



Perinatal outcome of selective intrauterine growth restriction in monochorionic twins

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Objective

To examine the perinatal outcome of monochorionic diamniotic (MCDA) twins complicated by selective intrauterine growth restriction (sIUGR) according to the umbilical artery (UA) Doppler flow of the smaller twin.

Methods

A prospective cohort of 71 MCDA twin pregnancies with sIUGR was studied. All patients were diagnosed before 26 weeks of gestation and managed in a single fetal therapy center. Umbilical artery end-diastolic flow was recorded at first examination and was monitored on a weekly basis. Cases were classified as type I (positive UA end diastolic flow), type II (persistent absent/reversed end diastolic flow) or type III (intermittent absent/reversed end diastolic flow). Patients with sIUGR type II or III were hospitalized at 26-28 weeks of gestation for close fetal surveillance. Changes in UA Doppler flow pattern were documented and perinatal outcomes were determined according to UA Doppler waveform pattern in the final examination.

Results

Out of 71 MCDA twin pregnancies, 25 underwent cord occlusion using radiofrequency ablation resulting in perinatal survival of 88% and median gestational age at delivery of 37.1 weeks (range 28-41). Conservative management was employed in 46 cases. At first examination, there were 20 cases classified as type I, 17 as type II and 9 as type III. However, 7 (35%) type I cases changed to type II or type III, 5 (29%) cases of type II changed to type I or type III and 6 (67%) type III cases became type I or type II during pregnancy. Eventually, at final examination there were 18 type I cases, 18 type II cases and 10 type III cases. The perinatal survival of MCDA twins with sIUGR type I, II and III was 100%, 83.3% and 70%, respectively. The type III group included 3 cases of double IUFD at 21, 22 and 27 weeks of gestation, which occurred in around 1 to 3 weeks after the Doppler pattern changed from type I or II to type III. The median gestational age at delivery was 34.9 (range 31-36) weeks in type I, 30.6 weeks (range 28-33) in type II and 32 weeks (range 31-34) in type III ($p=0.03$). None of the cases classified as type I or III were delivered prior to 30 weeks of gestation, whereas the rate of preterm birth <30 weeks among the type II group was 33%. Severe brain lesions were not observed in any of the large twins and in one (1.2%) IUGR twin, and mild brain lesions were observed in 3 (3.7%) of the large twins and in 6 (7.5%) of the IUGR twins.

Conclusion

The classification system of MCDA twins complicated by sIUGR based on UA Doppler pattern is correlated with perinatal outcome. However, the UA Doppler pattern can change over time and have an impact on the risk for fetal death. Nevertheless, under strict fetal surveillance, the perinatal outcome of these pregnancies is favorable.