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ORIGINAL RESEARCH

Indications for Cesarean Section delivery among Primigravid Women attending Kirkuk City Hospitals

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ABSTRACT

Background: Cesarean section is method of birth used when a vaginal delivery is not possible or when the baby's and mother's health are at risk. Understanding the causes of caesarean section can give us a greater awareness of this common obstetric operation.

Objectives: To determine the indications for cesarean section among primigravid women, attending Kirkuk city hospitals, and to find out the relationship between indications for cesarean section and demographic data with some of reproductive characteristics of the study sample.

Methodology: A descriptive study was conducted at maternity units in Kirkuk city hospitals from August, 2022 to May, 2023. The study sample included 200 primigravid women who underwent to caesarean section. The data was collected through a questionnaire and interview techniques. SPSS version 26 was used for data entry and analysis. Both descriptive and inferential statistic were used.

Results: the mean age was 23.62 ± 5.62 most of the patient were in the age 15-19 years old , (42.5%) were graduated from institute, college & higher education, more than half of the sample (59.5%) were housewife, (76.5%) were from urban with (45.5%) of them being from sufficient monthly income, and (44.0%) were obese. Cephalopelvic disproportion and fetal malpresentation were the most common indications for cesarean section. Reproductive history was significantly associated with each of [maternal age at (P=0.001), residency at (P=0.001), monthly income at (P=0.003) and type of antenatal care at (P=0.000). No significant relationship was reported between women demographic data and their indications for caesarean section at p-value <0.05.

Conclusion: Cephalopelvic disproportion and fetal malpresentation were the most common indications for cesarean section, followed by fetal distress and obstructed labor. Performing caesarean section delivery should be for the medical and emergency reasons by the obstetricians.

Keywords: Indications, caesarean section, primigravid.

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INTRODUCTION

The World Health Organization (WHO) defined the cesarean section (cs) as one of the most frequently performed surgical operations done by making an incision in the mother's uterus and abdominal wall, and considered the optimal rate of caesarean section between (10-15%), caesarean section birth is used when a vaginal delivery is not possible or when the baby's and mother's health require an urgent delivery [1]. Around the world, the prevalence of cesarean sections has increased, in a recent study including 150 countries found that 18.6% of births globally occur through CS; the region of Latin America and the Caribbean is placed highest with 40.5%, followed by Northern America (32.3%), Oceania (31.1%), and Asia (19.2%) [2]. In addition, the prevalence of CS varies among Iraq's surrounding countries for example, the prevalence of CS in Saudi Arabia was (43%) in year 2018, in Syria continued to rise reaching (46%) in year 2016. While, in Turkey it was (53.1%) in year 2017 and in Iran was (43.0%) in year 2015 3. In Iraq during 2018 the CS rate in Mosul city was (22%), and (14.2%) in the governorate of Al-Anbar [3]. Furthermore, according to another survey reported that the rate of CS in Kurdistan region was (58.5%), while the rate of CS in rest of Iraq was (45.1%) [4].

There are two classifications of cesarean section with different indications; elective cesarean section and emergency cesarean section. Elective CS which also called planned or scheduled cesarean section and performed before the beginning of spontaneous labor, timed by week, day, and hour [5]. It uses in cases of cephalopelvic disproportion, chorioamnionitis, maternal anatomical malformation of pelvis, placenta previa, abnormal lie and presentation, previous cesarean section [6]. While, emergency cesarean section is a surgical technique frequently used when there are fetal or maternal disorders that could be a life-threatening risk [7]. This type has some indications such as; prolonged fetal distress, obstructed labor, eclampsia or sudden severe high blood pressure or seizure, heavy persistent vaginal bleeding, cord prolapse, failed vacuum or forceps delivery, failed labor induction and rupture of uterus [8].

However cesarean section is sometimes performed according to maternal request with no medical indication in order to avoid labor pain or potential difficulties of a vaginal birth [9]. Although CS is considered as a life-saving operation, but vaginal delivery still the best way for delivering a baby because CS carries a risk of increased maternal mortality and morbidity due to the chance of having complications from anesthesia, blood transfusion, organ damage, infection, and thromboembolic diseases all rise after cesarean delivery, as well as long term complications such as higher risk of obesity and multiple pregnancy-related issues such placenta accreta, placenta Previa, uterine rupture, intra-abdominal adhesions , and ectopic pregnancy [10].

Several factors are linked to the incidence rate of CS. These include the body mass index, the number of children, the interval between pregnancies, and media exposure, as well as the maternal socioeconomic determinants that take into account the mother's age, place of residence, education, income, and the frequency of antenatal care during pregnancy [11].

Despite the high rate of caesarean sections in Kirkuk city [4] and having several maternity units in Kirkuk hospitals, there was no study regarding the indications for CS among primigravid women, therefore, this study was conducted to determine the indications for CS among primigravid women.

AIMS OF THE STUDY

To determine the indications for cesarean section among primigravid women, attending Kirkuk city hospitals, and to find out the relationship between indications for cesarean section and demographic data with some of reproductive characteristics of the study sample.

METHODOLOGY

This descriptive study was conducted at maternity units in Kirkuk city hospitals, (Kirkuk General Hospital, Azadi Teaching Hospital, and Maternity, Gynecology and Pediatric (Al-Nasir hospital) from August, 2022 to May, 2023. A sample

of 200 primigravid women were selected for the study by purposive sampling technique. Data were collected during delivery by cesarean section, the primi gravid women were directly interviewed in the delivery and maternity units at the days when the researcher was attending the hospital (six days/week) with different shifts. In order to determine the gestational age, abdominal ultrasound was checked as well as their hemoglobin level from the blood tests. Measurement of body mass index (BMI) was according to the patient's measurement.

The study included the primigravid women who were 28 weeks of gestation and above. Women with multi gravid and multipara were excluded from the study. A structured questionnaire was constructed for the purpose of the study throughout the review of literature and background experience and field tested before using it to obtain the relevant data. The validity of the questionnaire is determined through a panel of experts from different fields (16 experts) and a pilot study was conducted to assess the reliability of the questionnaire. Cronbach's alpha method produced a reliability score of 0.75, this outcome proved the questionnaire's internal consistency.

Prior beginning to collect data from a sample who are participating in the study, the researcher gave a brief explanation about the scientific background of the research and the purpose of conducting it. On the other hand, the researcher emphasized that all women who are participating in the study had the right to not complete their participation and withdraw from this if they feel uncomfortable or annoyed with some of the items in the questionnaire that was prepared as a research tool or the researcher's method of collecting data or anything else, and inform them it is used for research purpose only, then they confirmed their agreement to participation in the study.

The Statistical Package for the Social Sciences (SPSS) version 26.0 were used for the statistical analysis. Both descriptive and inferential statistical methods were used. A p value ≤0.05 was considered statistically significant.

RESULTS

(Table1) shows the socio-demographical characteristics of studied sample where the mean age ± SD of the study participants was 23.62 ± 5.62, ranging from 15 to 44 years. About (42.5, %) were institute, college & higher education graduate, more than half of the study participants were housewife, (76.5%) of them were from urban, (45.5%) of women were high monthly income and most of the study participants were obese (44.0%).

(Table 2) shows distribution of reproductive characteristics of the sample which the majority of the sample (80.5%) were ≥ 38 weeks in gestation, (42.5%) of women were (< 20) years at the time of marriage. More than half were regularly attending the antenatal care of both private clinic and primary health care centers, (47.0%) of them were having anemia and only (1.5%) had gestational hypertension, Majority of women (93.5%) were taking iron/folic acid supplementation regularly from the 1st trimester.

Table (3) shows that (68%) of the women had elective (planned) caesarian section, while (32%) had emergency caesarean section. The most common indications for elective cesarean section were cephalopelvic disproportion (22.5%), fetal malpresentation (19.0%) and mother request has constituted 10.5%. Indications for emergency caesarean section were; (13.0%) and (12.0%) for fetal distress and obstructed labor respectively.

While (Table 4): indicates the relationships among the Reproductive History, Indications for Cesarean Section, and socio-demographical characteristics and there was a significant relationship between reproductive history, and each of {maternal age groups, residency, monthly income and type of antenatal care} at p<0.05. While no significant relationship was found between women

demographic data and their indications for caesarean section at p-value (<0.05 %).

DISCUSSION:

This study determines the indications for CS, and based on the study findings more than one third of the study sample who delivered by CS, their age ranged between 15-19 years old. This result is higher than the result of a study founded that primigravid women less than 20 years old had caesarean section rate of 14% [12]. More than two fifth of primigravid women delivered by CS in the current study were graduated from institute and above this result is constant with another study which concluded that higher maternal education levels are associated with C-section deliveries because educated women are more likely to make their own decisions and choose CS delivery by themselves [13]. In addition, around two third of the sample were housewives, this result is in agreement with another study conducted at Al Dewaniya maternity and pediatric hospital which reported that the housewives represent over half of research participants (67.8%) [14].

Due to availability of private health care services, increased obstetrical facilities, and high number of maternal health centers in urban, more than three quarters of the current study sample delivered by CS were living in urban area, this result is agree with a result of a study [15] who stated that women from urban areas were more likely to use the C-section delivery method than women from rural areas, the increased caesarean rate in urban regions compared to rural areas may be due to the greater accessibility, affordability, and availability of C-sections for women in urban areas compared to rural, as well as the presence of more private C-section facilities and higher rates of women employment.

The results of this study showed that more than two fifths of the study sample were from high socioeconomic status which is similar to previous studies [16, 17] that reported the women with higher socioeconomic level may prefer using private birthing facilities and hospitals.

The current study found that more than two fifths of the sample were obese, this finding is agrees with a study conducted in Pakistan [18] which reported that the obese women in their study who had cesarean section were (45.7%). other study showed a relationship between high BMI and cesarean section births, which indicates a higher risk of difficult delivery as comparison to non-obese women [19].

More than three quarters of the infants were born at ≥ 38 weeks in gestation and this is consistent with the finding of a study where the majority of neonates that born by cesarean section where 38 weeks and above [20]. Another study indicated that more elective cesarean section means more deliveries at 38 weeks of gestation [21] which is fully corresponds to the current study.

Regarding age at marriage the present study indicates that more than two fifths of the sample were at age less than 20 years old with mean ± SD (21.28 ± 4.70) this result is in agree with a study from Punjab, Pakistan where (15.5%) of women who delivered by cesarean section were at age <15 years old at marriage, while (23.5%) were at age group (15-20) years old [22].

Antenatal care results indicated that more than half of the women were regularly attending the antenatal care services, with being close to two fifth of them were attending private clinics and more than half were attending both private clinics and primary health care centers. The current result is almost in agreement with a study conducted in Erbil city, Iraq which founded that antenatal care visits of primi gravid were (97.5%) with (69.5%) of them having adequate antenatal care [23].

Hemoglobin (Hb) levels < 11 g/dL is considers anemia during pregnancy. In the present study anemia was diagnosed in (92) participants of total (200), which is considered a high percentage. Studies reported that the probability of a primary cesarean birth is increased by maternal anemia at

delivery, in addition anemia and cesarean birth have a strong correlation [24, 25]. Furthermore, among 200 participants of current study only (1.5%) had gestational hypertension and this result is lower than a study founded that (3.7%) of women who underwent C-section had gestational hypertension [26].

The majority of the study sample were taking iron/folic acid supplements regularly and they started to take it from the first trimester which is in agreement with other studies that reported majority of the women took supplements including iron and folic acid during pregnancy [23, 27]. The lack of complications during pregnancy may be due to the high rate of antenatal care, as well as being in young age and primigravid helped to reduce pregnancy complication.

Planned cesarean section (elective cesarean section) in the current study was twice more than emergency cesarean section this result is similar to results of a study done in Erbil, Iraq where elective CS was much higher than emergency cesarean section [28] this high rate of planned cesarean section among primigravid women may due to women's fears of painful labor, possible delivery trauma or damage, or even a lack of family support when giving birth.

The most reported indications for cesarean section were cephalopelvic disproportion, fetal malpresentation, fetal distress, obstructed labor and mother request. Where this result corresponds to a study which the cephalopelvic disproportion was the first indication of cesarean section among primigravida women [23]. Another study in Egypt [29] found abnormal presentation as the second indication for caesarean section among primigravid, while fetal distress was the third indication for caesarean section according to a study conducted in Pakistan [30]. As well as another study conducted in Karbala, Iraq founded that the fetal distress, obstructed labor, malpresentation and mother request were the most common indication for CS [31] which is in agreement with the current study.

In contrast the study founded that there is no relationship between indications for CS and socio-demographic characteristics at p-value <0.05. This is similar to studies that reached to the same result and found that there is no significant effect of having CS on demographic characteristics [32, 14].

Finally the present study showed a significant relationship between reproductive history and each of {maternal age groups, residency, monthly income and type of antenatal care}.

The highly significant relationship between maternal age and reproductive history was at (P value =0.001) which is lower than P<0.05 which is constant with a study showed a relationship between maternal age and reproductive history [33].

The residency has highly significant relationship with reproductive history at P value (0.001) which is lower than P<0.05. This result is not compatible with the result of a previous study which proved that there is no relationship between residency and reproductive history [34].

According to the monthly income, it has highly significant relationship with reproductive history at P value (0.003) which is lower than P<0.05 this result is constant with another study that founded and explained the significant relationship between income and reproductive history [35].

Furthermore type of antenatal care has highly significant relationship with reproductive history at P value (0.000) which is lower than P<0.05, the result of the current study agrees with a study that showed significantly relationship between antenatal care and reproductive history [36].

CONCLUSIONS:

Cephalopelvic disproportion and fetal malpresentation were the most common indications for cesarean section, followed by fetal distress and obstructed labor. There was significant relationship between reproductive history, while no-significant relationship was occurred between women demographic data and their indications for caesarean

section. Importance of reducing unnecessary caesarean sections and performing it for the medical and emergency cases by the obstetricians and gynecologist.

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TABLES:

Table (1): Distribution of socio-demographical characteristics of studied sample (N=200)

Variables	Groups	Frequency	%
Maternal Age in years	15 _ 19	64	32.0
	20 _ 24	55	27.5
	25 _ 29	55	27.5
	30 _ 34	16	8.0
	35 _ 39	5	2.5
	40 _ 44	5	2.5
	Mean ± SD	23.62 ± 5.62	
Level of education	Illiterate	6	3.0
	Read and write	6	3.0
	Primary school	66	33.0
	Intermediate school	19	9.5
	Secondary school	18	9.0
	Institute, college & higher education	85	42.5
Occupation	Housewife	119	59.5
	Employee	32	16.0
	Free work	26	13.0
	Student	23	11.5
Residence	Urban	153	76.5
	Rural	47	23.5
Monthly Income	Sufficient	91	45.5
	Barely-sufficient	80	40.0
	Insufficient	29	14.5
BMI	Normal weight	29	14.5
	Overweight	83	41.5
	Obese	88	44.0

Table (2): Distribution of Reproductive characteristics of the study sample (200)

Reproductive characteristics	Groups	Frequency	%
Gestational Age / weeks	< 38	39	19.5
	≥ 38	161	80.5
Age at marriage / Years	< 20	85	42.5
	20 _ 24	68	34.0
	25 _ 29	35	17.5
	30 _ 34	12	6.0
	Mean ± SD	21.28 ± 4.70	
Type of Antenatal care	Not attending	7	3.5
	Private clinic /Irregular attending	70	35.0
	Primary health care/Irregular attending	4	2.0
	Both/ Regular attending	119	59.5
	I		
Anemia	No	106	53.0
	Yes	92	47.0
Gestational Hypertension	No	197	98.5
	Yes	3	1.5
Taking Iron/Folic Acid supplementation regularly When?	1st trimester	187	93.5
	2nd trimester	9	4.5
	3rd trimester	1	0.5
	Not taking	3	1.5

Table (3): Indications for cesarean section among the study sample

Cesarean Section Indications		
Elective	**Frequency**	**%**
1. **Cephalopelvic Disproportion**	45	22.5
2. **Fetal Malpresentation**	38	19.0
3. **Mother Request**	21	10.5
4. **Post Term**	13	6.5
5. **Sever Oligohydramnios**	8	4.0
6. **Twin**	5	2.5
7. **Surgical Causes**	4	2.0
8. **In Vitro Fertilization (IVF)**	2	1.0
Total	**136**	**68**
Emergency	**Frequency**	**%**
1. **Fetal Distress**	26	13.0
2. **Obstructed Labor**	24	12.0
3. **Post Term**	9	4.5
4. **Intra Uterine Growth Restriction**	4	2.0
5. **Placental Causes**	1	0.5
Total	**64**	**32**

Table (4): Relationships among the Reproductive History, Indications for Cesarean Section, and socio-demographical characteristics (N=200)

Variables.	Reproductive History		Cesarean Section Indications	
	C.C.	P-value	C.C.	P-value
Maternal Age	0.299	0.001 (HS)	0.226	0.056 (NS)
Education	0.204	0.123 (NS)	0.0.172	0.300 (NS)
Occupation	0.169	0.123 (NS)	0.100	0.564 (NS)
Residency	0.232	0.001 (HS)	0.030	0.670 (NS)
Monthly Income	0.236	0.003 (HS)	0.100	0.366 (NS)
BMI	0.114	0.622 (NS)	0.077	0.878 (NS)
Type of Antenatal care	0.311	0.000 (HS)	0.134	0.304 (NS)