



Don't be Trapped by Trap: Optimal timing for intervention

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Objective

To determine the optimal timing of intervention in twin reversed arterial perfusion sequence.

Methods

This is a retrospective study conducted from Jan 2014 to Feb 2017. All cases of TRAP sequence examined in the Department of Fetal Care, People Tree Hospitals during the study period were selected. TRAP sequence was diagnosed by the coexistence of a normal fetus and an abnormal twin without functional cardiac activity and with reversed arterial flow in the umbilical artery as demonstrated by color Doppler. Gestational age was determined by ultrasound measurements of the pump twin. A detailed scan was performed in all cases for biometry and to exclude major anomalies in the pump twin. The patients were managed expectantly or by radiofrequency ablation of the communicating vessels of the acardiac twin. Pregnancy outcome were recorded by calling the patients. Women received prophylactic antibiotics and 30mg Nifedipine half an hour prior to radiofrequency ablation which was carried out under ultrasound guidance. Local anaesthesia was injected into the maternal skin, subcutaneous tissues and myometrium. An 18 gauge RFA needle was introduced through a 2mm incision and guided by ultrasound into position, just inside the fetal abdomen at the level of the umbilical cord insertion site. Radiofrequency involved generating changes in alternating current at very high frequencies (200–1200 kHz) between the tines of the probe. An RF 3000 RFA Generator was used and radiofrequency energy was applied in a step-wise fashion starting at 30 watts and progressing to a maximum of 100 watts. Progression occurred in 10-watt increments, with power applied for 2 min at each step. The procedure was considered successful when complete cessation of reverse perfusion into the TRAP mass was seen on intraoperative color-flow mapping. Another ultrasound examination was done to confirm the pump twins cardiac activity and the absence of flow in the recipient twin.

Results

During the study period we examined 6 cases of TRAP sequence presenting at a median gestational age of 21 weeks. In 2 cases we planned expectant management or planned to do RFA if there was abnormality in the Dopplers of the pump twin as spontaneous cessation of flow to cardiac twin may occur. In both cases the pump twin died before any procedure could be undertaken. Radiofrequency ablation was done in 5 cases immediately after diagnosis (mean gestational age – 21.2 +/- 3). In all cases the pump twin survived. There was no significant association between gestational age at treatment and survival rate or gestational age at birth.

Conclusion

We conclude that RFA should be performed as soon as it is diagnosed, as it improves the survival rate of the pump twin. Since radiofrequency ablation is less invasive, it is safe to perform the procedure in the 1st trimester. The risk of amniorrhexis & miscarriage was less likely. Larger randomized multicentric trials are needed to compare intervention in the 1st trimester or at the earliest as soon as the condition is diagnosed.