Antenatal interventions for fetomaternal alloimmune thrombocytopenia

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Cochrane Database of Systematic Reviews 2005, Issue 1.

Abstract

Background
Fetomaternal alloimmune thrombocytopenia occurs when the mother produces antibodies against a platelet alloantigen that the fetus has inherited from the father. A consequence of this can be a reduced number of platelets (thrombocytopenia) in the fetus, which can result in bleeding whilst in the womb or shortly after birth. In severe cases this bleeding may lead to long-lasting disability or death. Antenatal management of fetomaternal alloimmune thrombocytopenia centres on preventing severe thrombocytopenia in the fetus. Available management options include administration of intravenous immunoglobulins or corticosteroids to the mother or intrauterine transfusion of antigen compatible platelets to the fetus. All options are costly and need to be assessed in terms of potential risk and benefit to both the mother and an individual fetus.

Objectives
To determine the optimal antenatal treatment of fetomaternal alloimmune thrombocytopenia to prevent fetal and neonatal haemorrhage and death.

Search strategy
We searched the Cochrane Pregnancy and Childbirth Group trials register (February 2004), EMBASE (1980 to February 2004) and bibliographies of relevant publications and review articles.

Selection criteria
Randomised controlled studies comparing any intervention, including corticosteroids with no treatment, or comparing any two interventions.

Data collection and analysis
Two reviewers independently assessed eligibility, trial quality and extracted data.

Main results
One study met the inclusion criteria (54 pregnant women). This trial compared intravenous immunoglobulins plus corticosteroid (dexamethasone) with intravenous immunoglobulins alone.No significant differences were reported between the treatment and control groups, in any outcome measured: mean platelet count at birth (weighted mean difference (WMD) 14.10 x 10 9/l, 95% confidence interval (CI) -30.26 to 58.46), mean gestational age at birth (WMD -0.50 weeks, 95% CI -2.69 to 1.69), mean rise in platelet count from first to second fetal blood screen (WMD -3.50 x 10 9/l, 95% CI -24.62 to 17.62) and mean rise in platelet count from birth to first fetal blood screen (WMD 24.40 x 10 9/l (95% CI -14.17 to 62.97)).This trial had adequate methodological quality; however the method used to calculate sample size was inappropriate: therefore the power calculation was not sufficient to determine any significance in differences between the treatment groups.

Authors' conclusions

There are insufficient data from randomised controlled trials to determine the optimal antenatal management of fetomaternal alloimmune thrombocytopenia. Future trials should consider the dose of intravenous immunoglobulins, the timing of initial treatment, monitoring of response to treatment by fetal blood sampling, laboratory measures to define pregnancies with a high risk of intercranial haemorrhage, management of non-responders and long-term follow up of children.