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Normal fetal growth and birthweight in monochorionic vs dichorionic twin pregnancy

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Objective: Twin pregnancies have a lower growth trajectory and shorter gestation than singletons, and monochorionic twin pregnancies have a higher rate of fetal growth restriction. There is ongoing debate as to whether monochorionic (MC) and dichorionic (DC) pregnancies require different growth charts. We wanted to quantify fetal weight and birthweight in different chorionicity twins when pathological factors are excluded.

Design: Retrospective cohort study.

Methods: Our cohort included 2048 twins delivered in UK hospitals between 2022 and 2024. We collected data on maternal characteristics, scan estimated fetal weight measurements and outcomes including birthweight and gestational age. No information was recorded on amnionicity. Birthweights were compared using mixed-effects regression, adjusting for the fetuses within each pregnancy. This included adjustment for confounders informed by a directed acyclic graph to quantify the difference in birthweight between monochorionic and dichorionic pregnancies.

Fetal weight curves were modelled as log second order polynomials on three or more third trimester scans after excluding preterm and post-term births (<33 + 0 and >36 + 6 in MC; <34 + 0 and >37 + 6 in DC pregnancies), discordance (>25%), and stillbirths, as well as maternal factors including high and low BMI, smoking, hypertension, age >40 and previous history of SGA. We created a model for each chorionicity using a nested mixed-effects regression, adjusting for the scans per fetus per pregnancy.

Results: The study cohort included 222 (22%) MC and 802 (78%) DC pregnancies, with an average gestational age of 35 + 5 and 36 + 5 weeks at birth, respectively. Analysis at 36 weeks, after adjustment for ethnicity, maternal BMI, maternal age, parity and gestational age, showed a difference between MC and DC birthweights of −3 g only (95% CI: −47.0 to 43.0). The fetal weight curves overlapped until the MC trajectory started to decline from about 33–34 weeks and was below the DC curve by 101 g at 35 + 0 weeks.

Conclusions: After excluding pathological factors and adjusting for physiological variables, monochorionic fetal growth appears to be similar to that in dichorionic pregnancies, but is frequently complicated by late onset growth restriction at twin 'term' (34 weeks). The results suggest that it is appropriate to use a dichorionic chart to monitor fetal growth of monochorionic twins.