

Biomarkers of early prenatal screening in pregnant women with fetal congenital heart defects: a pilot Russian study

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Objectives

The aim of the study was to determine the level of early prenatal biochemical parameters in pregnant women with antenatally diagnosed fetal congenital heart defect (CHD).

Methods

In a retrospective case-control study that included 2200 singleton pregnancies:

151 patients with antenatally diagnosed fetal CHD, 2049 patients without signs of fetal malformations (control group),

an analysis of maternal characteristics, the level of biochemical markers of early prenatal screening using multiples of the median (MoM) of pregnancy-associated protein A (PAPP-A) and free beta-subunit of human chorionic gonadotropin (b-hCG), data on pregnancy outcomes were performed.

Results

The number of cases of SGA neonates, i.e. birthweight below the 10th percentile, was significantly higher in the CHD group than in the control group: **14 (9.3%) newborns with CHD vs 12 (5.9%) babies in the control group (p = 0.001).**

The CHD group showed a statistically significant decrease in the level of beta-hCG compared to the control group: **0.89 MoM vs 1.11 MoM (p<0.0001), the level of PAPP-A did not differ statistically significantly between the groups 0.97 MoM vs 1.02 MoM (p=0.19)**

Conclusion

The higher frequency of SGA newborns with CHD compared to the control cohort and a significant decrease in the level of angiogenic factor β -hCG in the blood serum of pregnant women with fetal cardiac pathology, which is not currently used in population algorithms for calculating the risk of placental dysfunction, may indicate the need to expand the panel of biomarkers in predicting fetal compromise in this group of patients.

