



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

“STUDY ON DETERMINING THE SIGNIFICANCE OF MEASURING PLACENTAL THICKNESS AT 32ND AND 36TH WEEK FOR FETAL OUTCOME ASSESSMENT”

KEY WORDS:

Dr. Chalumuri Devani

Post graduate

Dr. Keshav Gangadharan

Professor

ABSTRACT

Introduction: A healthy baby outcome at term mainly depends on three essential factors: a healthy mother, normal genes, and a healthy placenta. As the placenta is one of the crucial factors in the growth of a healthy fetus, we aim to study the correlation between placental thickness and the outcome of the fetus. Ultrasound measurement of placental thickness is a relatively simple, reproducible, and clinically applicable way, which is in use for more than two decades (1). **Methods:** Present study was an observational study in all singleton pregnant women who are attending regular antenatal visits with a sample size of 112. All patients fulfilling the inclusion criteria and exclusion criteria were taken up for the study. **Results:** The present study shows placental thickness at 32 and 36 weeks of gestation classified as < 3.01 cm, 3.01 to 3.67 cm, and more than 3.67 cm and their relationship with birth weight. At 32 weeks of gestation, low birth weight babies (<2.5 kg) have a placental thickness of fewer than 3.01 cm that is out of 23 babies, 12 (40 %) babies have less than 3.01 cm at 36 weeks of gestation, out of 23 babies, 11 (64.7%) babies have less than 3.01 cm. None of the babies with placental thickness between 3.01 to 3.67 cm have severe perinatal asphyxia, and this is statistically significant. It shows that thin placenta (< 3.01 cm) and thick placenta (>3.67) at 32 weeks of gestation are having more babies with NICU stay compared to the babies with placenta thickness of 3.01 – 3.67 cm group. **Conclusion:** The thin placenta has more babies with low birth weight, and the thick placenta has more birth weight which is statistically significant. There is no relation between placental thickness and mode of delivery. The study concluded that both thin and thick placenta is associated with perinatal asphyxia. which is statistically significant. The present study showed that thick and thin placenta have a more significant number of babies with a statistically significant NICU stay.

INTRODUCTION:

A healthy baby outcome at term mainly depends on three essential factors: a healthy mother, normal genes, and a healthy placenta. As the placenta is one of the crucial factors in the growth of a healthy fetus, we aim to study the Correlation between placental thickness and the outcome of the fetus.

The placenta is a highly vascular fetal organ that maintains maternal-fetal circulation via its connection with the umbilical cord. The placenta functions are exchanging metabolic and gaseous products between maternal and fetal bloodstreams and the production of hormones (1).

Normal placental thickness in Indian women was found to be 30.1-36.7mm in the 32nd week and 31.1-39.9mm in the 36th week. The placental thickness should have a specific relationship with fetal outcome. Our study aimed to investigate this relationship. Measure the thickness of the placenta in obstetric ultrasonography and correlate the outcome of the fetus in the form of Birth weight, APGAR, and Mean duration of neonatal NICU stay.

AIM AND OBJECTIVE:

To correlate the placental thickness at 32 and 36 weeks with the fetal outcomes.

Study Design:

Observational Study.

Study Setting:

Pesimsr.

Study Population:

All the singleton pregnant women who are attending regular antenatal visits.

Sampling Method:

Convenience Sampling

Sample Size: 112

Inclusion Criteria: singleton pregnancy with maternal age between 18-40yrs

Exclusion Criteria:

Women with medical and obstetric high-risk factors like Diabetes Mellitus, Hypertension, chronic renal disease, multiple pregnancies low lying placenta and patients who are not willing to give “informed consent” to participate in the study

Procedure For Data Collection:

After obtaining informed consent, data was recorded by using a separate proforma for every study subject after satisfying the inclusion criteria for the study. The data collection was stopped immediately after delivery

RESULTS:

The total subjects included in the study are 126, among these 8 subjects lost to follow up and the remaining 6 were delivered in other institutions. Based on age, the subjects were classified into less than 19 years, 19 to 30 years, and more than 30 years and their distribution is 4(3.57 %), 102 (91.07%), and 6 (5.35 %), respectively. Thickness at 32 weeks and its association with Birth weight among the subjects: placental thickness at 32 weeks of gestation was classified as < 3.01 cm, 3.01 to 3.67 cm, and more than 3.67 cm and their relation with birth weight. Most of the babies with low birth weight (<2.5 kg) had a placental thickness of fewer than 3.01 cm which is out of 23 babies; 12 (40 %) babies had less than 3.01 cm. Most babies with a birth weight more than or equal to 2.5 kg had a placental thickness of 3.01 to 3.67 cm placental thickness at 36 weeks of gestation classified as < 3.01 cm, 3.01 to 3.67 cm, and more than 3.67 cm, and their relation with birth weight. Most of the babies with low birth weight (<2.5 kg) had a placental thickness of less than 3.01 cm which is out of 23 babies; 11 (64.7%) babies has less than 3.01 cm. Most babies with a birth weight of more than or equal to 2.5 kg have a placental thickness of more than 3.67 cm. Out of 89 babies, 53 babies (86.9%) have more than or equal to 2.5 kg. Thickness at 32 weeks of gestation and its association with APGAR_1min among the subjects more than 3.67 cm are 25; among these

subjects, 8 (32 %) had severe perinatal asphyxia. less than 3.01cm is 30; among these subjects, 7 (23.3%) have severe perinatal asphyxia. All babies attained normal Apgar at 5 minutes. Thickness at 36 weeks and its association with APGAR_1min among the subjects less than 3.01cm are 17; among these subjects, 6 (32.3%) have severe perinatal asphyxia. The total number of subjects with placental thicknesses less than 3.01 to 3.67 cm is 34; among these subjects, 1 (2.9%) baby had severe perinatal asphyxia. All babies attained normal Apgar at 5 minutes.

It shows that thin placenta (< 3.01 cm) and thick placenta (>3.67) at 32 weeks of gestation are having more babies with NICU stay compared to the babies with placenta thickness of 3.01 – 3.67 cm group.

It shows no association between mode of delivery and placental thickness with a p-value of 0.67, which is statistically not significant.

DISCUSSION:

Thame et al. showed that small placental volumes often preceded a low birth weight in the second Trimester (2). According to Nagpal. K et al. Neonatal outcomes were good when the placental thickness was between 31.1 and 39.9 mm at 36-week gestation, with good Apgar scores in 88.2% of babies and poor Apgar scores in 11.8% of babies (3).

A study was done by Hamidi. O. P. et al. demonstrated that there was no association between placental Thickness and NICU admission, Apgar scores <7, or medical comorbidities (4).

CONCLUSION:

The present study is based on the study of placental thickness at the 32nd and 36th week in predicting the fetal outcome.

The thin placenta has more babies with low birth weight, and the thick placenta has more babies with higher birth weight which is statistically significant.

There is no relation between placental thickness and mode of delivery. The study concluded that both thin and thick placenta is associated with perinatal asphyxia, which is statistically significant. The present study showed that thick and thin placenta have a more significant number of babies with a statistically significant NICU stay.

REFERENCES:

- [1] Barker DJP. Mothers, Babies and Disease in Later Life. London, England:BMJ Books;1984
- [2] Thame M, Osmond C, Wilks R, Bennett FI, Forrester TE. Second-trimester placental volume and infant size at birth. *Obstet Gynecol* 2001;98:279-283.
- [3] Gaikwad S, Dubbawar AP, Hiremath RN, Rai S, Gouri P. Reviewing placental volumetry and thickness and its correlation with adverse fetal maternal outcome-A cross-sectional study in Western India.
- [4] Hamidi, O. P., Hameroff, A., Kunselman, A., Curtin, W., Sinha, R., & Ural, S. (2019). Placental Thickness on ultrasound and neonatal Birthweight. *Journal of Perinatal Medicine*, 47(3), 331-334. <https://doi.org/10.1515/jpm-2018-0100>