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A Cross-Sectional Study to Find Out the Results of Cesarean Delivery and to Determine the Factors Associated with the Outcome of the Fetus

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Abstract: This paper aims to find out the results of caesarean delivery on the fetal outcome and to determine the associated factors and their effects through A cross-sectional study. It was conducted in different hospitals in Iraq. The respondents in this study were divided into two groups according to the mode of delivery (80 women) were delivered Vaginally, and (120 women) were delivered by caesarean section. The study was done for the period from December 1, 2019, to December 31, 2020, and through the use of the statistical analysis program SPSS IBM SOFT to analyse the results of the study. The data was entered into a database integrated into the SPSS 21.0 Statistical System for the medical Sciences for Windows. The results which found in this study to patients who underwent a caesarean section for Apgar score 5th minute (≤3 for 20 patients - 4 TO 6 for 47 patients - ≥ 7 for 53 patients) as patients who underwent vaginal delivery were (≤3 for seven patient-4 TO 6 for 30 patient - ≥7 for 43 patient), Gestational age (weeks) was higher in a patient with vaginal delivery for 38.4 ± 1.4 weeks, while the effect of caesarean section and vaginal on neonatal outcomes A statistically significant relationship was found in patients who underwent caesarean section with a p-value of 0.001. By read the type of complication on women who underwent vaginal caesarean section delivery in this study, we can say there is no justification for a caesarean section rate higher than 10-15%" and that "vaginal delivery should be preferred in patients who had a previous caesarean section.

Keywords: Caesarean Section, Vaginal, Delivery, Underwent, Apgar, BMI, Maternal age, BW, Eclampsia.

INTRODUCTION

In 1985, the World Health Organization (WHO) suggested that of all births, the percentage of caesarean sections should be between 10 and 15%, and when caesarean delivery is medically justified, it is effective in preventing maternal and perinatal morbidity and mortality [Paulsen, C.B. *et al*., 2020; Al-Zirqi, I. *et al*., 2016; Fitzpatrick, K.E. *et al*., 2019].

The prevalence of caesarean section nationally increased from 22.9% to 31.6% between 2012 and 2019 [Ludvigsson, J.F. *et al*., 2016; Socialstyrelsen, 2021]and is supported by studies showing that in periods from 2015 onwards, the incidence of caesarean section was higher than that indicated by the World Health Organization.

In the past three decades, profound changes have occurred in the manner of delivery and neonatal survival rates [Ludvigsson, J.F. *et al*., 2011]. Without a doubt, the surgical operation known as the caesarean section was one of the most important operations and had the greatest impact on obstetric care. [Socialstyrelsen, 2021; Ludvigsson, J.F. *et al*., 2009]

The improvement of surgical techniques and the discovery of anaesthetics and antibiotics turned it into an essential surgery in solving complications that arise during pregnancy or childbirth. [Erik von Elm, M.D. *et al*., 2007; WHO, 2020]

Various studies in different countries have indicated that the factors that increase the rate of caesarean section are multifactorial and difficult to study. 9 Among the factors identified changes in maternal characteristics and their relationship to obstetric practice were identified, followed by social and institutional factors. [Mathai, M. *et al*., 2013; Aabakke, A.J. *et al*., 2014]

The aim of this study was to determine the frequency and risk factors for caesarean delivery and to determine the relationship of variables and risk factors with caesarean section. [Steur, M. *et al*., 2011]

The effect of CS surgery on subsequent pregnancies was evaluated in 16,938 cases and showed an increase in placenta previa and placental abruption [Tollånes, M.C. *et al*., 2008; van Berkel, A.C. *et al*., 2015]. According to Hook, B. *et al*. [Van Nimwegen, F.A. *et al*., 2011], frequent CS is associated with an increased risk of health status for patients (odds ratio 1.59; 95% CI 1.21-2.08). Whereas the distress syndrome (RDS) in newborns is increased by (6% vs. 3%).[Werner, A. *et al*., 2007]

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In recent years, caesarean section rates have been on the rise, and this is higher in developed countries, cause heavy expenses for the institution, 1, 2. Various studies assume that high rates of caesarean sections are consequences of previous caesarean sections. [Xu, B. *et al*., 2006; Erik von Elm, M.D. *et al*., 2007]

due to the algorithm that previous caesarean sections have always been an indicator of reduced maternal and fetal complications, and medical-legal problems are currently associated with increased caesarean rates, but This is still being studied.

The aim of this study is to determine the prevalence of caesarean deliveries and to identify risk factors associated with patients by conducting a cross-sectional study of 120 patients in Iraq.

PATIENT AND METHOD

Collection Sample

A cross-sectional study was conducted in different hospitals in Iraq, where this study included women who underwent a caesarean section as an appropriate choice to give birth during the period from December 1, 2019, to December 31, 2020, with a total of 500 participants by caesarean section).

Data for each patient were obtained retrospectively through medical records deposited in a hospital.

Exclusion criteria were patients with incomplete information from the study, in addition to women over 40 years of age and less than 25 years, to become the number of participants in this study to 120 patients.

Clinical characteristics of the women and fetus, such as previous caesarean section, fetal presentation, placental abruption, severe fetal distress, premature rupture of the membrane, placenta previa, and amniotic fluid disturbance, were studied.

METHODOLOGY

Five hundred patients were included from December 1, 2019, to December 31, 2020, and after including the exclusion criteria, the total number of caesarean sections performed was 120.

The mean age of women who gave birth vaginally was higher than women who gave birth by caesarean section ($p = 0.003$).

The lower gestational age in the caesarean section group was between 25 and 40 years.

For the purpose of knowing the threat of risk factors to patients, a group of women who underwent vaginal delivery was included for the purpose of comparing the two groups and knowing the statistical differences. The age of pregnant women in the second group ranged between 28-45 years.

STATISTICAL ANALYSIS

The information was collected by the same researcher who had previously requested authorization from the hospital's educational sub-department to access the files, and it took a month to collect the information, taking 20 files at the end of each week.

The data was then entered into a database integrated into the SPSS 21.0 Statistical System for the medical Sciences for Windows. The results were displayed in charts and graphs integrated with Microsoft Office Word and Microsoft Office PowerPoint.

In order to obtain information from clinical records, ethical approvals were obtained.

In the investigation, the names of pregnant women were omitted, as were the names of the doctors who treated the patient.

Records of women undergoing caesarean section were identified, and causal analysis was performed. Demographic characteristics were compared between women who had a caesarean section and those who had terminated their pregnancies vaginally. A database was created in the SPSS statistical program.

Normality analyzes of quantitative variables were performed, and measures of central tendency and dispersion were used to display them in the tables to determine the difference between percentages.

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RESULTS

Table 1: Results of demographic characteristics of pregnant women who underwent cesarean and vaginal delivery in a hospital

Variable	CS, N=120	vaginal delivery, N=80	P-value
Age (Mean±SD)	30.4±3.5	34±4.1	
BMI			
24-27	20	15	0.54
28-31	60	45	0.76
32-35	40	20	0.05
Residence			
Urban	82	29	0.002
Rural	38	51	0.57
Education level			
Primary	24	20	0.67
Secondary	49	30	0.01
College	30	15	0.034
High	17	15	0.45
Gestational age (weeks) (Mean±SD)	37.9 ± 1.4	38.4 ± 1.4	0.005
financial status, N			
Low	33	29	0.77
Moderate	67	30	0.037
High	20	21	0.99
number of caesarean sections, N			
0	60	60	0.00
1	40	13	0.77
2	20	7	0.04
Fetal macrosomia			
Yes, N	5	7	0.44
No, N	115	73	0.67
Anaesthesia Type			
epidural	77	50	0.05
General anaesthesia	43	30	0.69

Table 2: Health outcomes related to obstetric characteristics of study patients

Variable	CS	VD	P-value
Parity status			
1	40	30	
2-4	39	20	0.62
More than 5	41	30	
Pregnancy diseases			
Preeclampsia	60	37	
Gestational diabetes	35	23	0.01
Fetal Problems	20	20	
Duration of labor (Mean±SD)	20±6.6	22±5.7	0.324
rupture of membrane			
YES	55	33	0.01
NO	65	47	
Apgar score 5th minute			
≤3	20	7	
4 TO 6	47	30	0.003
≥7	53	43	

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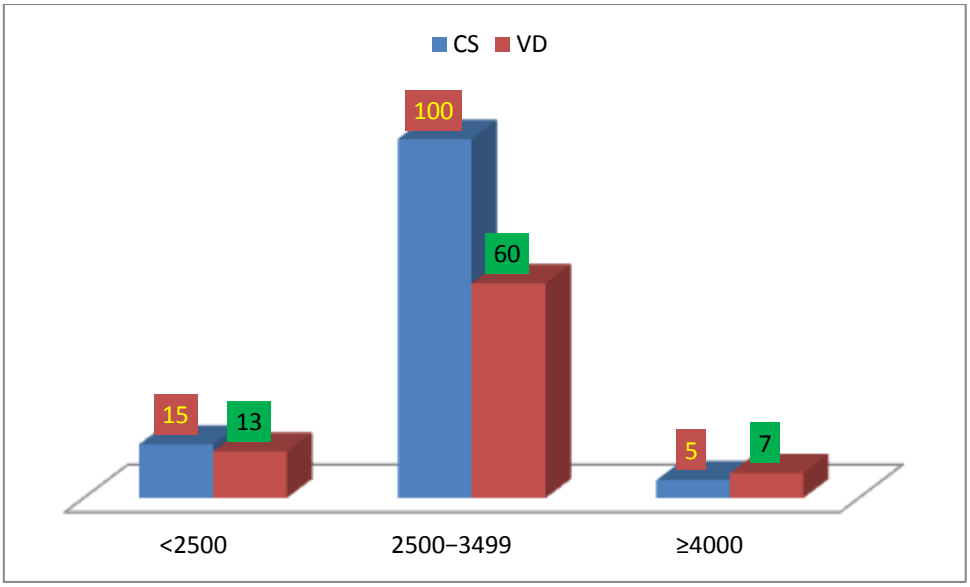

Fig 1: Outcomes of the Birth weight of patients' study

Table 3: Effect of caesarean section and vaginal on neonatal outcomes

Variable	CS, N=120	vaginal delivery=80	P-value
Direct Admission	6 (5)	4 (5)	0.99
TTN/ RDS	4 (3.3)	2 (2.5)	0.84
Surfactant	4 (3.3)	1 (1.25)	0.05
Sepsis	2 (1.6)	2 (2.5)	0.00
Asphyxia	5 (4.1)	2 (2.5)	0.001
Mortality	4 (3.3)	2 (2.5)	0.452

TTN Transient tachypnoea of the newborn, RDS Respiratory distress syndrome,

Table 4: Type of complication on Women who underwent vaginal caesarean section delivery in this study

Variable	**Cs**		**VD**		**P-value**
	f	P%	F	P%	
Wound dehiscence	10	8.3	3	3.75	0.001
Post-op Fever	7	5.8	4	5	0.03
Perineal Tear	4	3.3	4	5	0.87
Bleeding	9	7.5	3	3.75	0.05
Organ damage	7	5.8	2	2.5	0.002

Table 5: OR (95 % CI) logistic regression to analysis risk factors on patient

Parameter	**OR (95 % CI)**	**P-value**
All Events		
Acute caesarean	1.11 (1.06–1.77)	.029
Maternal age	1.11 (0.8–1.80)	.021
BMI	1.99 (1.44–2.87)	<.001
Infant birth weight	0.98 (0.88–1.1)	<.001
Eclampsia	4.55 (1.44–8.84)	.001

DISCUSSION

One of the biggest complications in obstetrics is trying to find points of comparison, analysis, and decision-making regarding a caesarean section. In this study [19], a cross-sectional study was established for 200 patients who were distributed to a patient. The respondents in this study were divided into two groups according to the type of operation used for delivery (80 patients). Vaginal delivery (120 caesarean section patients) and through the use of the statistical analysis program SPSS IBM SOFT, the mean value +SD was determined to the ages of patients in this study (30.4±3.5 CS) (34±4.1 to patients who underwent vaginal delivery).

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These are very similar to those obtained in PARELLADA JOA RAWN 2003, where age 20-34 years represents 74%. This is due to the fact that the largest demand from people are women over the age of 20 years.

Gestational age and its relationship to a caesarean section or vaginal, we found that patients who underwent a caesarean section were (37.9 ± 1.4), while for patients who underwent vaginal delivery, it was 38.4 ± 1.4 with a risk factor (OR = 3.22) that was statistically significant p = 0.005, Other studies have reported that a large percentage of pregnant women attend their antenatal care at their health centre and are transported to hospital in time.

The identification of risk factors for the development of this condition allows at the first level of care, on the one hand, the classification of groups at risk and, on the other hand, the adjustment of sensitive factors to reduce morbidity and mortality.

According to Hefner, it is the mother's circumstances that determine the course of childbirth, the age of the mother, and the decrease in the number of children desired. Our findings indicate that the older the age, the higher the proportion of caesarean sections performed, perhaps coupled with the fact that they involve pathological parity. The possibility of caesarean delivery.

With regard to indications for caesarean section, 'changes during labour' were the most common indication at all levels. However, in previous studies, 80% of the indications were for dystocia and previous caesarean section justifying the highest percentage of caesarean section. [Eggesbø, M. *et al*., 2003]

As potential causes of variance between hospitals, some studies have analysed non-clinical factors associated with hospital layout, social conditions, women's preferences, and the economic incentives of 15 professionals (not considered in this study), which could determine the differences that exist between general levels between public and private hospitals. In this study, a higher percentage of 'Caesarean section' was found in private hospitals, which may indicate a greater acceptance of women's demands regarding the method of delivery. [Bowman, Z.S. *et al*., 2015; Daltveit, A.K. *et al*., 2008]

Due to the lack of clinical resources for the early diagnosis of preeclampsia, multiple research studies have been conducted in order to predict its occurrence. Undoubtedly, proper prenatal control is the most important thing in secondary and tertiary prevention. Efforts should be made to develop antenatal care regimens that provide closer and more flexible follow-up for women at high risk of developing this syndrome. Ambulatory blood pressure monitoring can be done 24 hours a day to identify affected women. [Downes, K.L. *et al*., 2015; Galyean, A.M. *et al*., 2009]

Pregnant women with isolated hypertension (white coat hypertension) have a lower risk of developing maternal and perinatal complications compared to pregnant women with persistent hypertension. [Getahun, D. *et al*., 2006]

CONCLUSION

Our current study emphasizes that “there is no justification for a caesarean section rate higher than 10-15%” and that “vaginal delivery should be preferred in patients who had a previous caesarean section.

The maximum ages of reproductive life, the gestational age of less than 37 weeks or 40 weeks and above, and gestational hypertension, increased the possibility of performing a caesarean section with statistical significance, and the logistic analysis of this study of gestational diabetes revealed an increase in the risk of this type of delivery in the patient studied.

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