

Outcome of monochorionic twins with twin reversed arterial perfusion sequence: interstitial laser versus cord occlusion

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Objective

Twin reversed arterial perfusion sequence (TRAP) is a rare complication of monochorionic twins (MC) that in most cases requires prenatal intervention. Our study aimed to describe short and long term outcomes of MC twin pregnancies complicated by TRAP sequence treated with two different techniques: interstitial laser versus cord occlusion.

Methods

Study population included 46 MC pregnancies with TRAP sequence managed in two fetal surgery centers in Poland. Study population was divided into two groups: MC twins treated with interstitial laser at 12-22 weeks' gestation (n=22) and MC twins treated with cord occlusion at 17-27 weeks' gestation (n=24). The outcomes of pregnancies were collected from the databases of the centers and via questionnaires.

Results

Median gestational age at intervention was 16 weeks (range 12-22) in the group treated with laser and 21 weeks (range 17-27) in the group treated with cord occlusion. Pregnancy loss within 2 weeks after the procedure occurred in 27% of cases (6/22) in the group treated with laser and in 8% of cases (2/24) in the group treated with cord occlusion. Survival rate of the pump-twin was 73% (16/22) in the group treated with laser and 87.5% (21/24) in the group treated with cord-occlusion. Median gestational age at birth was 38 weeks (range 32-41) in the group treated with laser and 35 weeks (range 28-40) in the group treated with cord occlusion. The rate of preterm birth before 34 weeks was 12.5% (2/16) in the group treated with laser and 32% (7/22) in the group treated with cord occlusion. The need for repeated procedure occurred in three cases treated with laser and in two cases treated with cord occlusion. In the group treated with laser there were no cases of neurological disabilities reported by the parents at the minimum age of 12 months. In the group treated with cord occlusion there were three cases of neurological disabilities described at the age of 12 to 36 months that included: severely delayed speech development, bilateral hearing impairment and cerebral palsy.

Conclusion

Interstitial laser is associated with higher risk of pregnancy loss within 2 weeks after the procedure, however if the pregnancy progresses, it is associated with lower risk of preterm birth and neurological disabilities in the survivors compared to cord occlusion.