First trimester haemodynamic profiles in pregnant women at high- and low- risk for preeclampsia

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Objective. The aim of our study was to evaluate maternal haemodynamic profile assessed by USCOM in women resulted at high and low risk for preeclampsia (PE) at first trimester screening.

Materials and Methods. This was a prospective monocentric observational study analysing maternal haemodynamic profile assessed by USCOM in 459 pregnant women at the time of first trimester screening for preeclampsia.

Continuous variables were compared using t-test student, while the chi-square or Fisher's test were used for categorical variables. A P-value of < 0.05 was considered statistically significant.

Results. In our cohort, 123 women reported a high-risk result (26.8%). Out of them, 21.9% developed PE and only the 2.2% of low-risk women did. Heart Rate (HR) (83.62 ± 15.43 *vs* 87.24 ± 19.24; p = 0.045), Systemic Vascular Resistance Index (SVRI) (3,208.07 ± 1,270.97 *vs* 3,681.32 ± 1,808; p = 0.010), Systemic Vascular Resistance Index (SVR) z-score (1.79 ± 1.48 *vs* 2.27 ± 1.35; p = 0.001) and Potential Kinetic Ratio (PKR) (81.29 ± 45.52 *vs* 92.91 ± 53.41; p = 0.036) were significantly higher in high-risk women compared to low-risk group. Otherwise, Stroke Volume (SV) and Stroke Volume Index (SVI) are both higher in low risk resulted women (46.96 ± 14.68 *vs* 44.19 ± 15.30; p = 0.047 and 26.81 ± 8.32; $p \leq 0.001$, respectively).

Conclusions. Pregnant women classified as low and high risk at first trimester screening for PE reported two different maternal haemodynamic profile. According to our results, in high-risk women, an unfavourable haemodynamic profile could be highlighted in the first trimester. Further studies can lead to the introduction of USCOM markers in a more complex predictive model of PE.