Neonatal Alloimmune Thrombocytopenia (NAIT) - A Case Report

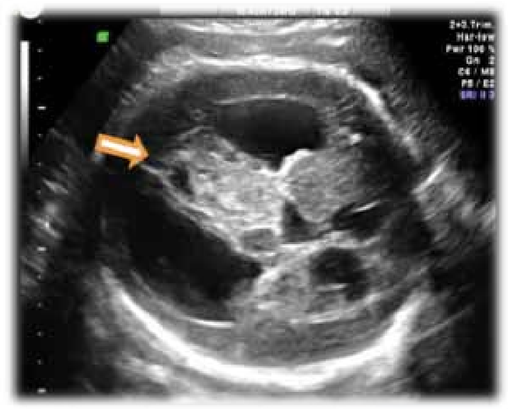
N Afshan, M Awad, S Lewis, S Parveen

Royal Gwent Hospital

Introduction

Neonatal alloimmune thrombocytopenia is the commonest cause of early onset isolated thrombocytopenia in an otherwise healthy neonate. The incidence of neonatal alloimmune thrombocytopenia in the unselected Caucasian population has been estimated to be 1/800 to 1/1000 live births.

Image not from patient. Image shows intracranial haemorrhage on antenatal ultrasound scan

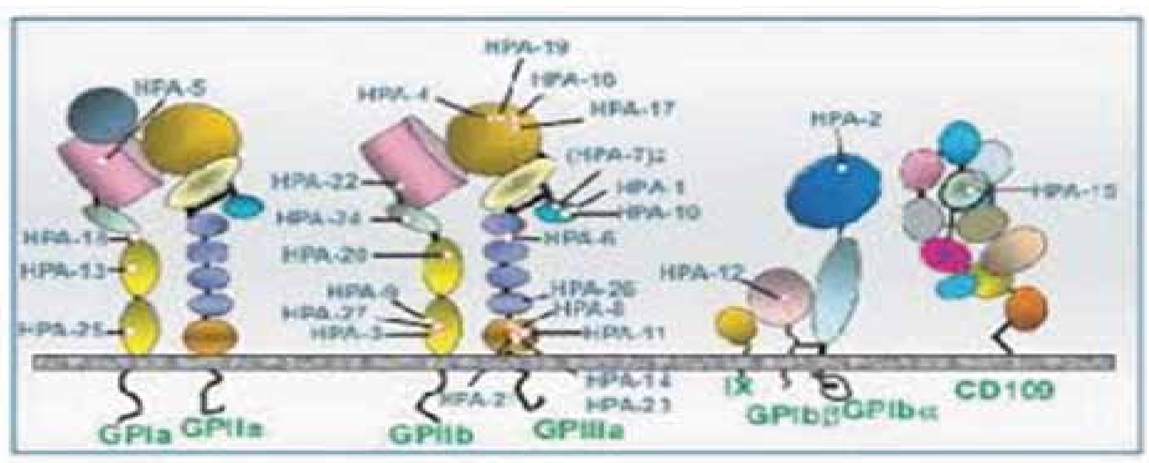


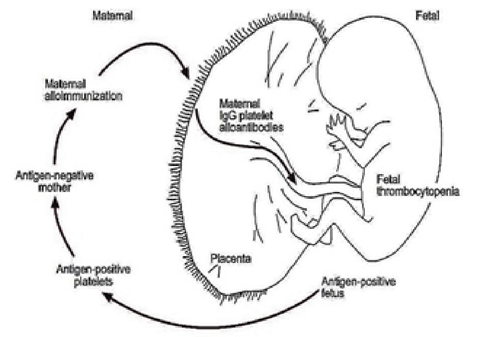
Case details

Mrs X had a normal delivery 5 years ago. At that time, the baby developed a petechial rash, who was then found to have a platelet count of 5x109/L. This child was treated as NAIT. Subsequent genetic testing of parents revealed that Mrs X's HPA type was HPA-1b1b and she had anti HPA-1a platelet antibody which is known to cause neonatal thrombocytopenia.

Mrs X was in her second pregnancy was booked and referred to Obs-Haematology Antenatal Clinic. She had a new partner in her second pregnancy. Both partners had genetic testing using Monoclonal Antibody Immobilization of Platelet Antigens(MAIPA) test, her partner's HPA type was HPA -1a1a and Mrs X had anti HPA 1a platelet antibody which meant that and all children born to them would be high risk for Neonatal thrombocytopenia.

During the pregnancy she was under the care of the Obs-Haematology and Fetal medicine teams in Royal Gwent Hospital and St Michael's Hospital Bristol. She had IV immunoglobulin (IVIG) infusions every week with regular scans to monitor for intracranial haemorrhage. She was counselled about vaginal delivery and caesarean section at Fetal Medicine unit in Bristol and she was advised to have a planned caesarean section at 37 weeks to minimise trauma to the baby and avoid intracranial haemorrhage. This was advised at 37 weeks gestation as the risk of haemorrhage increases with advanced gestation.
Mrs X had an uneventful delivery of a 3kg female baby by caesarean section.





Pathogenesis of fetal and neonatal alloimmune thrombocytopenia (FNAIT)

Discussion

Incompatibility between parental platelet antigens may result in fetal and neonatal alloimmune thrombocytopenia.
The thrombocytopenia results from maternal immunization against specific platelet alloantigens paternally inherited by the fetus.
During pregnancy, the maternal alloantibodies can cross the placental barrier as soon as 14 weeks of gestation.
The fetal opsonized platelets are then cleared in the reticulo-endothelial system. The resulting thrombocytopenia is not only due to increased platelet destruction but also to impaired platelet production.

The most significant complication of NAIT is intracranial haemorrhage. This occurs in 10–20% of affected pregnancies, with 75% of these occurring before birth. Because the majority of intracranial hemorrhages occur before the onset of labor, treatment must be instituted antenatally to prevent them. The cornerstone of therapy has been maternal administration of steroids and IVIG. Fetal blood sampling is used to evaluate response to therapy and identify those fetuses that might benefit from more intense treatment. Unfortunately, serious complications during fetal blood sampling in the NAIT have been reported.

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References

Fetal and neonatal alloimmune thrombocytopenia: a management algorithm based on risk stratification
LD Pacheco, RL Berkowitz, KJ Moise Obstet Gynecol 2011.

Fetal Alloimmune Thrombocytopenia
James B. Bussel, M.D., Marcia R. Zabusky, B.A., Richard L. Berkowitz, M.D., and Janice G. McFarland, M.D.
N Engl J Med 1997; 337:22-26

Neonatal alloimmune thrombocytopenia
Cécile Kaplan
Haematologica June 2008 93: 805-807