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Early fetal echocardiography for congenital heart disease detection: A preliminary experience and outcome analysis of 102 fetuses to demonstrate the value of a clinical flow-chart designed for atrisk pregnancy management

Flavia Ventriglia Sapienza University of Rome, Italy

 $E_{\rm pregnancy}$ (compared with the usual 18-22 weeks). In the last 10 years, the introduction of "aneuploidy sonographic markers" in screening for cardiac defects has led to a shift from late second to end of the first trimester or beginning of the second trimester of pregnancy for specialist fetal echocardiography. In this prospective study, early obstetric screening was performed between January 2014 and October 2015, using "aneuploidy sonographic markers" following SIEOG Guidelines 2014. These parameters were then collected and strategically combined in an evaluation score to select the group of pregnancies for performing EFEC, in accordance with the American Society of Echocardiography guidelines for fetal Echocardiography. All second-level examinations were performed trans-abdominally using a 3D convex volumetric probe with frequency range of 4-8 MHz (Accuvix-Samsung). The outcome data included trans-abdominal fetal echocardiography from 18 weeks to term and after birth. Overall, 99 pregnant women in the first trimester underwent EFEC (95 singleton and 4 twin pregnancies). Specifically, 30 fetuses were evaluated for extra-cardiac anomalies evidenced by obstetric screening (30%), 25 for family history of congenital heart diseases (25%), 8 for family history of genetic-linked diseases (8%), 4 for heart diseases suspected by obstetric screening (4%) and 19 by normal screening (19%). EFEC detected 11 cases of CHD (10.7%); when EFEC CHD assessments were compared to those performed later in pregnancy (18 weeks GA-term), a high degree of diagnosis correspondence was evidenced. The higher sensitivity value of EFEC vs. late-FE, in comparison with the post-natal value, coupled with the high EFEC specificity shown vs. both the end points, enabled us to consider it as a really reliable diagnostic technology, at least in experienced hands. The introduction of a key combination of the more sensitive obstetric and cardiologic variables should facilitate the formulation of a possible flow-chart as a guide for CHD at-risk pregnancies.

Biography

Flavia Ventriglia graduated and specialized in Pediatrics and Cardiology at the "Sapienza" University of Rome. He has done his PhD in Congenital Heart Disease at the University of Padua. He works as a Researcher Aggregate Professor of Pediatric Cardiology at the "Sapienza" University of Rome, first level manager at the UOC of Pediatric Cardiology at the Policlinico Umberto I in Rome and is responsible for the ECHOLAb of Fetal Echocardiography. He has published numerous scientific international papers in the field of pediatric cardiology and fetal cardiology.

flavia.ventriglia@uniroma1.it

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