Estimated placental volume (EPV) at term: a new parameter to monitor foetal weight and outcome?

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Objective. This study focused on assessing the estimated placental volume (EPV) through ultrasound and its comparison with fresh antomopathological examination to understand its relationship with foetal and neonatal weight. The objective was to gain insights into placental development and its potential impact on foetal outcomes, specifically focusing on the correlation between EPV at term and foetal weight.

Materials and Methods. Retrospective observational study with 40 pregnancies collected at Pio XI Hospital, Desio, between November 2023 and July 2024. Pregnancies with pathological conditions except gestational diabetes were excluded. Ultrasound scans were performed between 37 and 41 weeks, measuring foetal weight using the Hadlock formula and placental dimensions (thickness, width, and length) with Merwin's calculator to estimate placental volume. Clinical data were collected at birth, and fresh anatomopathological examinations were completed for all cases. Statistical analysis was performed using Excel.

Results. The average gestational age at the ultrasound was 38.4 weeks. No significant differences were found in average EPV ($p = 0.18$) and placental weight ($p = 0.21$) across groups. A paired t-test showed a significant difference between EPV and placental weight ($p < 0.001$), with a moderate correlation ($r = 0.550$). Positive correlations were observed between EPV and foetal weight at birth ($r = 0.50$), and between foetal weight and placental weight at birth ($r = 0.74$).

Conclusions. Tracking EPV can help monitor placental development and detect potential risks to both mother and foetus, enabling timely interventions. Future research should focus on standardizing measurement methods, determining the optimal gestational age for EPV assessment, and validating its predictive accuracy across diverse pregnancy populations.