

## Skin microvascular function assessed by laser speckle contrast imaging in twin pregnancies

Chiara **Bartolini**, Mor **Huri**, Isabella **Abati**, Michela **Santalucia**, Gaia **Impastato**, Alessia **Piacenza**, Mariarosaria **Di Tommaso**, Viola **Seravalli**

Division of Obstetrics and Gynecology, Department of Health Sciences, University of Florence, Florence, Italy.

DOI: 10.36129/jog.2024.S124

**Objective.** In singleton pregnancies, microvascular reactivity improves from the first to the third trimester. However, data on endothelial function in multiple pregnancies are scarce. We aimed to evaluate changes in microvascular function using laser speckle contrast imaging (LSCI) throughout twin gestation, and to compare measurements with singleton pregnancies.

**Materials and Methods.** 18 women with twin gestation were enrolled. Skin microvascular blood perfusion was recorded using LSCI coupled with post-occlusive reactive hyperaemia. Skin perfusion was recorded before (baseline flux) and after (peak flux) a 3-minutes arterial occlusion. The percentage increase from baseline to the maximal hyperaemic response (base-to-peak flux) was calculated. The test was performed in the second (T2) and in the third trimester (T3). The longitudinal assessment was then compared with measurements from 18 singleton controls.

**Results.** 18 women underwent the test at T2; 16 of them completed the T3 assessment. The mean peak flux decreased from 162 perfusion units (PU) in T2 to 146 PU in T3 ( $p=0.016$ ), and the mean base-to-peak flux declined from 301% to 260% ( $p = 0.006$ ). These findings differ from those in the singleton cohort, in which the microvascular reactivity was highest at T3. The base-to-peak flux at T2 was significantly higher in twins than in singletons (302.4% vs 247.8%,  $p = 0.004$ ), and similar at T3 between twins and singletons (260% vs 264.6%).

**Conclusions.** Microvascular endothelial adaptation shows different dynamics throughout twin gestation compared to singletons. Twin pregnancies have enhanced microvascular function in T2, and unlike singletons, deteriorated reactivity in T3 compared to T2.