

21. TRANSFUSION RISKS

AND BENEFITS

Transfusion can be vital and lifesaving therapy but may carry a risk to the patient.

Key messages

Best transfusion practice means transfusing a patient only when there is an identified clinical need.1

Blood transfusion may relieve morbidity and reduce mortality when administered appropriately.1

Australia has one of the safest blood supplies in the world in terms of viral safety and risk of transfusion transmissible infections.2

Non-infectious risks are higher frequency and carry greater morbidity than infectious risks.3

Clinical implications

The decision to transfuse should take into account the full range of available therapies, and balancing the evidence for efficacy and improved clinical outcome against the potential risks.

The prescribing clinician should gain informed consent from the patient/carer for transfusion.

Background

As with all healthcare interventions the transfusion of blood components has both potential risks and benefits. Informed consent requires that the patient has a clear understanding of the potential risks, benefits and available alternatives before proceeding with a transfusion.1 Clear indications include replacing blood that is lost during haemorrhage and providing platelets for patients having chemotherapy.1 However many purported benefits of transfusion practice have been founded on anecdotal evidence rather than scientific rigor.4 Some adverse patient outcomes have been linked to transfusion as outlined in Table 1.

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Table 1 Adverse patient outcomes linked to transfusion

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| RBC transfusion related adverse outcomes | |
| Increased morbidity | Significant predictor of infection, including wound infection, sepsis and pneumonia; with dose-dependent effect  Significant predictor of cardiac, renal, respiratory and neurologic morbidities;  with dose-dependent effect  Predictor of development of venous thromboembolism in major vascular surgery |
| Increased mortality | Significant predictor of short-term mortality in cardiac and non-cardiac surgery; with dose dependent effect  Significant predictor of 6-month, 1-year and 5-year mortality |
| Increased length of stay | Associated with an increase in ICU length of stay in cardiac and non-cardiac surgery  Associated with an increase in hospital length of stay in cardiac and non- cardiac surgery |
| Increased readmission | Associated with increase in hospital readmission in surgery for hip fracture |

The Australian blood supply can be referred to as one of the safest blood supplies in the world in terms of viral safety and risk of transfusion transmissible infections, due to the advanced screening, testing and processing techniques used.2 However, even with the significant advancement in the viral and bacterial safety of blood, newly emerging and unquantifiable risks remain a threat to the blood supply.4

The most commonly reported non serious non-infectious risks include headache, mild fever, itching and hives; with the most frequently reported serious events based on international data being transfusion related acute lung injury (TRALI), bacterial sepsis and haemolysis.4,5 Even though some incidents may be due to human error, such as haemolysis resulting from the transfusion of an ABO incompatible component, others are potentially related to unavoidable risks associated with a transfusion and may be caused by the actual nature of blood products.4 Taking into account the potential risks of transfusion, growing evidence of adverse outcomes, and lack of evidence

for benefit of transfusion in many clinical scenarios, clinicians must consider whether blood transfusion will improve the outcome of their patient.

The section titled “Transfusion risks and Calman chart for explaining transfusion related risks to patients” contains immunological and non-immunological risk estimates for transfusion related adverse events based on international data; and the risks of transfusion-transmissible infection calculated on Blood Service data, with the Calman chart to put into everyday context.

References

1. Armstrong B. Benefits and risks of transfusion. ISBT Science Series 2008: 3 : 216-230

2. National Blood Authority. Patient Blood Management Guidelines: Module 2 Perioperative. Australia, 2012

3. Thomson A, Farmer S, Hofmann A, Isbister J, Shander A. Patient blood management – a new paradigm for

transfusion medicine? ISBT Sci Ser 2009;4:423–35

4. Shander A, Waters JH, Gottschall JL. Perioperative Blood Management: A Physician’s Handbook 2nd Edition. AABB;

2009.

5. BloodSafe The Quick Reference Guide: December 2012 Obtaining Informed Consent for Blood and Blood Products [pamphlet]. Government of South Australia SA Health and Australian Red Cross Blood Service; 2012.

Additional resources

y Hofmann A, Gombotz, H Theusinger O, Spahn D. Estimating the cost of blood: past, present, and future directions. Clinical Anaesthesiology 2007; 21(2) 271-289

y Blood Service clinical website [www.transfusion.com.au/adverse\_events](http://www.transfusion.com.au/adverse_events)

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