

Anaemia in the Critically Ill—The Optimal Haematocrit

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Abstract

Introduction: The optimal haematocrit for the critically ill patient is undetermined. **Methods:** This review focuses on clinical and experimental papers regarding the aetiology and management of anaemia from the Medline database. Data from our intensive care unit (ICU) were also included. **Results:** Anaemia may result from frequent blood sampling, gastrointestinal bleeding, surgical blood loss, impaired erythropoietic response, and nutritional deficiencies of iron, vitamin B₁₂ and folate. Available data on the minimum tolerated Hct are conflicting. There has been emphasis that transfusions should not be based on a single “trigger”. Recent data suggest a linear relationship between Hct and cerebral oxygen delivery (DO₂). There is evidence that anaemia increases the mortality, and the risk is higher in patients with cardiovascular disease. Conversely, transfusions are not without risks, which include transmission of infections, incompatibility reactions and immunomodulation. Restricting blood transfusion has been shown to result in lower 30-day mortality in certain patient groups. Minimising blood loss and nutritional support are important. Alternative strategies to transfusion include erythropoietin and blood substitutes like cell-free haemoglobin, perfluorocarbon emulsions and liposome-encapsulated Hb. Hyperbaric oxygen has also been tried. **Conclusion:** Oxygen consumption requires oxygen delivery. Haematocrit delivers oxygen. However, if oxygen delivery is not limited by haematocrit or is achieved by other means, then the concept of the optimal haematocrit is irrelevant. There are currently no guidelines for the management of anaemia in the critically ill.

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