

Maternal and perinatal outcomes in users of aspirin as prevention of preterm preeclampsia

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Objective

To determine the effect of the change in the uterine artery pulsatility index (UtA-PI) between the first and second trimesters of pregnancy on the maternal and perinatal outcome of pregnant women using aspirin due to the high risk of developing preterm preeclampsia (PE) at the Fetal Medicine Unit of the University of Chile Hospital between the years 2018-2020.

Methods

This was a nested case-control study that included pregnant women with ultrasound scans at 11-14 and 20-25 weeks. Cases (n=43) were defined based on risk of preterm PE > 1: 100, aspirin users, and UtA-PI > 50th percentile. Controls (n=408) were defined by risk of Preterm PE < 1: 1000 and a UtA-PI < 50th percentile. The dependent variable in this study was the delta UtA-PI between the first and second trimesters. The independent variables were the development of preterm PE, gestational age at delivery, and new-born weight percentile. Statistical analyses were performed according to the type of variables.

Results

As expected, preterm PE was significantly more frequent in cases than in controls (27.9% vs 2.9%, $p < 0.05$). Interestingly, there was greater vasodilatation of the uterine arteries in the group of cases than in the controls expressed through the Delta UtA-IP (-0.92 vs -0.51, $p < 0.05$). Finally, the Delta UtA-IP was significantly lower in those pregnant women who developed preterm PE despite having been using aspirin since 14 weeks. The OR of the Delta UtA-PI for preterm PE was 11.8.

Conclusion

First, this preliminary study demonstrates that pregnant women at high risk of preterm PE treated with aspirin have greater uterine artery vasodilatation between the first and second trimesters of pregnancy than control pregnant women. Second, pregnant women who develop preterm PE despite taking aspirin have less uterine artery vasodilatation than those who do not develop the disease. This finding demonstrates that aspirin would have an effect at the level of remodelling of the spiral arteries. However, to confirm these findings, a study with a larger number of patients is required.

