

## Antepartum maternal haemodynamic evaluation and perinatal outcomes

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**Objective.** To determine the role of haemodynamic assessment performed at term in predicting adverse perinatal outcomes at delivery in a cohort of women in charge to our “high risk pregnancy” clinic.

**Materials and Methods.** This was a prospective observational study, promoted by AOU-Policlinico di Modena, over a 6-months period (March-September 2024). Complicated delivery was defined by the presence of at least one among urgent CS/OD for foetal distress, postpartum haemorrhage, neonatal acidosis (PE < 7.1 and/or BE -10), NICU admission. Hemodynamic assessments were obtained using the Ultrasonic Cardiac Output Monitoring (USCOM) system. Data were collected in *ad-hoc* pseudo-anonymized and password-protected database. Statistical analysis included descriptive and inferential statistics. Logistic regression models were estimated to investigate factors associated with the occurrence of adverse outcomes.

**Results.** Out of 113 patients enrolled, 39 (34.5%) experienced complicated delivery. The two groups were comparable for maternal characteristics and medical comorbidities.

Patients experiencing adverse perinatal outcomes during labour had lower cardiac output (aOR 0.045, P-value = 0.022) and higher total vascular resistance ( $1,810.08 \pm 717.5$  vs  $1,604.5 \pm 536.5$  dynes  $\times$  s  $\times$  cm<sup>-5</sup>, p = 0.133), even if it doesn't reach statistical significance, compared with those who did not develop complications.

**Conclusions.** Although the limited sample size, our study shows that the evaluation of maternal cardiovascular haemodynamic at the end of pregnancy could help the physician to identify patients who may develop complications during labour, giving a picture of the heart-foetus-placenta unit functioning. In particular, low cardiac output is apparently associated with higher risk of perinatal hypoxic-ischemic complications or maternal complications.