

Abstract

Objective: To evaluate the efficiency of selected doppler parameters as a test for the prediction of twin growth discordancy (GD) and to compare it with the efficiency of routinely used ultrasound biometrical parameters.

Design: Prospective clinical study.

Methods: Set was formed by 63 twin pregnancies. Intertwin differences in Doppler parameters (umbilical artery - AU, middle cerebral artery - MCA, cerebroplacental ratio - CPR) and biometrical parameters (biparietal diameter - BPD, abdominal circumference - AC, femur length - FL, estimated fetal weight - EFW) were studied. Simultaneously, uterine arteries impedance was assessed. GD was identified by the birth weight difference from 20%. The efficiency of intertwin differences in studied parameters were evaluated using ROC analysis.

Results: Biometrical measurements performed within three weeks antepartum were in prediction of GD more accurate than doppler parameters (AUC for EFW 0.99; for AU 0.56; for CPR 0.71). Three to six weeks antepartum, the efficiency of biometrical and doppler parameters was comparable (AUC for EFW 0.79; for AU 0.81; for CPR 0.81). In interval more than six weeks antepartum, biometrical parameters were not effective, DG was predictable only using CPR (AUC for EFW 0.62; for AU 0.56; for CPR 0.77). No significant differences were found in mean RI of both uterine arteries between concordant and discordant twins (0.46 ± 0.05 vs. 0.48 ± 0.09 ; $p=0.8$).

Conclusion: The combination of doppler parameters AU and MCA expressed as CPR is clinically effective in prediction of GD. Intertwin difference in CPR predicts GD in early third trimester in interval more than six weeks before delivery more accurate than fetal biometry does. The isolated evaluation of intertwin differences in AU and MCA is not effective test for prediction of GD. The fetal biometry is more accurate. Doppler examination of uterine arteries is not a suitable test for detection of fetal growth disorders in twins.