



PLACENTAL LOCATION AT SECOND TRIMESTER AND PREGNANCY OUTCOMES

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ABSTRACT

The aimed of this study was to find association between location of placental at second trimester and pregnancy outcomes. It was a descriptive -analytic epidemiological study which has performed on 250 pregnant women by simple random sampling in Razi hospital and Imam Khomeini hospital during July 2011 – October 2012 in Ahvaz city, Iran. Placental location was determined by sonography at 18 - 22 weeks of gestation, and it was classified to high / low category and anterior / posterior category. In this study has been assessed placental location with incidence of preeclampsia, intrauterine growth restriction and preterm birth. The incidence of preeclampsia and intrauterine growth restriction was 5.6%, 1.6% respectively, these parameters were not associated with placental location ($p=0.84$, $p=0.69$). The incidence of preterm birth was 7.2% and it was associated with low placental location ($p=0.01$). There was no significant difference between anterior and posterior placenta in all of outcomes. Low placental location was associated with increased risk of preterm labor and preterm delivery.

Keywords: Placenta location, Pregnancy outcome, Secondary trimester, Ahvaz

INTRODUCTION

Placenta is an important connecting Organ between mother and fetus, a lot of fetus problems, even the pathology of preeclampsia, related with placenta. Evaluation of the placenta should be a part of every pregnancy sonography; location, shape and size of the placenta should be considered. The placenta size is related to the fetus size, the small placenta is usually accompanied with small fetus.

Preeclampsia is one of the important complications of pregnancy, and may be lead to maternal mortality, which is defined as blood pressure more than 140 / 190 mmhg, with proteinuria. Preeclampsia is more common in primiparus, with prevalence of 6% -7% as compare with multiparus (3% -4%). early diagnosis of preeclampsia is very important to control of this problem.¹⁻¹⁰

Intrauterine growth restriction (IUGR), defined most commonly as a sonographic estimation fetus weight, below the 10th percentile for gestational age.^{2,11}

The aimed of this study was to fine association between placental location at second trimester and pregnancy outcomes.

METHODS

It was a descriptive -analytic epidemiological study which has performed on 250 pregnant women by simple random sampling in Razi and Emam Khomeini hospitals during July 2011 – October 2012 in Ahvaz city, Iran. The study was approved by Ahvaz Jundishapur University of Medical Sciences, and Ethics Committee (3-321 -2011). Placental location was determined by sonography at the time of 18 - 22 weeks of gestation. In this study has been assessed placental location with incidence of preeclampsia, intrauterine growth restriction and preterm birth.

All subjects were selected by simple random sampling from those patients had come to clinic for prenatal care; all of them

has been signed the consent form and then done ultrasound examinations by gynecologist or radiologist.

Placental location was classified to high or low and anterior or posterior categories, if placenta implanted on the lower segment of uterus, it called as low placenta and if it implanted above lower segment called as high placenta. Preeclampsia is defined as blood pressure more than 140 / 190 mmhg with proteinuria¹, intrauterine growth restriction is the estimation of fetus weight less than 10th percentile for gestational age by sonography.

Outcomes were compared between those with high placental location and those with low placental location. By using a chi-square test; we evaluate the relation between placental location and pregnancy outcomes, expressed as an odd ratio and 95% confidence intervals. Statistical analysis was conducted using SPSS (version 17) statistical software. All p-values were two-sided, $p < 0.05$ were considered statistically significant.

RESULTS

The study performed on 250 pregnant women with the age of 16-40 years old, 100 women were primiparus (40.0%) and 150 were multiparus (60.0%). Out of them, 149 subjects had high placenta (59.6%), and rest of them 101 subjects had low placenta (40.4%), 163 pregnant women had shown anterior placenta and 87 of them had posterior placenta by sonography.

The incidence of preeclampsia was 5.6%, 8 cases has reported high placenta (5.4%) and 6 cases with Low placenta (5.9%) ($p=0.84$). Among of them 9 cases had anterior placenta (5.5%) and 5 subjects had posterior placenta (5.7%). The incidence of preterm delivery was 7.2%, those had shown high placenta in 6 cases (4.0%) and Low placenta in 12 cases (11.9%) ($p=0.01$) and among of them 13 cases had anterior placenta (7.9%) and 5 cases had posterior placenta (5.7%).

In this study has shown incidence of IUGR was 1.6% that 2 cases had high placenta (2.0%) (p=0.69), and three of them had anterior placenta (1.8%) and one of them had posterior placenta (1.1%).

Characteristic	High placenta		Low placenta		p-value
	No.	%	No.	%	
Preeclampsia	8	5.4	6	5.9	0.84
preterm labor	6	4	12	11.9	0.01
IUGR	2	1.3	2	2	0.69

Placental location	High placenta	
	No.	%
High	59.6	59.6
Low	40.4	40.4
Anterior	65.2	65.2
Posterior	34.8	34.8

DISCUSSION

Screening ultrasounds in pregnant women are under taken universal that used for determined gestational age, amniotic fluid volume, fetal anatomy and placental location. A few numbers of studies have dealt with the placental location and pregnancy outcomes, so we decided to study on implantation side of placenta and adverse pregnancy outcome.

In this study, those were pregnant with a low implantation of placental; was related to increased risk of preterm labor and preterm delivery. Overall blood flow and a hostile uterine environment seem not to be the etiology of the preterm delivery, due to absence of growth restriction in these cases. The investigation by Magann et al.¹⁷ on 3336 women, suggests low implantation of placenta is related to increased risk of preterm delivery significantly.

The risk of developing preeclampsia was not increased in our investigation by the site of placental implantation. Other investigators have reported a reduced risk with low implantation⁶ and increased risk with unilateral implantation.¹³ Our study with a total of 14 cases with preeclampsia may have had too few women to demonstrate a difference in developing preeclampsia.

In addition in the assessment of lateral placental implantation, an increased risk of fetal distress in labor, cesarean deliveries and IUGR, that explained by Valliant et al study¹⁴ which compared 75 women with lateral placentas with 21 women with central placenta.

An increased risk of IUGR has been reported in high lateral implantations¹⁴, lateral implantation¹⁶ and low implantation¹⁵, although the risk of having a fetus with IUGR not increased by the site of placental implantation in our study. Magan et al.¹⁷ not only were the high lateral implantations not related with IUGR but also the low implantations had a significantly reduced risk of macrosomia suggesting larger babies for all of the high placental locations, their interpretation was, a placenta which is primarily implanted near the uterine or ovarian arteries might receive more blood flow than the one implanted another sites.^{17,18}

In concluded one of the most important problems in all of the same studies were multiple placental implantation sites, they are divided to fewer groups such as high-low or central-lateral to be investigated, for analyzing the correlation between placental site and pregnancy outcomes, which is one of the most important problems in our study and all of the same studies.

Another problem is that pregnancy outcomes influenced by multiple factors such as genetic, environment, smoking, gravidity, medical history.

Early diagnosis of adverse pregnancy outcome is very important, so for getting the best pregnancy outcome we should consider results of sonography, laboratory tests and clinical examinations.

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