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Original Article

Frequency of Cesarean Sections in Female Physicians and Medical Students in Babylon Governorate

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Abstract

Background: Cesarean sections (CSs) defined as delivery of the fetus through abdominal incision. In certain condition, it is a life-saving surgical procedure for both mother and her fetus. **Objectives:** The aim of this study was to evaluate the frequency and causes of CSs in female Physicians and medical student in Babylon Governorate. **Materials and Methods:** It was a cross-sectional study conducted in Babylon. The duration of the study was over a period of 5 months, included a convenient sample of 345 female physicians and medical students delivered by CSs who worked at central and peripheral hospital mentioned who agreed to participate in this study, data were collected using a predesigned questionnaire by which female physicians and medical student were interviewed. **Results:** The mean age of female physicians whom delivered by CSs is (30.32 ± 4.38) years. More of them are para one CS (65.8%), no period of subfertility (92.5%), no history of miscarriage (78.6%), and delivered after 37 weeks of gestation (89.6%). Threatened miscarriage represented (47.3%) fallowed by anemia (14.2%) and preeclampsia (8.8%). The main indication of CSs was patient's wishes which represented (43.2%) of CS, (77.2%) of them had CS without any medical reason only afraid from the pain of normal vaginal delivery, (9.4%) had a history of primary subfertility, (6%) had bad obstetric history, (4.7%) had a history of pregnancy complications such as threatened miscarriage, gestational hypertension, and gestational diabetes mellitus. **Conclusions:** CSs rate in female physicians and medical student in Babylon Governorate were much higher than the optimal range recommended by the World Health Organization. In spite of their knowledge about the complications of CSs, more of them preferred CSs with no medical reason because of afraid from vaginal delivery pain.

Keywords: Cesarean sections, delivery, fetus

Introduction

Cesarean sections (CSs) is a surgical procedure in which delivery of fetus through the abdominal wall.[1] It is a life-saving surgical procedure when certain complications arise during pregnancy and labor. It is a major operation and associated with immediate maternal and neonatal risks and may have certain complications for further pregnancies.[2,3]

CS is often necessary when a vaginal delivery would put the fetus or mother at risk as obstructed labor, multiple pregnancy, complicated pregnancy by sever hypertension or preeclampsia, breech presentation, or problems with the placenta or umbilical cord.[4,5] A trial of vaginal delivery after one CS may be possible.[1]

The World Health Organization recommended that CS may be performed only when medically necessary.[6] Some C-sections are performed without a medical reason on request of the mother.[4]

The use of CS has increased dramatically worldwide in the last decade, especially in the middle and high-income countries, in spite of the lack of evidence supporting maternal and neonatal benefits with CS rates higher than a certain threshold, and some studies showing a link between increasing CS rates and poorer outcomes.[7,8] The reasons for this increase are multifactorial and not well understood, changes in maternal characteristics and professional practice styles, increasing malpractice pressure, as well as economic, organizational, social, and cultural factors all have been implicated in this trend.[9,10]

CSs without indications, as compared to normal vaginal delivery (NVD) would bring many complications for both

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mother and fetus.[11] In addition, the results of studies in the UK have shown that the risk of maternal death caused by cesarean delivery is three times more than that of NVD.[12] The newborns health in case of CS studies had shown that the risk of death in newborns by CS is four times as much as newborns born by NVD.[13] The most serious complications for the babies born by CSs are fetal respiratory problems such as transient tachypnea of newborn, respiratory distress syndrome, surgical blade cuts, and increased rates of newborns admission in the neonatal intensive care unit.[14,15] CS rates are increasing globally.[16] It doubled from 2003 to 2018 to reach 21%, and it is increasing annually by 4%.[17] In the United States, as of 2017, about 32% of deliveries are by C-section.[1,5] Wound infections occur after CSs at a rate of 3%–15%. The presence of chorioamnionitis and obesity predisposes the woman to develop a surgical site infection.[16]

CSs have been classified in various ways by different perspectives, one way to discuss all classification systems is to group them by their focus either on the urgency of the procedure, characteristics of the mother or as a group based on other, less commonly discussed factors. It is most common to classify CS by the urgency of performing them.[17] By urgency, CSs are classified as being either an elective surgery or an emergency operation.[18] In UK, CSs are classified as a "Grade 4" sections (delivery timed to suit the mother or hospital staff) or as a "Grade 3" sections (no maternal or fetal compromise but early delivery needed) or as a "Grade 2" (delivery required within 90 min of the decision but no immediate threat to the life of the woman or the fetus) and "Grade 1" (delivery required within 30 min of the decision: Immediate threat to the life of the mother or the baby or both).[19]

Materials and Methods

Study design, setting, and time

It was a cross-sectional study conducted in Babylon Maternity and Pediatrics Teaching Hospital, Al-Hilla General Teaching Hospital, Imam Al-Sadiq General Teaching Hospital, Marjan Teaching Hospital, AL-Mahaweel General Hospital, AL-Zahrah Maternity Hospital, AL-Eskandria General Hospital, AL-Hashymia General Hospital, and the primary health-care centers in Babylon Government. The duration of study was over a period of 5 months started from February 1, 2019, to July 1, 2019.

Study population

This study included a convenient sample of 345 female physicians and medical student delivered by CSs in Babylon Governorate who worked at the central and peripheral hospital mentioned above and in the primary health-care centers who agreed to participate in this study.

Inclusion criteria

Any female physicians delivered by CSs in Babylon Governorate as senior, Permanente, junior doctors, and medical students.

Exclusion criteria

Any female physicians and medical student delivered by vaginal delivery, and anyone refused to participate in the study.

Sample size determination

The sample size was estimated according to the following equation:

$$N = Z^2P\ (1 - P)/D^2$$

Where: N = Sample size; Z = 1.96; P = The proportion = 34.4%, which is the prevalence of CSs in Babylon Governorate.[20]

D = Relative precision = 0.05.

The total sample size required according to the equation is 345 female physicians and medical student delivered by CSs.

Sampling technique

Any female physicians in the central and peripheral hospital and in the primary health-care center in Babylon Governorate whom agreed to participate in this study at the time of data collection were asked to give their verbal consent. Each one was interviewed for 10 min (any female physicians refused to participate was excluded, and the next one was interviewed).

Data collection tools

Data were collected using a predesigned questionnaire by which female physicians were interviewed.

Statistical analysis

Statistical analysis was carried out using SPSS version 21 (SPSS, IBM, USA). Categorical variables were presented as frequencies and percentages. Continuous variables were presented as (means ± standard deviation). Student's *t*-test was used to compare means between two groups. Pearson's Chi-square and Fisher's exact test were used to find the association between categorical variables. $P \leq 0.05$ was considered statistically significant.

Ethical considerations

The study protocol was reviewed and granted permission by the Ethical Committee of Babylon University, College of Medicine. After explaining the objective of the study to the female physicians and medical student, verbal consent was obtained from them prior to interviewing. Names of the participant were replaced with identification codes to keep data confidential. To carry out the study, official agreement was obtained from Babylon Health Directorate.

Results

The distribution of patients according to study variables

Table 1 shows the distribution of patients according to study variables included (age, parity, period of subfertility, number of miscarriage, and gestational age).

The distribution of patients according to study variables

Table 2 shows the distribution of patients according to study variables included (type of conception, number and duration

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Table 1: Distribution of patients according to study variables (*n*=345)

Study variables	*n* (%)
Age (years)*	
20-30	192 (55.7)
31-40	136 (39.4)
41-50	17 (4.9)
Total	345 (100.0)
Parity	
P1	227 (65.8)
P2-P4	112 (32.5)
≥P4	6 (1.7)
Total	345 (100.0)
Period of subfertility (years)	
No period of subfertility	319 (92.5)
Primary subfertility	23 (6.7)
Secondary subfertility	3 (0.9)
Total	345 (100.0)
History of miscarriage	
No history of miscarriage	271 (78.6)
Once	55 (15.9)
Twice or more	19 (5.5)
Total	345 (100.0)
Gestational age (weeks)	
Preterm (28-36)	16 (4.6)
Full term (37-42)	309 (89.6)
Postterm (>42)	20 (5.8)
Total	345 (100.0)

*Mean age (30.32±4.38)

Table 2: The distribution of patients according to study variables (*n*=345)

Study variables	*n* (%)
Type of conception	
Spontaneous	326 (94.5)
Ovulation induction	18 (5.2)
Assist reproduction	1 (0.3)
Total	345 (100.0)
Number and duration of ovulation induction (month)	
1	4 (22.2)
2-6	13 (72.2)
>6	1 (5.5)
Total	18 (100.0)
Pregnancy complications	
Present	148 (42.9)
Absent	197 (57.1)
Total	345 (100.0)
History of chronic diseases	
Present	8 (2.3)
Absent	337 (97.7)
Total	345 (100.0)
Type of chronic disease	
Asthma	3 (37.5)
Hypertension	3 (37.5)
DM	1 (12.5)
Migraine	1 (12.5)
Total	8 (100.0)
History of previous scar	
No previous scar	204 (59.1)
Previous one scar	113 (32.8)
Previous two or more scar	28 (8.1)
Total	345 (100.0)

DM: Diabetes mellitus

of ovulation induction, pregnancy complications, history of chronic medical illnesses, and history of the previous scar).

The distribution of patients according to the complications of cesarean sections

Table 3 shows the distribution of patients according to the complications of CS. Wound infections represented the majority (65.9%) of CS complications.

The distribution of patients according to the type of pregnancy complications

Table 4 shows the distribution of patients according to the type of pregnancy complications. Threatened miscarriage represented the majority (47.3%) of pregnancy complications.

The distribution of patients according to the indication of cesarian sections

Table 5 shows the distribution of patients according to the indication of CSs. The patient's wishes represented the majority (43.2%) of CSs.

Discussion

CSs rate in Iraq was increasing globally, which was greater than the rate in some neighboring countries such as Jordan (18.5%). However, it is considerably lower than the rate in Iran (48%), and Turkey (47.5%).[11] In Iraq, the recent global increase in the CSs rate can be largely attributed to different factors including advances in technologies to detect fetal distress and the attitudes of clinicians and women toward CSs such as the avoidance of labor pain.[2] The CS rates were significantly higher in the governorates that had a larger number of private hospitals compared to those with a smaller number or no private hospitals. CS rates for all hospital births were Erbil (37.6%), Dohouk (26.6%), Al-Sulaimaniya (34.5%), Kurdistan (33.8%), Centre/South (34.9%), and total Iraq (34.7%).[20]

This study is the study in Babylon Governorate was conducted on a sample of 345 female physicians to estimate the frequency and causes of CSs. After the distribution of patients according to the study variables the mean age of female physicians whom delivered by CSs is (30.32 ± 4.38) years. More of them are pervious one CS (65.8%) and no had period of subfertility (92.5%). In compare with study in Erbil mean of age was (28.1 ± 5.4) years, the majority (83.5%) of the mothers were multiparous, and (72%) of them had previous history of CS.

More female physicians no had a history of miscarriage (78.6%) and delivered after 37 weeks of gestation (89.6%). Regarding the type of conception more of them are concepted

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Table 3: Distribution of patients according to the complications of cesarean section

Study variables	*n* (%)
History of complication of cesarian sections	
Present	44 (12.8)
Absent	301 (87.2)
Total	345 (100.0)
Type of complications of cesarian sections	
Wound infection	29 (65.9)
Bleeding	9 (20.5)
Pulmonary embolism	4 (9.1)
DVT	2 (4.5)
Total	44 (100.0)
Treatment of wound infection	
Medically treated	21 (72.4)
Surgically treated	8 (27.6)
Total	29 (100.0)
Type of bleeding	
Primary	7 (77.8)
Secondary	2 (22.2)
Total	9 (100.0)
Treatment of bleeding	
Medically treated	8 (88.9)
Surgically treated	1 (11.1)
Total	9 (100.0)
History of complications of CS in further pregnancy	
Difficult operation	2 (0.6)
No complications in further pregnancy	343 (99.4)
Total	345 (100.0)

CS: Cesarean section, DVT: Deep vein thrombosis

Table 4: Distribution of patients according to the type of pregnancy complications

Pregnancy complications	*n* (%)
Threatened miscarriage	70 (47.3)
Anemia	21 (14.2)
Gestational hypertension	8 (5.4)
Preeclampsia	13 (8.8)
Gestational DM	2 (1.4)
Threatened miscarriage and preeclampsia	10 (6.8)
Anemia and threating miscarriage	10 (6.8)
Leg edema and gestational hypertension	2 (1.4)
Gestational hypertension, gestational DM and polyhydramnios if hypertension never get polyhydramnios	5 (3.4)
Gestational DM and polyhydramnios	4 (2.7)
Anemia and gestational hypertension	3 (2.0)
Total	148 (100.0)

DM: Diabetes mellitus

spontaneously (94.5%), small percentage are conceived by ovulation induction (5.2%) and highly present of them (72.2%) are needed more than 1-month ovulation induction to get their pregnancy. Regarding the pregnancy complications more of them had no complications (57.1%) and (42.9%) had complications. Threatened miscarriage represented (47.3%) followed by anemia (14.2%) and preeclampsia (8.8%).

The main indication of CS in female physicians was patient's wishes which represented the majority (43.2%) of CS, (77.2%) of them had CS without any medical reason only afraid from the pain of NVD, (9.4%) had history of primary subfertility, (6%) had bad obstetric history, (4.7%) had history of pregnancy complications, (2%) had history of secondary subfertility, and (0.7%) had history of assisted reproductions. The previous study in Baghdad hospital showed that CSs were conducted for nonmedical reasons such as the fear of vaginal delivery (45.7%), choosing the right timing for security reasons (31.4%) and performing a tubal ligation (8.6%).[2]

Another indication of CS in this study was premature rupture of membrane (11%), failure of progress of labor and fetal distress (10.7%), preeclampsia (9.6%), meconium (6.4%), postdate and no sign of labor (5.8%), placenta previa (4.9%), cephalopelvic-disproportion (CPD) (3.8%), breech presentation (3.2%), and abruptio placentae (1.4%). In compare with a study done in Duhok city of Kurdistan region, the main indications of CS were repeated CS (50.7%), fetal distress (20.28%), breech presentation (17.95%), unknown cause (17.27%), emergency-risk to mother (13.12%), and exhaustion after long labor maternal distress (10.22%). Another study was done in Erbil the main indications of CS were mother's request which represented the majority (36.63%), CPD (17.32%), abnormal lie and presentation (16.83%), failure of labor to progress (10.89%), and bad obstetrical history with subfertility (10.39%), fetal distress (7.42%), multiple pregnancy (4.95%), previous AP repair (4.45%), preeclampsia/eclampsia (3.96%), placenta previa (2.47%), antepartum hemorrhage (0.99%), and cord prolapse (0.49).

In a Jordanian study, failure of progress of labor and fetal distress were the main indications of CS in the overall and primary indication of CS. Mean differences of age according to the indications of CS (patient wishes and other cause) there were significant differences between means of age according to study group ($t = -6.374$, $P \leq 0.001$). After the distribution of patients according to study variable, more of CS are elective (65.5%) and (34.5%) are emergency, in compare with Erbil study (86.6%) of CS are elective and (13.4%) are emergency. Spacing between each CS in female physicians usually 1–3 years represented the majority (25.5%). All-female physicians had no history of vaginal delivery after cesarean vaginal birth after cesarean delivery represented (96.8%) but only (3.2%) delivered vaginally in spite of the National Institutes of Health, U.S. Department of Health and Human Services, and American College of Obstetrics and Gynecology all released statements in support of increasing Vaginal birth after CS.[5]

Conclusions

CSs rate in female physicians and medical student in Babylon Governorate were much higher than the optimal range recommended by the World Health Organization. In spite of their knowledge about the complications of CSs more of them

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Table 5: Distribution of patients according to indication of cesarian sections

Indication of CS	*n* (%)
Patient wishes	149 (43.2)
Breech presentation	11 (3.2)
Premature rupture of membrane with no cervical dilatation	38 (11.0)
Failure of progress of labor	27 (8.7)
Fetal distress	10 (2.1)
Cephalopelvic disproportion	13 (3.8)
Meconium	22 (6.4)
Postdate and no sign of labor	20 (5.8)
Placenta previa	17 (4.9)
Abruptio placentae	5 (1.4)
Preeclampsia	33 (9.6)
Total	345 (100.0)

CS: Cesarean section

preferred CSs with no medical complaint because of afraid from vaginal delivery pain. Iraq witnessed a rapid upward trend in the CSs rate with a potential relationship between the expansion of the private health sector and the increasing CS rate.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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