

Role of first trimester ultrasound scan as a predictor of monochorionic diamniotic complications

ABSTRACT

Introduction: Monochorionic twin pregnancies come with substantially higher complications compared to their dichorionic counterparts, which include intrauterine fetal death, fetal loss prior to 24 weeks, selective intrauterine growth restriction and twin-to-twin transfusion syndrome (TTTS).

Objectives: This work aims to examine the inter-twin discrepancy in nuchal translucency thickness (NT), crown-rump length (CRL), fetal heart rate (FHR) and ductus venosus Doppler (DV), as predictors of complications in monochorionic diamniotic twins (MCDA).

Methods: This is a retrospective study that involves 118 MCDA pregnancies followed-up in a tertiary centre, from January, 2011 to June, 2016. NT was measured at 11 to 13+6 weeks' gestation in 23 MCDA pregnancies. Regression analysis was employed to determine the significance of the association between inter-twin discrepancy in NT, CRL, FHR and DV Doppler with intrauterine death of both fetuses and monochorionic (MC) complications such as TTTS, selective intrauterine growth restriction (sIUGR) and twin anemia and polycythemia sequence (TAPs).

Results: Multiparous mothers (53.8%) aged between 19 and 35 years (89.9%) contributed to the majority of MCDA twin pregnancies. Among a total of 118 MCDA pregnancies, 16.8% (n=20) developed complications. About 3.4% (n=4) of them had TTTS, and 10.9% (n=13) had sIUGR, while only 0.9% (n=1) developed TAPs and intrauterine fetal death (IUFD) of both fetuses each. A significant prediction of MC complications and intrauterine death was provided by discordant NT of 35% or more ($p=0.021$) with a relative risk of 4.0 (95% CI 1.2312.99), a sensitivity of 57.1% and a specificity of 88.2%. Otherwise, there exist no significant associations between discrepancy in CRL, FHR and DV Doppler and MC complications.

Conclusions: Inter twin discordance in NT of 35% or more was reported in about 25% of MCDA twins in this group, with the risk of developing MC complications and intrauterine death of over 40%. Among other parameters, it is the early predictors of hemodynamic imbalance between both twins that significantly contribute to a more reliable screening tool for MCDA pregnancies with high specificity.

Keyword: Monochorionic pregnancies; Twin-to-twin transfusion syndrome; Adverse perinatal outcomes; First trimester scan