

Prediction of adverse pregnancy outcome in twin pregnancies complicated by selective fetal growth restriction

Background: The aim of this study was to predict the risk of adverse pregnancy outcomes in monochorionic diamniotic (MCDA) twin pregnancies complicated by selective fetal growth restriction (sFGR).

Methods: This was a cohort study including 123 pregnancies. The diagnosis of sFGR was made when the estimated fetal weight (EFW) of one twin was <10% centile and the EFW discordance was $\geq 25\%$. Pregnancies complicated by structural abnormality or aneuploidy, or those undergoing termination were excluded. The outcomes, including fetal demise, neonatal death and preterm birth <32 weeks, were ascertained. Regression analysis was used to identify the risk factors and ROC curve analysis was used to assess the predictive accuracy.

Results: 110 (220 fetuses) were included in the analysis. Multivariate logistic regression identified gestational age (GA) at diagnosis (OR 0.79; 95% CI 0.66-0.92; $p=0.003$) and the umbilical artery (UA) Doppler (OR 4.24; 95% CI 1.49-12.02; $p=0.007$) as independent predictors of the risk of fetal demise. The area under the curve (AUC) was 0.80 (95% CI 0.70-0.91). GA at diagnosis (OR 0.82; 95% CI 0.71-0.95; $p=0.008$), the UA Doppler (OR 2.90; 95% CI 1.23-6.82; $p=0.015$), TTTS (OR 0.14; 95% CI 0.20-0.93; $p=0.042$) and Laser treatment (OR 13.28; 95% CI 1.94-91.03; $p=0.008$) were significantly associated with the risk of fetal demise of either the smaller or larger twin. The AUC was 0.81 (95% CI 0.74-0.88).

Conclusions: GA at diagnosis, UA Doppler and Laser treatment were the most important determinants of the risk of fetal demise in MCDA twin pregnancies complicated by sFGR.