Congenital heart disease in fetuses conceived after assisted reproductive technology

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Background: In the last decade, assisted reproductive techniques (ART) are increasingly used in couples with infertility and there is a concern about outcomes of children conceived, both for the preterm delivery and low birth weight, and for a possibly increased risk of congenital anomalies. Non certain data are available regarding the prevalence of congenital heart disease (CHD), however, in consideration of this risk, the women pregnant after ART are often referred for fetal echocardiography, at least in certain areas.

The aim of this study was to analyse the prevalence of CHD in fetuses conceived after ART, referred to our center, specifically for evaluation of the fetal heart.

Method: observational prospective study regarding consecutive fetuses conceived after ART referred to our Center in the period Jan 2010- Dec 2014.

Population: Three hundred two women (aged 30-49 yrs, median 36) that became pregnant after ART underwent fetal echocardiography at median gestational age of 21 week’s gestation: 171 pregnancies resulted after in vitro fertilization (IVF) and 131 after an intracytoplasmatic sperm injection (ICSI); 24 and 21 were twins, after each procedure respectively (one triplet). Cases with known chromosomal anomaly or major extracardiac anomalies were not considered, only a few cases presented minor anomalies (of the chord vessels or choroid plexus cysts). In two cases suspicious cardiac features were reported at the 1st level scan.

Results: CHD was found in 16 pregnancies (4 twins of healthy co-twins): 9 cases were products of IVF and 7 of ICSI procedure. Prevalence of CHD in the whole population was 16/302=5.3%, in Fivet 9/171=5.2% and in ICSI 7/131=5.3%. Cases with suspicious heart features at the 1st level scan - were found normal. CHD found after FIVET were 2 TGA, 1 PAtr.+VSD, 1 VSD.1 CoA+AS, 2 Ebstein/Non-Ebstein, 2 PS, after ICSI 3HLH, 1 AVSD, 1 PAtr.+VSD, 1 DORV, 1 TF. Conclusions: The data of this observational study show an increased prevalence of CHD after both techniques of ART, with respect to the data in normal population and with no difference between two techniques. Obviously, small numbers of this series present a possible bias.