Maternal Placental Growth Factor (PIGF) is lower in term fetuses with intrapartum compromise

Bligh L¹ᵇ, Al Solai Aᵇ, Greer RGᵇ & Kumar SAᵇ

¹Mater Mothers’ Hospital, Raymond Terrace, South Brisbane, Queensland, Australia, 4101
ᵇ Mater Research Institute – University of Queensland, Level 3 Aubigny Place, Raymond Terrace, South Brisbane, Queensland, Australia, 4101

Abstract

Worldwide approximately 700,000 deaths occur due to intrapartum related complications annually¹. Intrapartum fetal compromise (IFC) is associated with significant risks of obstetric intervention, perinatal morbidity and mortality as well as longer term complications. These include emergency operative delivery, stillbirth, and admission to neonatal intensive care, neonatal encephalopathy and cerebral palsy. Low PIGF is associated with complications of placental dysfunction - preeclampsia and growth restriction².

Objectives

The aim of this study was to investigate the association between maternal PIGF levels and the incidence of intrapartum fetal distress in appropriately grown term singleton pregnancies.

Methods

This prospective cross-sectional observational study was conducted at Mater Mother’s Hospital, South Brisbane. One hundred fifty-nine women with appropriately grown singleton pregnancies delivering at ≥ 37 weeks had maternal PIGF levels measured fortnightly until delivery. Women with multiple pregnancy, pre-eclampsia or pregnancy induced hypertension or fetal growth restriction were excluded. Pregnancy outcomes including mode of delivery, birth weight, incidence of fetal heart rate abnormalities in labour and neonatal outcomes were recorded.

Results

Median PIGF levels were significantly lower in women who required emergency caesarean section for IFC (35pg/mL vs 109pg/mL, p<0.03) and those who had a diagnosis of IFC (44 vs 99pg/mL, p=0.01).

Conclusion

Our study demonstrates that maternal PIGF levels are lower in pregnancies that develop IFC compared to those that do not. This suggests a degree of placental dysfunction, otherwise silent, despite appropriate birth weight.

References

2. Diagnostic accuracy of PIGF in women with suspected preeclampsia, Circulation 2013