

Abstract

To Assess Placental Volume In First and Second Trimester of Pregnancy in UKM Medical Centre

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Objectives:

To assess placental volume at 11-16 weeks and its relationship with the socio-demographic profile of the patient.

Methods:

This was a prospective cohort study. From May 2011 to June 2012, pregnant women were recruited via the obstetric clinic, patient admission centre and wards in UKM Medical Centre (UKMMC). An ultrasound scan was performed at 11-16 weeks and again at 18-26 weeks of gestation to check for placental volume and Uterine Artery Resistance Index (UARI) and Pulsatility Index (UAPI). The placental volume was measured by three-dimensional ultrasound using the Virtual Organ Computer-Aided Analysis (VOCAL) technique.

Results:

The placental volume at 11-16 weeks and 18-26 weeks of gestation were $77.96 \pm 3.95 \text{ cm}^3$ and $188.45 \pm 7.45 \text{ cm}^3$ (mean \pm SEM) respectively. The mean UARI and mean UAPI at 18-26 weeks of gestation were 0.64 ± 0.12 and 1.26 ± 0.43 (mean \pm SD) respectively.

Even though placental volume at 11-16 and 18-26 weeks correlated inversely with both UARI and UAPI at 18-26 weeks gestation, these correlations were not statistically significant. Placental volume at 18-26 weeks gestation showed a tendency to increase with increasing maternal BMI ($p = 0.05$).

Conclusion:

Placental volume, UARI and UAPI can be measured reproducibly during pregnancy. Placental volume did not correlate significantly with socio-demographic factors except for BMI. This study is a pilot assessment of placental volume in a Malaysian population.