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Rationalisation of blood and blood product use in neonatal and paediatric ECMO patients

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Background and Aims: Blood and blood products are an expensive and precious resource. Liberal use of blood and blood product use in ECMO patients does not improve survival rates. We hypothesised that increased sampling leads to unnecessary use of blood products in ecmo patients. We audited local clinical practice changes in blood sampling and blood-product transfusions after introduction of ECMO pathway and update of anti-coagulation guidelines.

Methods: We compared frequency of blood sampling and use of blood/blood products pre-Jan 2016 (Group 1, n=13) and post Jan 2016 (Group 2, n=13). Key changes introduced in Jan 2016 included a. Reduction in blood sampling frequency - 4-6 hourly to 2/day; b. No routine blood cultures during ECMO; c. ACT monitoring 1hrly to 2-4hrly when stable; d. no routine antithrombin III measurements. Threshold for blood transfusion remained as per PICU protocol. Additional sampling only if clinically indicated. We evaluated the number of donor exposures in each group and measured cost efficiency.

Results: There was significant reduction in the number of blood samples in group 1. There was significant reduction in the use of blood/ blood products in group 2. Patients in Group 1 were exposed to significantly increased number of donors. Cost implications were significantly higher in Group 1 compared to Group 2. 3/11(28%) in Group 1 and 9/13(69%) in Group 2 survived PICU discharge. However, this audit was not aimed at evaluating factors for mortality in ECMO patients.

Conclusion: It is feasible to rationalise and reduce the use of blood and blood products and achieve good survival outcomes in paediatric ECMO patients.

References

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Biography

Ajay Desai DCH, DNB(Paed), MRCPCH, FRCPCH is a consultant in paediatric intensive care medicine at Royal Brompton Hospital in London, United Kingdom. He is the lead for the paediatric Extracorporeal Membrane Oxygenation (ECMO) programme, with a special interest in Extracorporeal Cardiopulmonary Resuscitation (ECPR). He has completed his postgraduate paediatric training in Mumbai, India. He gained further experience in paediatric intensive care and paediatric cardiology in London tertiary centres prior to his appointment as a consultant in 2010. And he is the RCPCH College Tutor, and Co-Chair for Science and Education Committee in Paediatric Intensive Care Society UK. He is also a faculty member for the International Pediatric Simulation Society (IPSS) – Education Subgroup. And research interests are ECPR – factors affecting morbidity and mortality. Impact of Down's syndrome status on early intensive care outcomes in children following Complete Atrioventricular Septal Defect (CAVSD) repair

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