

Maternal haemodynamic function and angiogenic markers in COVID-19 pregnant patients with and without hypertensive disorders of pregnancy

Elisa Sabattini^{1*}, Elena Zaccone¹, Lucrezia Viscioni¹, Marco Parasiliti¹, Camilla Garbin¹, Vittoria Sterpi¹, Letizia Li Piani¹, Tamara Stampalija², Enrico Ferrazzi³

¹Department of Obstetrics and Gynecology, Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico, Milan, Italy.

²Unit of Fetal Medicine and Prenatal Diagnosis, Institute for Maternal and Child Health IRCCS Burlo Garofolo, Trieste, Italy.

³Department of Clinical Sciences and Community Health, University of Milan, Milan, Italy.

DOI: 10.36129/jog.2024.S21

Objective. To analyse maternal haemodynamic function and endothelial inflammation in pregnant patients affected by COVID-19 with and without HDP compared to healthy pregnant women.

Materials and Methods. Singleton pregnancies with COVID-19, matched 1:4 with healthy controls of similar gestational age and subsequent sub-analysis to compare HDP in COVID-19 and non-COVID-19 patients. All study participants were sampled for measurement sFlt-1/PIGF ratio, and of maternal cardiovascular haemodynamic using the USCOM.

Results. 52 SARS-CoV-2 positive and 311 SARS-CoV-2 negative pregnant women were recruited at our in-patient high-risk Obstetric Unit. Respectively, 19 and 92 pregnant patients admitted were complicated by HDP.

Median sFlt-1/PIGF ratio was the normal range in COVID-19 patients (9; IQR 3.3-27) and non-COVID-19 (5.4; IQR 2.9-13.9). Median sFlt-1/PIGF ratio proved to be non-significantly dif-

ferent, even when the sub analysis for HDP was performed: HDP-COVID-19 (28.7; IQR 9.9-69.7) *versus* HDP-non-COVID-19 (10.7; IQR 4.5-77.8).

Median maternal cardiac output in COVID-19 (6.2 L/min; IQR 5.4-7.1), and non-COVID-19 (5.8 lit/min; IQR 5.1-6.6) and total vascular resistance in COVID-19 (1,080 dynes*; IQR 915-1,370), and non-COVID-19 (1,249 dynes*; IQR 1,061-1,398) were not significantly different between the two cohorts.

When the sub analysis for HDP was performed, we observed significantly higher systemic vascular resistance both in non-COVID-19-HDP, and COVID-19 HDP *versus* non HDP cases, but there were no significant differences between non-COVID-19-HDP and COVID-19-HDP groups ($p = 0.136$).

Conclusions. COVID-19 infection did not influence cardiac output and vascular resistances nor increased sFlt-1/PIGF ratio. Even when HDP occurred cardiovascular function was worse in both groups, independently from COVID-19.