

Correlation between placenta accreta and history of cesarean section among Iraqi Pregnant Women: Retrospective study

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Abstract

Objective To identify demographic characteristics of pregnant women with placenta accreta and to find out the correlation between placenta accreta and history of cesarean section (C/S).

Methods A retrospective study was conducted at maternity wards in Baghdad City's Teaching Hospitals. The study sample consists of 410 pregnant women diagnosed with placenta accreta who undergo a C/S. Retrospective study for the last 3 years (January/2018 to December/ 2020). The data were collected from patient records in the Statistical Department of the maternity hospitals.

Results The findings of the study shows that a highly significant relationship between placenta accreta and history of C/S among pregnant women as indicated by a strong positive correlation at p -value= 0.001.

Conclusions There is a correlation between placenta accreta and history of cesarean section among Iraqi pregnant women

Keywords Placenta accreta, Cesarean section, Pregnant women, Iraq

Introduction

Placenta accreta is a potentially life-threatening complication of pregnancy characterized by implantation that occurs when placental trophoblasts invade into the uterine wall.¹ Placenta accreta precise pathogenesis is unknown. A suggested hypothesis involves low deciduous development, excessive invasion of trophoblastic, or a combination of both.² Based on the depth of attachment and invasion into the muscular layers of the uterus, three grades of irregular placental attachment are defined: Accreta - chorionic villi, rather than being confined within the decidua basalis, are connected to the myometrium, Increta: invade chorionic villi into the myometrium, Percreta: chorionic villi enter via the perimetrium (uterine serosa). Placenta accreta is associated with an elevated risk of excessive bleeding at the time of attempted vaginal delivery due to irregular attachment to the myometrium. There is a constant need for blood supplies to be transfused, and surgical uterine removal (hysterectomy) is often important to control life-threatening bleeding.^{3,4} Previous cesarean delivery, uterine instrumentation, and intrauterine scarring are risk factors for placenta accreta, both of which can be associated with disruption or absence of decidua basalis, as well as placenta previa, obesity, maternal age over 35, grand multiparity, and persistent miscarriage.^{5,6}

Methodology

A retrospective study among pregnant women diagnosed with placenta accreta who undergo a cesarean section (C/S) at maternity wards in Baghdad City's Teaching Hospitals. A non-probability purposive sample consists of 410 pregnant women. The data were collected from patient records in the Statistical Department of the maternity hospitals, for the last 3 years (January/2018 to December/2020). This questionnaire was composed of three parts, part1: sociodemographic characteristics include: Age, level of education of the mother, women's occupation, blood groups, monthly income, smoking, BMI, Rh factor, and residency. Part 2: Obstetrical and Past Medical History includes: Gravidity, parity, abortion,

gestational age, mode of the previous delivery, gestational age in weeks (a pregnancy with which placenta accreta occurred, interval between the last C/S and the current pregnancy. Anemia, heart disease, hypertension, diabetes, goiter, viral hepatitis, food allergy, drugs allergy, and do not suffer from diseases. Part 3: Placental complications and risk factors for placenta accreta.

Results

Table 1 shows that pregnant women are with age 32 ± 6 years in which 50.7% of them is with age 30–39 years and 30.3% are with age group 20–29 years. The blood group presents that 46.1% of pregnant women are of blood group "O", 23.1% of them are of "AB" group, 19.3% are of "B" blood group, and only 11.5% are of "A" blood group. The Rh factors refers that 76.6% of pregnant women are with positive Rh factors while 23.4% are with negative factor. Regarding occupation, 71.2% of pregnant women are housewives and only 22.4% are governmental employee. The residency variable shows that 65.4% of pregnant women residents at urban area and 21.5% are resident at suburban area. The smoking status shows that 88.5% of pregnant women are not smoking and only 11.5% of them are smoking.

Table 2 reveals that pregnant women having history of 5–7 gravidity (43.4%) in which average refers to 6 ± 2 pregnancies. The table shows that 45.4% of pregnant women having history of 1–3 lived children and 38% having 4–6 lived child. All of pregnant women were getting C/S as a mode of delivery (100%), 45.9% of them are having 4–6 C/S and 32.4% are having 1–3. More than half of pregnant women show they have no abortion but 25.6% of them have one abortion previously. The gestational age by ultrasound at birth among pregnant women refer to third semester among most of them (99%). The gestational age by ultrasound at birth refers to 28–32 weeks among most of the pregnant women (99%). The interval between last C/S and current pregnancy refers to 2 years among the highest percentage of pregnant women (37.8%).

This table depicts that there is high significant relationship between placenta accreta and history of C/S among

Table 1. Distribution of pregnant women according to their general information.

List	Characteristics	f	%	
1	Age (M±SD=32±6)	≤19 years	11	2.7
		20–29 year	124	30.3
		30–39 year	208	50.7
		40≤ year	67	16.3
		Total	410	100
2	Blood group	A	47	11.5
		B	79	19.3
		O	189	46.1
		AB	95	23.2
		Total	410	100
3	Rh factor	Positive	96	23.4
		Negative	314	76.6
		Total	410	100
4	Occupation	Housewife	292	71.2
		Employee	92	22.4
		Retired	2	0.5
		Student	24	5.9
		Total	410	100
5	Residency	Urban	268	65.4
		Rural	54	13.2
		Suburban	88	21.5
		Total	410	100
6	Smoking	No	363	88.5
		Yes	47	11.5
		Total	410	100

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation.

pregnant women as indicated by strong positive correlation at p-value = 0.001.

Discussion

The result in the Table 1 shows that the highest percentage of pregnant women with placenta accreta is 50.7% among the age group 30–39 years. Also, the present study found a high significant relationship among age and incidence of placenta accreta at p-value= 0.001. The results show that the highest percentage of pregnant women (46.1%) of their blood group is "O", and this result is consistent with that obtained with Salman et al.⁷ who found it was 56% with blood group (O) and this could be due to race and genetic. The majority of the sample (71.2%) were housewives, and 22.4% of them are governmental employees. The women's occupation have a role in increasing placenta accreta during pregnancy especially exhaustion work and may have an effect on her pregnancy and may lead to antepartum hemorrhage, low birth weight, and preterm labor. Regarding residency, the highest percentage (65.4%) of the study sample

Table 2. Distribution of pregnant women according to their obstetrical history.

List	History	f	%	
1	Gravid a (M±SD=6±2)	2 – 4	143	34.9
		5 – 7	178	43.4
		8 – 10	74	18
		11 ≤	15	3.7
		Total	410	100
2	Para (M±SD=4±2)	None	3	0.7
		1 – 3	186	45.4
		4 – 6	156	38
		7 – 9	52	12.7
		10 ≤	13	3.2
Total	410	100		
3	Mode of previous delivery	Normal delivery	0	0
		Cesarean section	410	100
		Total	410	100
4	Number of previous delivery	1 – 3	133	32.4
		4 – 6	188	45.9
		7 – 9	67	16.3
		10 – 12	22	5.4
		Total	410	100
5	Number of abortion	None	223	54.4
		1	105	25.6
		2	45	11
		3	27	6.6
		4 +	10	2.4
Total	410	100		
6	Pregnancy trimester (pregnancy with placenta accrete)	First semester	0	0
		Second semester	4	1
		Third semester	406	99
		Total	410	410
7	Gestational age by ultrasound at birth	1 – 12 week	0	0
		13 – 27 week	4	1
		28 – 38 week	406	99
		Total	410	100
8	Time between last cesarean and current pregnancy (M±SD=2±1)	None	1	0.2
		1 years	81	19.8
		2 years	155	37.8
		3 years	96	23.4
		4+ years	77	18.8
Total	410	100		

f: Frequency, %: Percentage.

Table 3. **Correlation between placenta accreta and history of cesarean section among Iraqi pregnant women (N=80).**

Correlation		Placenta accreta	Cesarean section
Placenta accreta	Pearson Correlation	1.00	0.216**
	p-value	--	0.001
Cesarean section	Pearson Correlation	0.216**	1.00
	p-value	0.001	--

**Correlation is significant at the 0.01 level (2-tailed).

were living in an urban area. This result does not agree with Salman et al⁷ who found the pregnant women with placenta accreta live in rural areas (60%). Women who live in rural have low awareness and low commitment about prenatal visits and have poor education about signs and symptoms of accreta.

The result shows that the majority of the sample (88.5%) of pregnant women is not smoker but there is a highly significant relationship between smoking and placenta accreta at p-value=0.001. Smoking is a biologically plausible risk factor in contribution to compensatory placenta hypertrophy. Table 2 indicates that result the highest percentage (43.4%) of study sample were multigravida⁵⁻⁷ pregnancies, there is a significant relationship between gravidity and placenta accreta at p-value=0.025. The lack of health education about family planning and the number of gravidity, and refusing use of family planning methods (especially in rural areas) lead to increased number unplanned pregnancy. Regarding mode of previous delivery, the highest percentage (100%) of the study sample were had a previous history of C/S. This result agreed with AbdElfatah et al⁸ who found that 100% of pregnant women were getting C/S as a mode of delivery. Most of pregnant women undergo cesarean delivery because of their fear of natural childbirth pain, they believe the cesarean delivery is less painful than a normal birth. Regarding of the number of previous delivery, 45.9% of them have 4-6 multiparty and 32.4% of them is having 1-3 cesarean delivery. These results show that there is a significant association between the number of C/S and incidence of placenta accreta.

The result indicates that 54.4% of the study sample did not have abortion, while 25.6% of them had one previous abortion.

Sofiah and Fung⁹ who said that a number of previous curettage increase the incidence of placenta accreta.

The highest percentage of the study sample (99%) were in 28-40 weeks of gestational age (pregnancy with placenta accreta). This result refers to most of pregnant women with placenta accrete at the third trimester of their pregnancy. Mohamed and Ahmed¹⁰ found that the gestational age more than 30 weeks of women with placenta accreta. The majority of patients with placenta accreta was diagnosed with placenta accreta at the moment of birth in Iraqi, there is no previous diagnosis during prenatal visits.

Regarding the detecting of gestational age by using of ultrasound at among pregnant women refers to most of pregnant women with placenta accreta were diagnosed at third semester (99%). Placenta accreta is detected at the moment of birth and not during prenatal visits in Iraq because most of women were not committed in prenatal visits. The results indicate the interval between the last C/S and current pregnancy is 2 years, the highest percentage of pregnant women (37.8%) have 2 years interval between one delivery and another. Women's need to increase their awareness about family planning for regulating the intervals between pregnancies to avoid incidence and complications of placenta accreta.

Table 3 shows that there is a highly significant relationship between placenta accreta and history of C/S among pregnant women as indicated by a strong positive correlation at p-value=0.001. Fitzpatrick et al¹¹ who found a relationship between placenta accreta and history of C/S. Performing repeated cesarean deliveries increases the chances of placenta accreta due to a wound in the uterine muscle in every C/S, causing abnormality in the area of placenta implantation and preventing it from attaching normally and causing its implantation into the uterine muscle rather than implant in to the myometrium.

Conclusion

There is a correlation between placenta accreta and the history of C/S among pregnant women.

Conflict of Interest

None.

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