

Cardiac function in women with first trimester risk of preeclampsia: case-control study

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Objectives: Women with preeclampsia (PE) have higher risk of developing cardiovascular disease (CVD) in the short- and long-term. The aim of this study was to examine the presence of cardiac dysfunction parameters or risks factors in the first trimester of pregnancy in women with and without high-risk of PE according to first trimester screening

Methods:

- Prospective cohort study of pregnant women with high-risk of PE and controls, recruited after first trimester screening, between 13 and 16 weeks.
- High-resolution images of the maternal heart were acquired, for echocardiographic parameter measurement and post-processing analysis, including myocardial strain analysis by 2D speckle-tracking.
- Angiogenic factors and CV laboratory biomarkers were also measured.
- Associations between study group and current CV evaluation parameters were evaluated.

Results:

- 322 women, 86 controls and 224 women at high-risk for PE, were included. As expected, there were significant differences in parameters associated with high-risk of PE such as blood pressure, body mass index and maternal age.
- Significant differences were also found in basal echocardiographic parameters, lipid profile and cardiac biomarkers. (Table)

Cardiovascular risks factors	High-risk PE n=224	Low-risk PE n=86	p-value
Troponin T	3.4±0.7	3.2±0.5	0.024
Copeptin	3.4±1.9	2.9±1.4	0.048
sFlt-1	1564±679	1928±1021	0.004
LV posterior wall	0.85±0.2	0.79±0.1	0.025
Cardiac output	5.7±1.2	5.2±1.0	0.005
Triglycerides	130±52	106±40	0.001

Figure. Summary table of first trimester results in high and low risk patients.

Conclusions: Cardiac dysfunction parameters are present in the first trimester in women with high-risk of PE. These findings suggest that cardiac changes that condition future CVD in these women may be present before developing clinical PE during pregnancy. These findings suggest that cardiac changes that condition future CVD in these women may be present before developing clinical PE during pregnancy