

The Effects of Pre-pregnancy Obesity on Fetal Cardiac Functions

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Introduction: Obesity is a substantial public health problem with the prevalence increasing rapidly in numerous industrialized nations. The objective of this study was to evaluate the effects of maternal pre-pregnancy obesity on fetal cardiac functions.

Methods: We studied 55 fetuses of obese mothers and 44 fetuses of healthy mothers at 26–38 weeks of gestation. Cardiac functions were evaluated by M-mode, pulsed-wave, and tissue Doppler echocardiography. **Results:** The two groups were similar in terms of maternal age, gravidity, parity, gestational age, estimated birth weight, serum lipids and systolic- diastolic blood pressure. Fetal heart rate, diameters of the aortic and pulmonary valve annulus, aortic and pulmonary peak systolic velocities, ventricular systolic function and cardiothoracic ratio were similar in the two groups. Pulsed-wave Doppler-derived E/A ratios in the mitral and tricuspid valves were similar in the two groups. The deceleration time of early mitral inflow was prolonged in the fetuses of the obese mothers. In the interventricular septum, left ventricle posterior wall, and right ventricle free wall the Ea and Aa were higher, and Ea/Aa ratios were significantly lower in the study group than control group. The E/Ea ratio was higher in the obese group than in the control group. The isovolumic relaxation time and the right and left ventricle myocardial performance indices were higher in the fetuses of the obese mothers than in the fetuses of the healthy mothers.

Conclusions: We believe that maternal obesity has an important influence on fetal cardiac diastolic functions.