



EVALUATION OF BREAST MILK AS A POTENTIAL MEDIATOR FOR THE TRANSFER OF MATERNAL ANTI-PLATELET ALLOANTIBODIES IN FETAL AND NEONATAL ALLOIMMUNE THROMBOCYTOPENIA

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Background and Objectives. Many studies documented the transmission of anti-platelet antibodies in maternal autoimmune thrombocytopathies. It is unclear whether this also occurs in alloimmune thrombocytopenia. Fetal and Neonatal Alloimmune Thrombocytopenia (FNAIT) is a rare immunological disorder resulting from maternal sensitization against paternal human platelet antigens (HPA) inherited by the fetus. While postnatal management typically focuses on HPA-matched platelet transfusions, the impact of breastfeeding remains a subject of clinical debate. This study aims to investigate whether the excretion of anti-platelet alloantibodies into breast milk may contribute to prolonged or refractory neonatal thrombocytopenia.

Methods. We report a clinical case of a female neonate (39 weeks' gestation, spontaneous delivery) presenting with severe FNAIT-related thrombocytopenia ($21 \times 10^9/L$) and grade III-IV intraventricular hemorrhage. IgG-class alloantibodies were quantified in both maternal and neonatal sera using flow cytometry (DxFLEX platform), yielding values of 2613 and 580 Mean Fluorescence Intensity (MFI), respectively (cutoff: 300 MFI).

Results. Standard therapeutic interventions, including IgG, corticosteroids, and multiple HPA-matched platelet transfusions, failed to maintain stable counts; platelet levels dropped by over 50% within five days post-transfusion (declining from $154-176$ to $26-63 \times 10^9/L$). Given the ongoing breastfeeding and persistent maternal serum positivity (1800 MFI), breast milk was analyzed following IgG extraction. Testing confirmed the presence of anti-platelet alloantibodies in the milk (552 MFI vs. 173 MFI in the negative control). Following these findings, breastfeeding was restricted to a single daily feed. Within one week, the neonate's platelet count rose from 48 to $80 \times 10^9/L$ without requiring further transfusions.

Conclusions. This case demonstrates the presence of HPA-specific alloantibodies in breast milk, coinciding with a case of refractory early-onset thrombocytopenia. These findings suggest that the management of breastfeeding in FNAIT should be carefully examined. Further research is required to determine the clinical significance of milk-derived antibodies versus the persistence of transplacentally acquired maternal IgG.