To the Editors:

Intra-uterine fetal blood transfusion

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Introduction

Fetal anaemia is a recognised complication of both immune and non-immune conditions. In the absence of intra-uterine transfusion (IUT), fetal anaemia carries a very poor prognosis. IUT is not routinely performed in Sri Lanka. We report three successful IUTs in Sri Lanka.

A 31-year old Rhesus negative woman was referred at 22 weeks' gestation to the University Obstetrics Unit at De Soysa Hospital with a Rhesus antibody titre of 1:64. She had been given anti D prophylaxis after an uncomplicated first pregnancy. However, her four previous pregnancies had been complicated with Rh alloimmunization.

Table. **Summary of ultrasound and laboratory findings in chronological order**

POG	*EFW (g)*	*MCA-PSV (cm/s)*	*Hb%*	*PCV*	*Volume of blood transfusion (ml)*	*Post transfusion MCA-PSV (cm/s)*	*Post procedure Hb%*
22+2		31					
25+2	841	47	10.2	30	20	33	
27+2	1026	34					
29+2	1400	63	9.3	27	30	38	
32+2	1987	53					
34+4	2200	70	6.3	20	30	53	10.4

POG: period of gestation, EFW: estimated fetal weight, MCA-PSV: middle cerebral artery peak systolic velocity, PCV: packed cell volume

Middle cerebral artery peak systolic velocity (MCA-PSV) Doppler screening was performed in order to identify the fetal anaemia. The MCA-PSV was above the transfusion level at 25 weeks' gestation and subsequent cordocentesis and fetal blood sampling (FBS) confirmed the fetal anaemia [fetal Hb – 10.2 g/dl (11-18 mg/dl)]. Intrauterine trans-umbilical vein blood transfusion was performed with 20 ml of O-negative irradiated packed red blood cells. Thereafter, the fetus was regularly assessed once in every 2 weeks with MCA-PSV and two more transfusions were given at 29 and 34 weeks' gestation (Table). At 34+6 weeks gestation, planned Caesarean section was performed. A female baby weighing 2200 g, with a normal Apgar score, was delivered. The baby required one exchange blood transfusion for rising bilirubin and was discharged on the 8th postnatal day.

In the absence of systematic referral system and prompt IUT facilities, severe Rh alloimmunization confers high perinatal morbidity and mortality. The risk of fetal anaemia is minimal if anti D levels are <4 IU (titre ~1:32). However, the fetus is at greater risk of anaemia if the antibody levels are >10IU (~1:64) at the beginning of the pregnancy or rise suddenly. Rising antibody titre warrants urgent referral to a fetal medicine unit for further management.

Conventionally, anemic fetuses were diagnosed by repeated amniocentesis and measurement of delta optical density 450 (OD450) in amniotic fluid [1]. Owing to substantial risk of amniorrhexis/ preterm delivery and inability to detect fetal anaemia due to Kell alloimmunization or HPVB19 infection, serial amniocentesis is now rarely performed [2]. In contrast, Doppler velocimetry of MCA can be used to screen fetal anaemia secondary to any given aetiology [3]. Knowing that MCA Doppler reliably detect fetal anaemia without fetal or maternal complications, MCA-PSV has become the standard of screening in fetal anaemia. Pregnant women with clinically significant atypical red-cell alloantibodies should now be referred to a fetal medicine specialist centre for further management.

References

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