Chorionic Villus Sampling: feasibility of this technique in our center with first trimester miscarriages


1BCNatal - Barcelona Center for Maternal-Fetal and Neonatal Medicine (Hospital Clinic and Hospital Sant Joan de Deu), Fetal i+D Fetal Medicine Research Center, IDIBAPS, University of Barcelona. Centre for Biomedical Research on Rare Diseases (CIBER-ER), Barcelona, Spain
2Servei de Medicina Genètica i Molecular. Hospital Universitari Sant Joan de Déu, Barcelona, Spain.

Objective
To evaluate if quality of villus chorionic sample from the CVS depends on Crown-Rump Length (CRL), maxim diameter of gestational sack and operator skills in first trimesters miscarriages.

Methodology
• Retrospective study between 2019 and 2021.
• 147 first trimester miscarriages diagnosed at Sant Joan de Déu (Barcelona, Spain).
• Gemelar embryos were treated as one patient.
• CVS were obtained either by expert operators (EO), defined as specialized physician, and non-expert operator (NEO), mainly resident physician.
• Exclusion criteria was second trimester stillbirth according to CRL.
• Optimal sample (OS) have not cell contamination and weight sample was more than 10mg.

Results
• Maternal age was 36 yo (IQR 7.75) with a gestational age at enrollment of 10+1w
• OS was obtained in 49% of the patients, and was related with higher CRL and gestational sack diameter (CRL: 12 vs 15 (IQR 16), p=0.015; Sack: 25 vs 36 (IQR 18.5), p=0.049)
• In comparison to NEO, EO presented higher percentage of OS (66% vs 35%, p<0.001), with no differences neither in CRL and sack diameter (Figure 1).
• In our regression model, 20mm of CRL and 33mm of maxim diameter of gestational sack had the highest sensitivity and specificity for OS – S 40% and E 82% for CRL; S 62% and E 79% for gestational sack (Figure 2)

Figure 1 (Plot with comparison between EO and NEO in terms of CRL and Sack)

Figure 2 (Roc curve of CRL and Sack for our regression model)

Conclusions
1. An expert operator is related with higher percentage of optimal sample in CVS than a non-expert operator.
2. Higher CRL and sack were related with higher percentage of optimal sample.
3. 33mm of gestational sack and 20mm of CRL appear to be good cut-points in our model.