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Eftkar Hamza Skair

Nursing college, Al-Mustaqbal University, 51001, Babylon, Iraq, aftkar.hamza@uomus.edu.iq

Saadya Hadi Humade

Nursing college, Al-Mustaqbal University, 51001, Babylon, Iraq, saadya.hadi@uomns.edu.iq

Rania Abd Elmohsen Abo El nour

Nursing college, Al-Mustaqbal University, 51001, Babylon, Iraq, rania.abd.elmohsen@uomus.edu.iq

Maryam Amer Ajam

Nursing college, Al-Mustaqbal University, 51001, Babylon, Iraq, maram.amer@uomus.edu.iq

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ORIGINAL STUDY

Risk Factors Which Effect the Maturity of Placenta

Eftkar Hamza Skair ^a, Saadya Hadi Humade ^{a,*}, Rania Abd Elmohsen Abo El nour ^{a,b,c}, Maryam Amer Ajam ^a

^a Nursing college, Al-Mustaqbal University, 51001, Babylon, Iraq

^b Community Health Nursing Department, Beni-Suef Health Technical Institute, Ministry of Health, Beni-Suef 62511, Egypt

^c Anesthesia Techniques Department, College of Health and Medical Techniques, Al-Mustaqbal University, 51001, Babylon, Iraq

ABSTRACT

Back ground: Proper placental development is essential for a successful pregnancy. An important organ, the placenta carries out several physiological, immunological, and endocrine functions. It also performs vital roles in mediating the exchange of gasses, nutrients, and waste products between the fetal circulation and the physically separate mother circulation.

Aims: The purpose of the study was to evaluate how placental maturity affected the outcomes of pregnancies in Babylon City.

Setting and design: A Babylon City private clinic, a purposefully selected sample of one hundred pregnant patients who received a diagnosis at the private clinic.

Method, material: from medical records, ultrasound scan data, and the creation of a study tool specifically for this investigation.

Statistical analysis used: The Statistical Package for Social Sciences (SPSS-20) was used to perform descriptive statistics and correlation analysis on the data. Findings: Of the women who gave birth, 62% had cesarean sections. Preeclampsia, severe preeclampsia, chronic hypertension, and gestational hypertension accounted for 87% of the participants with pregnancy-induced hypertension, while anemia affected 93% of the participants. Among newborns, 80% required resuscitation, 68% were delivered via cesarean section, and 87% were IUGR.

Conclusions: According to the study's findings, 85% of women were between 36 and 39 weeks gestation. Placental grade was correlated with gestational age, resuscitation, stillbirth, gestational hypertension, and the meconium.

Keywords: Placenta, Maturity, Risk factors

1. Introduction

Shortly after implantation, the blastocyst gives rise to the placenta, a temporary embryonic organ that eventually becomes a fetal organ. It is a crucial endocrine organ that generates hormones that regulate the physiology of the mother and the fetus during pregnancy (Panja, & Paria, [1]). It also performs vital roles in mediating the exchange of gasses, nutrients, and waste products between the fetal circulation and the physically separate mother circulation. The placenta is attached to the fetus and, on the other end,

to the mother's uterus via the umbilical cord (Renaud, & Jeyarajah, [2]).

A vital organ, the placenta carries out several physiological, immunological, and endocrine functions (Cindrova-Davies, & Sferruzzi-Perri, [3]). The placenta develops gradually over the first three months of pregnancy; in the fourth month, it speeds up in line with the uterus's growth (Tal, & Taylor, [4]). When completed, it resembles a spongy disk with a diameter of 20 cm and a thickness of 3 cm. It is a temporary organ with genetic characteristics identical to those of a child in development (Ashton, & Leppard [5]). When

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* Corresponding author.

E-mail addresses: aftkar.hamza@uomus.edu.iq (E. H. Skair), saadya.hadi@uomns.edu.iq (S. H. Humade), rania.abd.elmohsen@uomus.edu.iq (R. A. E. A. El nour), maram.amer@uomus.edu.iq (M. A. Ajam).

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they are present, the placenta and the surroundings interact. Proper placental development is essential for a healthy pregnancy (Aplin, *et al.* [6]). For this delicate organ, which is made up of several tissue layers, to develop correctly and continue to function throughout pregnancy, it is necessary (Bhattacharjee, *et al.*, [7]).

Throughout pregnancy, the placenta ages normally, which is considered normal. Nonetheless, it has been proposed that the placenta's very rapid and early aging may be the root cause of health issues associated to the placenta. Placental senescence has been linked to premature birth, abnormal fetal growth, hypertension, stillbirth, and—most challenging of all—premature delivery. A direct correlation was observed between placental and pulmonary maturation. Respiratory distress syndrome never occurred when the placenta showed signs of grade II or III maturity. Intrauterine growth retardation was caused by a loss of function indicated by the placenta's early aging (Kajdy, *et al.*, [8]).

2. Significance of the study

The baby's birth weight, the placenta's weight and shape serve as crucial indicators of the fetus's development. The mother's exposure to the environment during her pregnancy has an impact on the placenta's size and structure (Cindrova-Davies, & Sferruzzi-Perri, [3]). The placenta is influenced by a variety of factors, including exposure to harmful stress, some environmental toxins, and the availability of high-quality foods and a balanced diet. For the developing child, the placenta provides both protection and nourishment (Galofré-Vilà, & Harris [9]). With the use of ultrasound, the placental maturity percentages for Grades I through III are 37%, 37.5%, and 25% of the population overall (Aslam, *et al.*, [10]).

3. Aim of the study

The purpose of the study was to evaluate how placental maturity affected the outcomes of pregnancies in Babylon City.

4. Objectives

1. To evaluate the risk variables that influence placenta maturity.
2. To evaluate the consequences of defects in placenta maturation.

3. To determine whether placenta maturation abnormalities and the success of a pregnancy are correlated.

5. Methodology

Design and sample of the study: A purposive sample of (100) pregnant women who have been diagnosed during visit the private clinic.

Data collecting method: from doctor's reports, ultrasound results and construction a study instrument for the purpose of this study.

The statistical analysis of the data was performed using the Statistical Package for Social Sciences (SPSS-20) for correlation analysis and descriptive statistics.

6. Results

This table show about 85% of women their gestational age was from 36 to 39 weeks. In relation to obstetric history about 88% of women their gravida were 3 or more children. In relation to mode of delivery 62% of women were cesarean section. In relation to Rh for about 87% of women their Rh was negative.

The table shows that 87% of participant having pregnancy induced hypertension as Chronic hypertension, Gestational hypertension, Preeclampsia, sever preeclampsia and 93% of participant the had anemia.

Table 3 shows that the outcome was 87% IUGR, 80% of new born need resuscitation and 68% they delivered by Cesarian section.

The table show the correlation between placental grade with the meconium, gestational hypertension, resuscitation, stillbirth, and gestational age.

7. Discussion

The placenta has calcified is observed during an ultrasound scan and noted as a placenta grade in. It might progress from a grade 1 placenta in second trimester, to a grade 3 placenta by 39 weeks of pregnancy. Related to age of women more than one quarter of women were from 39 -43 years old.

About 85% of women their gestational age was from 36 to 39 years old. This result was in agreement with (Mazurek, *et al.*, [11]). who conducted a study entitled "The concentration of selected elements in the placenta according to selected sociodemographic factors and their effect on birth mass and birth length of newborns" who found that the gestational age between 30 and 36 years old.

Table 1. Demographic data related the study samples, (n=100).

Age	Frequency	%	Educational levels	Frequency	%
20–24	15	15	House wife	63	63
25–29	12	12	Intermediate	10	10
30–34	24	24	College and above	26	26
35–38	20	20	Gestational age	Frequency	%
39–43	26	26	32–35	15	15
			36–39	85	85
Obstetric history's					
Gravida	Frequency	%	Mod of previous delivery's	Frequency	%
1–2	12	12	Vaginal delivery	38	38
3 and more	88	88	Cesarian section	62	62
Para	Frequency	%	Rh negative	Frequency	%
1–2	65	65	Yes	13	13
3 and more	35	35	No	87	87
Abortion	Frequency	%			
Non	27	27			
1–2	64	64			
3 and above	9	9			
Obstetric current history's					
Placental grade	Frequency	%	Apgar score	Frequency	%
Grade1	9	9	1–5	34	34
Grad2	43	43	Mor than 5	66	66
Grad3	48	48			

Table 2. The risk factors related to Placental grade.

Items	Yes	%	No	%
Chronic diabetes millets	12	12	88	88
Gestational diabetes millets	10	10	90	90
Chronic hypertension	18	18	82	82
Gestational hypertension	26	26	74	74
Preeclampsia	27	27	73	73
Sever preeclampsia	16	16	84	84
Anemia	93	93	7	7
Autoimmune disease	3	3	97	97
Poor nutrition	9	9	91	91
Obesity	77	77	23	23
TORCH diseases	33	33	67	67
Smoking	30	30	70	70

*more than one factor

In relation to mode of delivery less than two third of women were cesarean section. This result was in disagreement with (Elkafrawi, *et al.*, [13]). who conducted a study entitled “Knowledge and Preference Towards Mode of Delivery among Pregnant Women in the United Arab Emirates: The Mutaba’ah Study”

Table 4. Pearson Correlation related placental grad for study sample, (n=100).

Items	P value
Placental grade with meconium	.001
Placental grade with gestational hypertension	.015
Placental grade with resuscitation	.008
Placental grade with stillbirth	.037
Placental grade with gestational age	.037

who found that 20.8% of women undergo CS In relation to pregnancy induced hypertension more than four fifths of participant having Chronic hypertension, Gestational hypertension, Preeclampsia, Sever preeclampsia. This result was in disagreement with [14] who conducted a study entitled “Risk Factors for Neonatal/Maternal Morbidity and Mortality in African American Women with Placental Abruption” Who found that only about 37.59 of participant had pregnancy induced hypertension.

In relation to IUGR more than four fifth were IUGR. This result was in agreement with (Pushpalakshmi,

Table 3. The outcomes of placental maturation disorders.

Items	Yes	%	No	%	Mode of delivery	frequency	%
Fetal distress	65	65	35	35	Induction labor	25	25
IUGR	87	87	13	13	Cesarian section	68	68
Small gestational age	77	77	23	23	Normal vaginal delivery	7	7
Meconium	75	75	25	25			
Need recustation	80	80	20	20			
Still birth	6	6	94	94			
Cord prolapse	6	6	94	94			

*more than one disorder

[14]). who found that about 80% of selected cases was IUGR.

8. Conclusion

The study concluded that 85% of women their gestational age was from 36 to 39 weeks. 87% of participant having pregnancy induced hypertension as Chronic hypertension, Gestational hypertension, Preeclampsia, Sever preeclampsia and 93% of participant the had anemia. the outcome was 87% IUGR, 80% of new born need recustation and 68% they delivered by Cesarian section. there was correlation between placental grade with the meconium, gestational hypertension, resuscitation, stillbirth, and gestational age.

Recommendation

The study recommended for early detection about the complication of pregnancy as pregnancy induced hypertension as Chronic hypertension, Gestational hypertension, Preeclampsia, Sever preeclampsia.

Ethical considerations

Verbal agreements taken from the participant's.

Compliance with ethical guidelines

In this study all ethical affairs and rules were has been handled carefully. as well as, informed the study participants about the main purpose of conducted this research and its implementation steps.

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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