ID: 3872 HIGH RISK OF GENETIC DISORDERS IN EARLY SEVERE FETAL GROWTH RESTRICTION

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Purpose
To review the genetic disorders found in pregnancies with a fetal growth restriction (FGR) by means of chromosomal microarray analysis (CMA), clinical exome sequencing and targeted molecular studies.

Materials and methods: This is a retrospective study, including the FGR fetuses undergoing an amniocentesis due to a high risk of a genetic disorder at BCNatal, Hospital Clinic Barcelona during a 9-year period (2013-2021). Pregnancies were previously screened for fetal aneuploidy by means of the first trimester combined test. A high risk of genetic disorder was established in a) early (<32 weeks) severe (estimated fetal weight < 3rd percentile) FGR; and b) late (≥32 weeks) severe (estimated fetal weight < 10th centile with fetal biometry < -3 SD) non-placental (normal Doppler studies) FGR. CMA was performed in all cases, clinical exome sequencing in associated minor anomalies and achondroplasia in femur length <-3 SD. Fetuses with major structural anomalies were excluded from the study.

Results: An amniocentesis and CMA were performed in 121 (11%) FGR pregnancies among 1080 FGR studied in our center, and in 30 of those cases the study was extended to clinical exome sequencing. Nine (7.4%) genetic anomalies were found: two chromosomal anomalies (trisomy 9 and monosomy X), five microdeletions/duplications (del1q21, dup3q28, del5p15, del9q34, del11q13, del22q13), and two monogenic disorders (achondroplasia and Cokayne syndrome). All the anomalies were found in the early FGR group accounting for a 11% yield (9/79).

Conclusion: In early severe FGR there is a high risk (11%) of genetic disorder and therefore amniocentesis should be offered to these pregnant women. The spectrum of disorders revealed in pregnancies previously screened for common trisomies differs from classical series, in which trisomy 18 and triploidy used to be the most common genetic anomalies. The finding of a genetic disorder in FGR is of paramount importance to both establish the prognostic of the newborn and plan subsequent pregnancies.