

Effect of premature placental aging: maternal and fetal outcomes

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Objective

This prospective cohort study determined the relationship between premature placental aging and adverse maternal and fetal outcomes.

Methods

Low risk obstetric patients and monthly ultrasound were performed beginning 28 weeks gestation. The patients were classified into 3 groups, group 1: the early preterm group with placental calcification prior to 32 weeks (n=0); group 2: the late preterm group with placental calcification found between 32 to 36 6/7 weeks (n=36); and group 3: the control group (n=68), no placental calcification seen before 37 weeks. Maternal outcomes evaluated were postpartum hemorrhage, gestational hypertension, placenta abruptio and maternal transfer to ICU. Fetal outcomes evaluated were preterm delivery, low birth weight, low APGAR score, meconium staining and neonatal death.

Results

There were no significant differences for maternal and fetal outcomes in both treatment and control groups. However, there is 2.401 times the chance of gestational hypertension (OR=2.401, 95% CI 0.126 to 45.728, P=0.560), 2.398 times the chance of placental abruption (OR=2.398, 95% CI 0.278-20.704, P=0.427), 1.321 increased chance of induction of labor (OR=1.321, 95% CI 0.363 to 4.804, P=0.678) and 1.073 times chance of preterm birth (OR=1.073, 95% CI 0.126-2.381, P=0.423) in treatment group 2 compared to control groups.

Conclusion

Grade III placenta and significant placental calcifications are typical of the late term and post term periods, and hence their identification prematurely raises concern for placental dysmaturity. Premature placental calcification should be considered as one of the reasons of underlying placental dysfunction and not merely a physiologic aging process. In our study Preterm placental calcifications appears to be a risk factor for labor induction, abruptio placenta, gestational hypertension and preterm birth. Preterm placental calcifications did not appear to be associated with post partum hemorrhage, maternal transfer to ICU, low birth weight, meconium staining and neonatal death.