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Postnatal treatment in fetal and neonatal alloimmune thrombocytopenia: an international cohort study

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Objective

Neonates with fetal and neonatal alloimmune thrombocytopenia (FNAIT) are at risk for severe bleeding complications. Optimal postnatal management is not known: guidelines are based on limited quantitative evidence due to the rarity of the condition. It is unknown what the standard of care is and whether postnatal management varies between international referral centres. The present study aims to describe contemporary management and outcomes of patients with FNAIT.

Methods

Observational cohort study analysing data on the postnatal treatment and neonatal outcomes of children diagnosed with FNAIT between 2010 and 2020 from seven countries. Data was collected on-line, by completion of a secured structured database. Cases were eligible if they were liveborn between January 2010 and January 2020 with a clinical suspicion of FNAIT in the current pregnancy (neonatal thrombocytopenia (< 150 × 109/L) and/or intracranial haemorrhage (ICH) detected at antenatal ultrasound) or because there was a history of a previous child affected by FNAIT. In all cases Human Platelet Antigen (HPA) specific antibodies were detected in maternal serum and fetal-maternal HPA incompatibility was confirmed. Severe ICH was defined as bleeding with parenchymal involvement on cranial ultrasound, extra-axial bleeding with parenchymal compression or an intraventricular haemorrhage (IVH) grade III or IV.

Results

A total of 389 liveborn neonates with FNAIT were included from centres in Australia, Norway, Slovenia, Spain, Sweden, The Netherlands and the United States. Severe thrombocytopenia (platelet count <50×109/L) and extreme thrombocytopenia (<10×109/L) was reported in 73% (283/389) and 24% (92/389), respectively. No postnatal treatment was given in 42% (163/389) of cases. Platelet transfusions were administered in 53% (207/389) of neonates, either random donor platelets (43%, 88/207), HPA-matched platelets (41%, 85/207), or a combination of both (17%, 35/207). The use of HPA-matched transfusions varied between centers from 0% to 62%. Additional postnatal intravenous immunoglobulin treatment was given in 29% (110/389) of cases and varied between centers from 12% to 63%. Median platelet increment after the first random platelet transfusion was 59×109/L (IQR 35-94) and median platelet increment after the first matched platelet transfusion 98×109/L (IQR 67–134) (p< 0·0001). Severe ICH was reported in 6% (22/389); three ICH were detected antenatally, 17 ICH postnatally and in 2 cases timepoint of detection was unknown.

Conclusion

Postnatal management in FNAIT varies greatly between countries. These different treatment strategies may have different effects on recovery of platelet counts and on risk of bleeding, highlighting the urgent need for further trials to establish evidence-based guidelines for postnatal management of neonates with FNAIT.