



Reducing Blood Transfusions in Paediatric Scoliosis Surgery: The Impact of a Multidisciplinary, Evidence-Based Approach over 20 years

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Background

The field of blood conservation has experienced huge advancements over the past 20 years, leading to a significant reduction in the use of allogenic blood transfusion (ABT) in paediatric scoliosis surgery. This study provides an insight into the impact an evidence-based, multidisciplinary pathway can have on ABT rates.

Methods

This study analysed data from 1498 patients aged 35 years or less who underwent spinal deformity corrective surgery between January 2001 and December 2020. Data included diagnosis, approach, perioperative haemoglobin levels, transfusion volume, and length of stay (LOS). Patients with non-scoliosis diagnoses, missing transfusion data, or who underwent non-fusion procedures were excluded.

Results

A total of 1556 surgeries were performed, with 66.6% performed on ambulant children with idiopathic scoliosis ≥ 10 years (Type 1), and the remaining 33.4% performed on non-ambulant, or syndromic / neuromuscular / congenital /

idiopathic (<10 years) patients (Type 2). Mean age was 15.1 years (SD 3.5), with a F:M ratio of 2.2:1. In the first 5 years, an overall transfusion rate of 61.8% was observed (Type 1 = 45.0%, Type 2 = 90.0%). Contemporary data shows an observed transfusion rate of 6.5% (Type 1 = 0.8%, Type 2 = 20.4%). Where ABT was used, LOS increased from 5 to 7 days (Type 1) and 6 to 8 days (Type 2).

Conclusion

This study demonstrates a significant reduction in the rate of ABT following the implementation and continual optimisation of a multidisciplinary pathway. An ABT rate of less than 1% in Type 1, and 20% in Type 2 patients is achievable. This demonstrates how a continuous, evidence based optimisation of a surgical pathway can improve patient outcomes and reduce costs.