Haemodynamic and impedenzometric profile in low-risk pregnant women at term with excessive gestational weight gain: a pilot study

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Objective. We showed that excessive GWG (eGWG) associates with adverse outcomes among low-risk pregnancies, similarly to women with excessive pregestational BMI (epBMI). Yet, the underlying mechanisms are still unclarified. We hypothesized that abnormalities in haemodynamics and body composition could play a potential role.

Materials and Methods. A prospective cohort study including women with a singleton, low-risk gestation at term (11/2021-3/2023). Maternal haemodynamics and body composition were evaluated by USCOM-1A and impedance balance Inbody 270. GWG was defined according to 2009 NAM guideline. Women with normal pBMI (npBMI 18.5-24.9 Kg/m^2) and adequate (aGWG) or excessive GWG (eGWG) were considered. Also, we included women with epBMI (≥ 25 Kg/m^2) and eGWG (epBMI/GWG).

Results. We enrolled 147 npBMI women: 88 aGWG and 59 eGWG. Twenty-four patients showed epBMI/GWG. Gestational age at enrollment was 38-41 weeks. As compared to aGWG, women with eGWG showed higher SV and CO MoM (0.67 *versus* 0.60, $p = 0.004$; 0.72 *versus* 0.63, $p = 0.001$), with values similar to epBMI/GWG patients (0.72, $p = 0.354$ for SV; 0.74, $p = 0.319$ for CO). Body composition assessment showed similarly higher TBW levels in eGWG and epBMI/GWG *versus* aGWG (38.5 and 37.8 *versus* 35.3 L, $p < 0.001$). Also, abdominal fat mass % and visceral fat levels were increased in eGWG *versus* aGWG (253 *versus* 215%, $p < 0.001$; 12 *versus* 10, $p < 0.001$).

Conclusions. Low-risk, term pregnant women with npBMI and eGWG display haemodynamic and impedenzometric features that resemble those observed in women with epBMI/GWG. This could represent a mechanism underlying the risk of adverse outcomes, thus deserving further exploration.