Anaemia of prematurity will affect 90% of all very preterm infants, resulting in at least one red blood cell (RBC) transfusion. A significant proportion of preterm infants require multiple transfusions over the course of hospital admission” Crawford et al (2019).

Abstract:

Anaemia of prematurity will affect 90% of all very preterm infants, resulting in at least one red blood cell (RBC) transfusion. A significant proportion of preterm infants require multiple transfusions over the course of hospital admission. Growing evidence supports an association between transfusion exposure and adverse neonatal outcomes. In adults, transfusion-associated sepsis, transfusion-related acute lung injury and haemolytic reactions are the leading causes of transfusion-related morbidity and mortality; however, these are seldom recognised in newborns. The association between transfusion and adverse outcomes remains inconclusive. However, the evidence from preclinical studies demonstrates that RBC products can directly modulate immune cell function, a pathway termed transfusion-related immunomodulation (TRIM), which may provide a mechanism linking transfusion exposure with neonatal morbidities. Finally, we discuss the impact of TRIM on transfusion medicine, how we may address these issues and the emerging areas of research aimed at improving the safety of transfusions in this vulnerable population.

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