

## Maternal peripheral vascular resistance at mid gestation in chronic hypertension as a predictor of fetal growth restriction

Giovanni Esposito<sup>1,2</sup>, Marcello Pais<sup>1,2</sup>, Giulio Maria Natali<sup>1,2,\*</sup>, Francesca Pometti<sup>1,2</sup>, Barbara Vasapollo<sup>1</sup>, Gian Paolo Novelli<sup>3</sup>, Herbert Valensise<sup>1,2</sup>

<sup>1</sup>Division of Obstetrics and Gynecology, Policlinico Casilino, Rome, Italy.

<sup>2</sup>Department of Surgical Sciences, University of Rome Tor Vergata, Rome, Italy.

<sup>3</sup>PreHospitalization Unit, University of Rome Tor Vergata, Rome, Italy.

DOI: 10.36129/jog.2022.S16

**Objective.** Maternal Peripheral Vascular Resistance (PVR) appears to be an interesting tool to identify normotensive and chronic hypertensive patients who may develop early and late complications of pregnancy. We analyzed the relationship between maternal hemodynamics and fetal growth at mid gestation and delivery in chronic hypertension.

**Materials and Methods.** 152 chronic hypertensive patients were submitted to maternal echocardiography noting PVR at 22-24 weeks gestation and were followed until delivery noting therapy, birthweight centile and the diagnosis of FGR.

**Results.** A significant correlation was found between PVR at 24 weeks gestation and birthweight centile at delivery, while CO showed a weaker correlation coefficient.

PVR at 24 weeks gestation was predictive for birthweight below the 10<sup>th</sup> centile and for FGR according to Gordijn *et al.*

Patients treated with CCBs (Calcium channel blockers) with or without other drugs had lower PVR *vs* those treated without CCBs ( $p = 0.019$ ). Treatment with beta blockers during pregnancy was a risk factor for a birth weight  $< 10^{\circ}$  pc ( $p = 0.020$ ) but not a risk factor for FGR according to Gordijn *et al.* ( $p = 0.48$ ).

**Conclusions.** The main finding of this study was the strong correlation between PVR weeks before delivery and birthweight centile in patients with chronic hypertension. Higher PVR are an excellent predictor of FGR according to Gordijn *et al.* weeks before delivery. Therapy with Beta-blockers or CCBs might have different effects on maternal and fetal hemodynamics, and fetal growth too; these observations might open new areas of intervention to treat patients with altered hemodynamics.