

CORRELATION OF ULTRASONOGRAPHIC PLACENTAL THICKNESS WITH FETAL WEIGHT IN NORMAL AND INTRAUTERINE GROWTH RESTRICTION PREGNANCIES

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Introduction

Placental thickness: The average thickness is around 2-4cm, The placental thickness is measured from the mid portion of the placenta near cord insertion perpendicular to the wall of the uterus from the subplacental veins to the amniotic fluid excluding the endometrium. Anterior placentas are 0.7cm thinner than posterior or fundal placentas. It is said to be a thickened placenta if the anterior placental thickness is >3.3cm and the posterior placental thickness is >4cm. Thickened placenta is seen in torch infections, fetal hydrops and in gestational diabetes mellitus, congenital syphilis, intravillous thrombi, villus odema, congenital toxoplasmosis, maternal and fetal anaemia. An unusually thin placenta increases the risk for both fetal growth retardation, and for neonatal death, raising the possibility that very thin placenta are sometimes functionally insufficient.

Aim of the work

The aim of the present study was to correlate the placental thickness, measured at level of insertion of umbilical cord with fetal weight and use it to compare this correlation in normal and IUGR pregnancies to find whether any significant difference is present between these groups.

Patients and Methods

This study was a prospective study which was conducted on 300 pregnant women and measure their placental thickness 34 weeks at El Shatby Hospital. After approval of faculty of Medicine Ethics Committee a written informed consent was signed by each patient, then patients was randomly allocated (through computer generated method). Correlation of placental thickness with fetal weight was calculated and compared in both groups to find any statistically significant difference. Cases will be categorized into two groups based on estimated fetal weight (EFW) and abdominal circumference (AC) starting from 34-40 weeks of gestation and correlate this to placental thickness.

All the patients included in the study will be subjected to the following:

1. A detailed history to rule out any associated medical disorders or obstetric complications is taken.
2. Evaluation of the placental thickness trans-abdominally-in two occasions separated by one to two weeks in between- by placing the ultrasound transducer perpendicularly to the plane of the placenta, in the area of the cord insertion at the third trimester.

Results

Table (1):Comparison between normal and IUGR pregnancies regarding mean placental thickness

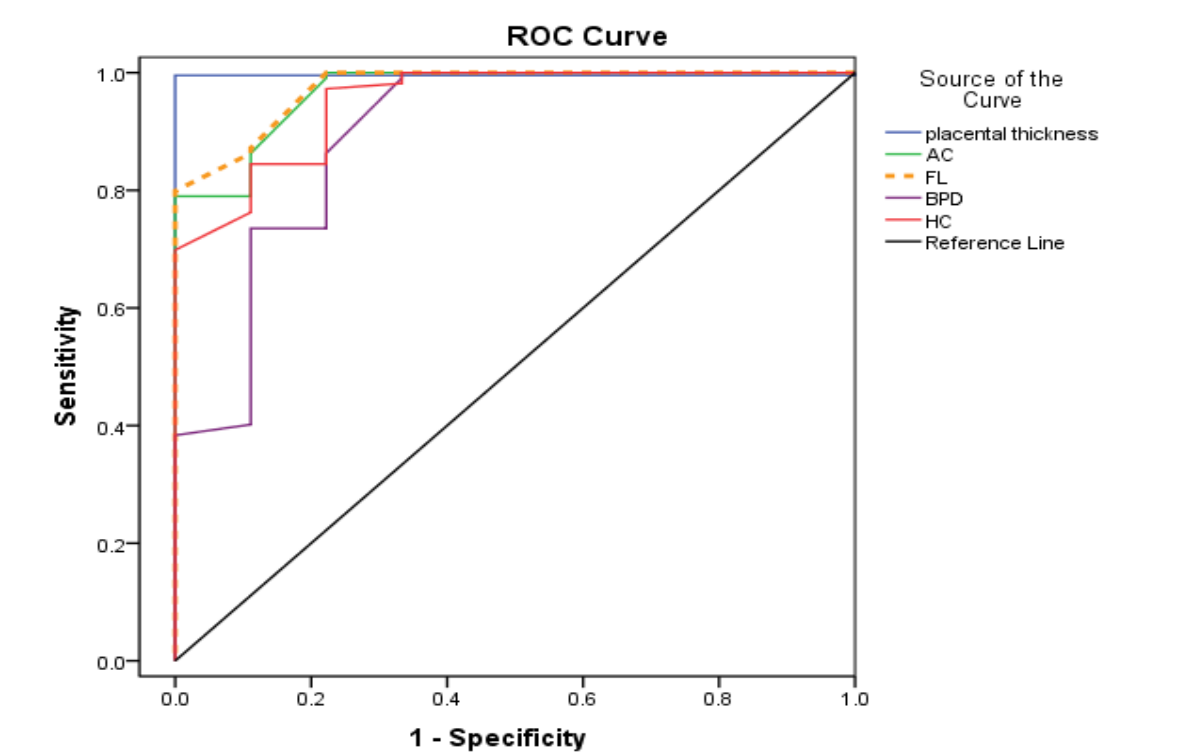
	Pregnancies	
	Normal	IUGR
Mean placental thickness		
Range	3.61-4.0	2.25-2.5
Mean	3.72	2.4
SD	0.136	0.10
T test	3.98	
P value	0.001*	

Table (2):Comparison between normal and IUGR pregnancies regarding AC

	Pregnancies	
	Normal	IUGR
AC		
Range	30-35.91	18.37-30.9
Mean	32.949	24.8
SD	1.921	4.70
T test	4.23	
P value	0.001*	

Table (3); Sensitivity, specificity and accuracy of different measurements in predict IUGR pregnancies.

Test Result Variable (s)	Area	Cut off value	P value	Sensitivity	Specificity	Accuracy	95% C.I.	
							Lower Bound	Upper Bound
Placental thickness	0.995	<2.5	0.0001.	99.5	97.1	98.2	0.901	0.924
AC	0.969	<30	0.0001*	96.0	93.0	94.0	0.951	0.986
FL	0.974	<6.0	0.0001*	97.0	94.0	95.0	0.960	0.989
BPD	0.895	<8.0	0.0001*	83.0	80.0	82.0	0.850	0.940
HC	0.950	<30.0	0.0001*	94.0	90.0	92.0	0.927	0.974



Fid (1) :ROC curve to estimate the Sensitivity, specificity and accuracy of different measurements in predict IUGR pregnancies

Conclusion

The result of this study shows a strong positive correlation between placental thickness and estimated fetal weight. Measurement of placental thickness in sonographic assessment of pregnancy may become a valuable tool to predict low birth weight babies with confirmed gestational age. There was a statistically significant positive correlation between placental thickness and AC. The usefulness of this relationship between placental thickness and abdominal circumference is that subnormal placental thickness for a gestational age may be the earliest indication of fetal growth restriction. When a thin placenta is observed fetal weight should be estimated and possible medical intervention undertaken if the fetal weight is below the normal value.