Assessment of Fetal Cardiac Function in Fetuses of Pre-eclamptic Mothers

Balıkesir Ataturk State Hospital Pediatric Cardiology (1)
Mersin Childrens Hospital Pediatric Cardiology (2)
University of Van Yuzuncu Yil Pediatric Cardiology(3)
University of Sivas Cumhuriyet Pediatric Cardiology (4)
Balıkesir Ataurk State Hospital Obstetric and Gynecology (5)

Introduction: The purpose of the present study was to investigate the detailed fetal cardiac function in mild pre-eclamptic pregnancies.

Methods: Sixty-five fetuses of mild pre-eclamptic mothers and fifty-five fetuses of healthy mothers between 26 and 40 weeks of gestation were included in this study. Fetuses with intrauterine growth retardation were not included in the study. Detailed fetal cardiac function were evaluated by M-mode, pulsed and tissue Doppler.

Results: Both groups were similar in terms of maternal age, gravidity, parity and gestational age (p>0.05). Pulsed wave Doppler derivated ratio of E/A in mitral and tricuspid valves were similar in both group. In addition, deceleration time of early mitral inflow was prolonged in fetuses of pre-eclamptic mothers (FPEM) (p<0.001). Isovolumic relaxation time and right and left myocardial performance index (MPI) were higher in FPEM (p<0.001, p=0.02, p=0.03, respectively). Ea, Aa, ratio of Ea/Aa in interventricular septum, left ventricle lateral wall and right ventricle free wall were found to be significantly decreased in FPEM. The ratio of E/Ea in FPEM was higher than in control group (p=0.04). Increased ductus venosus pulsatility index (PI) and decreased middle cerebral arter (MCA) PI were found in FPEM (p<0.001).

Conclusion: We detected subclinic diastolic dysfunction and incresead right and left MPI in FPEM. In addition, we found decreased MCA-PI. We suggest that cause of all changes are the increase in fetal cardiac afterload.