Circulating angiogenic factors levels in women with hypertensive disorders of pregnancy (HPD) according to the baseline haemodynamic findings

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Objective. To assess in women with HDP if the predictive value of sFlt-1/PlGF ratio for adverse outcomes is influenced by the haemodynamic phenotype.

Materials and Methods. Retrospective study including a cohort of women with new-onset HDP carrying a singleton viable pregnancy from 22 to 36 gestational weeks. A non-invasive assessment of the main maternal haemodynamic parameters [Cardiac Output (CO), Systemic Vascular Resistance (SVR)] was done upon hospital admission using USCOM-1A. The haemodynamic phenotype was classified as "hypodynamic" in case of low CO [< 5 L/min] and/or high SVR [> 1,400 dynes × s/cm^5] or as "non-hypodynamic" in case of normal or high CO [> 5 L/min] and/or low SVR [< 1,400 dynes × s/cm^5]. The values of sFlt-1 and PlGF were assessed on maternal serum upon hospital admission and their ratio was calculated. An adverse composite maternal outcome (ACMO) was defined in presence of at least one among: severe hypertension or placental abruption or occurrence of end-organ dysfunction as defined by ISSHP guidelines 2021. A composite of adverse neonatal outcome (ACNO) included birth weight below the 10th percentile (small for gestational age), or foetal/neonatal death.

Results. Among the 93 women included, 57 (61.2%) were categorized as hypodynamic and 36 (38.8%) as non-hypodynamic. sFlt-1/PlGF ratio at admission was significantly higher in the former group compare with the latter (301 [93.1-787] *vs* 52.5 [10.0-257.0]). A significant association between sFlt-1/PlGF ratio and an ACMO (p = 0.02) and an ACNO (p = 0.007) was reported only in the group of women defined with a "hypodynamic" profile.

Conclusions. sFlt-1/PlGF ratio is associated with the occurrence of an adverse maternal and neonatal outcome only in women with a hypodynamic profile.