OP04.04. Maternal hemodynamics and computerized CTG in the identification of risk during labor.

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Objectives
Verify if the hemodynamic assessment, US examination, computerized cardiotocography analysis (cCTG) of “low risk” pregnant women at term can improve the identification complication during labor.

Methods
We enrolled 396 women at the term of pregnancy (mean GA: 39 + 3), not in labor and without a fetal or maternal disease. We collected maternal hemodynamic assessment, cCTG analysis and US parameters. After the childbirth (mean GA: 40 + 2), we gathered information about the delivery in order to detect adverse outcome (c-section or vaginal operative delivery for non-reassuring or pathological CTG, major postpartum hemorrhage, 5 min Apgar score <7 min, NICU admission).

Results
We observed adverse outcomes in 44 patients (11.11%). Patients with complications during labor showed higher values of SVR and lower values of cardiac output CO, compared to uncomplicated patients. The ROC curve analysis showed a cutoff for SVR ≥ 1138 d.s.cm-5 and CO ≤ 5.58 l/min to predict labor complications. Using the cut off obtained, we calculated the OR for SVR ≥ 1138 d.s.cm5 (OR 7.65, p<0.01), CO ≤ 5.58 l/min (OR 2.39, p=0.01), short term variability ≤7.0 ms (OR 3.64, p=0.03), length high variation episodes ≤ 7.0 min (OR 4.37, p=0.02). The US examination, hematochemical blood test and anamnestic parameters, haven't been useful to predict adverse outcomes.

Conclusion
The study of maternal cardiovascular adaptation at the end of pregnancy might identify patients at risk during labor. In particular, a low CO and high SVR are associated with a higher risk of fetal distress or maternal complications.