

Title: Midpregnancy placental thickness and risk for adverse pregnancy outcomes

Objective: Prior studies have demonstrated that large placental volume is associated with adverse perinatal outcomes including preterm delivery, hypertensive disease of pregnancy, and NICU admissions. Likewise, some studies have identified a correlation between placental volume measured on ultrasound with adverse perinatal outcomes. However, to date, no easily-identifiable and standardized measurement of placental volume has been found to correlate with adverse perinatal outcomes. Therefore, we set out to determine if placental thickness, as measured at the chorionic plate during the 18-20w anatomy ultrasound, could be a surrogate marker of placental volume and subsequently predict adverse perinatal outcomes.

Methods: We performed a retrospective chart review of patients who delivered at our institution and received an 18-20w anatomy ultrasound at our perinatal office. History and Physical documentation at time of admission for delivery were used to determine patient demographics and pre-delivery diagnoses. The admission H&P of the delivered infant was used to determine neonatal diagnoses. Data was compiled via Excel and analyzed via SPSS.

Results: As defined above, our study found approximately 25% of patients delivering at our institution had placental thicknesses defined as  $>90\%$ . No significant difference was found between placental thickness and adverse perinatal outcomes. Specifically, no relationship was identified between placental thickness and antenatal complications (7.41,  $p=0.263$ ), preterm delivery, and NICU admissions(). However, thick placenta was statistically related with umbilical cord pH $<7.2$  ().

Conclusions: Despite prior studies correlating placental volume with adverse perinatal outcomes, our study did not identify any significant relationship between placental thickness as measured at the chorionic plate at the 18-20w anatomy ultrasound and adverse perinatal outcomes. A clinically relevant measure of placental volume remains to be identified.