

Incidence of immediate TAPS following laser ablation for TTTS

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Objective

Studies have reported an incidence of twin-anaemia-polycythaemia-sequence (TAPS) following laser ablation for twin-to-twin-transfusion-syndrome (TTTS) of 2-16%. The rate of TAPS is considered to be related to the laser technique used with ablation of the entire vascular aequator being superior to selective ablation of anastomoses. The optimal management in cases of post-laser TAPS is unclear and can include expectant management, blood transfusion to the anaemic fetus or laser ablation. Until now there has been no prospective analysis of the incidence of post-laser TAPS. Therefore, we analysed the immediate occurrence of TAPS within the first 2 days after laser ablation for TTTS.

Methods

The study is being performed at the University Hospital Hamburg-Eppendorf and is still ongoing. The data for this analysis was collected between August 2021 and April 2023. Women with TTTS that required laser ablation received daily fetal doppler measurements including the middle cerebral artery (MCA) within the first two days following the intervention. The peak systolic velocity (MCA PSV) was assessed and the difference of the multiple of the median (MoM) between the twins was compared. TAPS was defined as either a combination of MCA PSV of ≥ 1.5 MoM and ≤ 0.8 MoM, or MCA PSV discordance of ≥ 1.0 MoM between the twins. Laser ablation was performed using either selective coagulation of anastomoses or coagulation of the entire vascular aequator as per Solomon or partial Solomon. Partial Solomon was defined as coagulation of the vascular aequator where anastomoses were present but not in areas with clearly no visible anastomoses.

Results

The study included 89 women who were either treated by selective coagulation of anastomoses, Solomon or partial Solomon (36 [40.4%], 18 [20.2%], 35 [39.3%], respectively). Ten pregnancies showed TAPS (11.2%) within the first two days following laser ablation. Of these, 6 women had selective coagulation (16.7%) and 4 partial Solomon (11.4%). Two pregnancies showed selective death of the TTTS recipients / TAPS donors on the second day post intervention with one of the two showing reverse a-wave of the ductus venosus. In the other 8 pregnancies, 4 fetuses (twice TAPS donor, twice TAPS recipient) showed reverse a-wave of the ductus venosus. One pregnancy showed TAPS on the first day which resolved spontaneously on the second day post intervention.

Conclusion

TAPS occurred per definition in 11.2% of cases. Further follow-up of the affected pregnancies with analysis of the outcome will be assessed. Spontaneous remission of TAPS may be expected throughout the further progress of pregnancy.