Improving the outcome of intra uterine foetal transfusion

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Objective
Finding alternatives in transfusion procedure to help reduced the number of transfusion procedures needed and maintain a high level of fetal hemoglobin to prevent fetal hydrops and observe this impact on postnatal jaundice.

Methods
We describe a series of 34 cases that were in need for intra-uterine transfusion due to immune foetal anaemia. We performed intra-peritoneal transfusion before 20 weeks and cordocentesis with intra-venous transfusion after 20 weeks. In the cordocentesis cases we performed the standard top up transfusion where the volume of blood used was calculated according to gestational age. In 16 cases we performed both the standard top up transfusion then we performed exchange transfusion using a similar volume to that used in the top up transfusion this was performed on alternate sessions in each case. We looked at the pre-transfusion and post-transfusion levels of foetal haemoglobin and the interval between the next needed session of transfusion as well as the neonatal status and need for exchange transfusion following birth.

Results
The mean gestational age at first transfusion was 21.5 weeks, the mean pre-transfusion haemoglobin was 5.2 in non hydropic and 2.8 in hydropic foetuses. The mean number of transfusion sessions was 3.6 sessions. Mean gestational age at delivery was 32.2 weeks with mean birth weight of 1.95kg. Cases were admitted to NICU where aggressive phototherapy and monitoring were performed, in addition post natal exchange transfusion was performed when needed. The cases that had just top up transfusion the mean post transfusion haemoglobin was 9.8 and the mean interval between sessions was 12.4 days. The cases that had combination of top up and exchange transfusion the mean post-transfusion haemoglobin 11.9 and duration between sessions was 20.8 days, but the duration of procedure was longer by a mean of 20 minutes. In the hydropic cases the survival was 20% (2 out of 10 cases as 6 went into premature delivery) In the non hydropic cases the survival was 75% (18 out of 24). Two cases needed postnatal exchange transfusion, one in the hydropic group (3 sessions) and one in the non hydropic group (did not survive following exchange transfusion).

Conclusion
Combining exchange transfusion to top up transfusion improved the post-transfusion haemoglobin, increased the interval between sessions reducing the total number of transfusion needed as well may improve neonatal outcome and need for post natal exchange transfusion. However the duration of the procedure was longer. This can be more helpful in hydropic foetuses.