and >6.8 mmol/l, proved non-inferior, safe and likely cost-effective. The primary clinical outcome was major adverse cardiovascular events, i.e. composite of all-cause death, stroke, recurrent myocardial infarction or emergency revascularisation prompted by ischaemia at 30 days.^[2] Nevertheless, it still feels a bit contra-intuitive to adhere to a restrictive transfusion strategy in patients with acute cardiovascular disease as has been the practical advice up to now.^[1] Therefore, it is important to put the REALITY trial into the right perspective as patients with, for example, cardiogenic shock or myocardial infarction after percutaneous coronary intervention or coronary artery bypass grafting were excluded from the study.

In this sense, it still seems reasonable when we tend to derive our individualised transfusion strategies from accepted physiological principles, as far as possible along current guidelines. Especially when caring for patients with the most severe forms of respiratory insufficiency supported

by extracorporeal membrane oxygenation, understanding physiology is pivotal when evidence is lacking,^[1] hereby accepting anaemia should be carefully balanced to the adequacy of oxygen supply and consumption.^[3]

Keeping all of the above in mind, in this edition of the Netherlands Journal of Critical Care Gupta et al. add another clinically important notion to this discussion by attentively evaluating the physiological merits of blood transfusions.^[4] In this single-centre study in 74 critically ill patients from the ICU of the Georgetown University Hospital in Washington D.C. the authors analysed vital signs and other clinical variables related to organ function. Interestingly, they found no improvements after red blood cell transfusion, while notably the PaO₂/FiO₂ ratio worsened after transfusion.

With these findings, Gupta et al. underscore the relevance of meticulously assessing individual cardiovascular and respiratory physiology at the bedside in critically ill patients and at times discover the 'transfusion of a disillusion'.^[3]

References

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