

Study uncovers complications in developing guidelines for premature baby care

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One in two premature babies receives transfusions of red blood cells (RBC) due to anemia. There are no generally accepted clinical guidelines for the degree of anemia necessitating blood transfusions. MedUni Vienna researchers have now conducted a critical review of the currently available literature. Their review has been published in the journal *The Lancet Haematology* and is intended as an impetus to further research in this area and to develop improvements in neonatal intensive care medicine.

The problem underlying the scientists' review is not the lack of studies on red [blood](#) cell transfusions in [premature babies](#) but the sparse scientific evidence that is available. In their review, the team led by Angelika Berger and Vito Giordano from the Division of Neonatology, Intensive Care Medicine and Neuropediatrics at MedUni Vienna's Department of Pediatrics and Adolescent Medicine points out several issues that reduce comparability between the studies, consequently making it virtually impossible to incorporate the results into clinical guidelines.

Furthermore, on the basis of the available literature, it cannot be reliably determined whether the administration of RBC transfusions is associated with complications in [preterm infants](#) such as diseases of the intestine (necrotising enterocolitis), retina (retinopathy of prematurity) or the lung (bronchopulmonary dysplasia), or with neurodevelopmental impairments.

The study authors conclude from the ambiguous data situation that enormous potential exists for improving neonatal [intensive care medicine](#): "Our review is intended as an impetus to research and to

develop improvements in [therapeutic options](#) for preterm infants," says study leader Angelika Berger, summarizing the relevance of the work. One future option might be the administration of fetal red blood cells, which could be obtained from umbilical cord blood. Currently, premature babies are transfused with red blood cells from adult donors, and these are significantly different from those of newborns and might therefore be considered as physiologically unsuitable. MedUni Vienna plans to conduct further studies on this aspect.

15 million premature babies per year

Statistical data underscore the importance of optimizing care for premature babies: in Austria, the preterm birth rate is about 7%. According to WHO global figures, around 15 million babies are born prematurely every year. Due to physiological, hemodynamic and respiratory immaturity, prematurity is a potentially life-threatening condition that can involve complications in multiple organ systems. For example, every second premature baby is anemic. Although recent advances in neonatal intensive care medicine have significantly reduced [mortality rates](#), prematurity is still one of the leading causes of death in children under the age of five.

More information: Luise Bellach et al, Packed red blood cell transfusion in preterm infants, *The Lancet Haematology* (2022). [DOI: 10.1016/S2352-3026\(22\)00207-1](https://doi.org/10.1016/S2352-3026(22)00207-1)

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