

Pregnancies at term with increased mean pulsatility index in the uterine arteries in the second trimester: still at risk of placental-related complications

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Objective

To evaluate perinatal outcomes in pregnant women with elevated uterine artery mean pulsatility index (UtA-mPI) in the second trimester scan reaching 37 weeks of gestation and to compare with those having normal UtA-mPI values.

Methods

UtA-mPI at 19-22 weeks of gestation was routinely measured in our hospital between April 2009 and March 2013. We selected all singleton consecutive pregnancies with UtA-mPI > 95th percentile who delivered at term (n=198). These cases were matched 1: 1 with those singleton pregnancies at term presenting UtA-mPI ≤ 95th percentile. A comparative analysis of the main perinatal variables was performed.

Results

Mean (SD) UtA-mPI values at second trimester scan were 1.93 (0.24) and 0.94 (0.21) for cases and controls, respectively ($p < 0.001$). Mean gestational age at delivery were 40.2 (2.2) and 39.4 (1.5) weeks, respectively (NS). There were no differences in maternal age, parity, body mass index and ethnicity between the two groups. In pregnancies with UtA-mPI > 95th percentile, the risk of developing pre-eclampsia was higher (5.1% vs. 0.5%, $p < 0.01$), but non-significant differences were found for HELLP syndrome (0.5% vs. 0%) and abruptio placentae (1.6% vs. 0%). Small-for-gestational-age (SGA) newborns (<10th percentile on customised growth curves) were also more common in pregnancies with abnormal UtA-mPI (21.1% vs. 7.7%, $p < 0.001$), but non-significant differences were observed in perinatal mortality, neither intrauterine (2.0% vs. 0%) nor postnatal (0% in both groups). No differences were found in umbilical cord blood gases or route of delivery.

Conclusion

Increased UtA-mPI in the second trimester is associated with higher risk of developing pre-eclampsia and SGA newborns after 37 weeks of pregnancy.