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Twin reversed arterial perfusion sequence: a 14-year experience in a tertiary referral centreS. Ramakrishnan, I. Suresh, S. Sairam, S. Seshadri*Fetal Medicine Department, Mediscan Systems, Chennai, India*

Objectives: The aim of this study is to review all cases of Twin reversed arterial perfusion (TRAP) sequence managed in a tertiary referral center and to compare the outcome in conservatively managed cases with that of those managed with interventions.

Methods: This is a retrospective study analyzing all TRAP cases that were managed in a tertiary center from Jan 2000 to October 2013. Details assessed included (1) Gestation at diagnosis (2) Ultrasound features at Diagnosis (3) Treatment options offered (4) Outcome of these pregnancies and (5) Prognostic factors. Wherever possible, the outcomes and prognostic factors were compared between the groups with different management strategies.

Results: 59 cases of TRAP were identified during the study period. Follow up was available in 46(77%), among a total of 59 pregnancies complicated by TRAP sequence. Among, these 17 (37.8%) opted for elective termination of pregnancy and 29 (62.2%) continued their pregnancies. Among these 29 women who continued their pregnancies 10 were managed expectantly and 19 had an intervention for the twin with TRAP sequence. The intervention techniques used were alcohol ablation, coil embolization and interstitial laser coagulation.

The overall survival rate in the group that had an expectant management was 80% and the mortality rate of the pump twin was 20%. The overall survival rate in the intervention group was 57.8% and the mortality rate was 36.8%.

When intra fetal laser was used as the treatment of choice for TRAP sequence the survival rate was 82%.

Conclusions: To date this study has the largest cohort of TRAP sequence world wide and from the observations in our study, we conclude that:

- (1) Conservative management does have a role in TRAP sequence in select cases.
- (2) The type of intervention will depend on the facilities available in the treating fetal medicine unit.
- (3) Interstitial laser when used as the modality of choice had improved pregnancy outcomes, which is in par with the other studies published internationally on review of literature.

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TRAP sequence: diagnosis, management and outcome of co-twinK. Janiak, M. Litwinska, K. Szaflik*Polish Mother's Memorial Hospital Research Institute, Lodz, Poland*

Objectives: Twin reversed arterial perfusion (TRAP) is a rare complication of monochorionic twin pregnancies, involving an acardiac twin and an otherwise "normal pump" co-twin.

Methods: 14 of TRAP (twin reverse arterial perfusion) sequence pregnancies identified at our Department from 2006 to 2014 were included in the study. In 13 cases, TRAP sequence occurred in monochorionic, monoamniotic pregnancies; in 1 case - in a quadraplet pregnancy with TRAP and TTTS. Ten cases were treated with fetoscopic laser cord occlusion. Four cases were managed conservatively: in two cases there were no signs of cardiac failure in the pump-twin and the diagnosis was made late in pregnancy and in the other two cases, additional defects in pump-twin were diagnosed (1xCHD/TAC; 1xCHD/VSD + aorta overriding, skeletal and urinary tract malformations).

Results: In the echocardiographic examination functional disorders in the circulatory system were stated in eight pump-twins (8 x cardiomegaly, 6 x hypertrophy of myocardium, 5 x regurgitation of the tricuspid valve, 2 x decreased contractility of the right ventricle). In two cases a regression of these disorders was observed after intrauterine intervention, an additional treatment with Digoxin in these two cases was applied. In one fetus an evolutive form of stenosis of pulmonary valve was identified. In the quadraplet pregnancy intrauterine death of all the fetuses occurred in 21 weeks' gestation. The patients who underwent the therapy delivered via Caesarean section; in 5 cases a preterm birth occurred (between 31 and 36 weeks), mean weight of the newborns was 2190g (1000-3000), median Apgar score was 9 points(6-9).

Conclusions:

1. Detailed echocardiographic examination of the pump-twin is necessary not only to estimate the degree of cardiac failure but also to identify the possible structural defects among which cardiac defects are the most common.
2. Fetoscopic laser cord occlusion is an effective method to prevent the development of cardiac failure in the pump twin.

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The learning curve and two-year results of the new based Fetal Centre in the Czech Republic supervised by the experienced European Fetal CentreL. Haslik¹, L. Krofta¹, J. Vojtech¹, L. Hymanova¹, J. Feyereisl¹, L. Haakova¹, J. Deprest²¹*Institute for the Care of Mother and Child, Prague, Czech Republic;* ²*KU University Hospital, Leuven, Belgium*

Objectives: Fetal center of Institute for the Care of the Mother and Child in Prague was based in 2012 and since that time serves as the one center for intrauterine fetoscopic treatment in the Czech and Slovak Republics. Operations in our center are focused mostly on complications of monochorionic twins. Collaboration with the Fetal Department of University Hospital KU Leuven in Belgium was crucial for the quickest acquisition of experiences and comparable results of major European centers. Through this cooperation we present the similar results with minimum complications.

Methods: Prospective cohort study. Baseline characteristic: Mean age 31,5 (24-42), BMI 24,6 (20,3-41,4), IVF 3 (29,9%) Monochorionic monoamniotic 1 (3,8%), Monochorionic diamniotic 24 (92,3%), Trichorionic diamniotic 1 (3,8%)

Results: We performed 26 intrauterine fetoscopic procedures from the 16-28th gestational week. Laser ablation of placental vessels, bipolar umbilical occlusion and radiofrequency ablation was used in 15, 9 and 2 cases respectively. The operative diagnosis of TTTS was in 21 cases, sIUGR and TRAP in 4 and 1 cases respectively. 22 procedures were performed in our Institute, the remaining 4, most complicated operations, were performed in University hospital Leuven (Belgium). The overall perinatal survival of all diagnoses was 37 fetuses (68,6%). Regarding 15 TTTS diagnoses treated by laser ablation of placental vessels, both of the fetuses survived in 13 cases (87%) we lost 2 twin pregnancies (13%).

Conclusions: We present two years results and experiences with intrauterine operative techniques for complications of monochorionic twins. In spite of new based Fetal center we have comparable results with the major European fetal centers. This is the consequence of close collaboration with experienced fetal center and possibility for consultation of complex cases. This fact showed to be crucial for gathering experiences and should be recommendation as the first step for all new based centers.