



CESAREAN SECTION RATE AND INFLUENCING FACTORS IN AL-KHOBAR CITY, EASTERN PROVINCE, KSA, 2016

Gynaecology

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ABSTRACT

Objectives: Alarming increases in cesarean section rates have been documented worldwide. The purpose of this study was to measure the cesarean section rate in Al-Khobar maternity care units and the frequency of influencing factors.

Methods: This retrospective cross-sectional study was conducted on women who had a cesarean section in maternity care units in Al-Khobar from July 2014 to July 2015. A total of 300 medical records were randomly selected with equal allocations from each maternity unit. Data were collected from medical records using a data collection sheet.

Results: The cesarean section rate was 31.9%. Half (50.01%) of the procedures were emergency cesarean sections, whereas 49.98% were elective procedures. Most cesarean sections occurred in private hospitals (91.35%), whereas 8.65% occurred in public hospitals.

Conclusion: More than one-third of the deliveries were cesarean sections. Emergency indications were more common in governmental hospitals than in private hospitals.

KEYWORDS

cesarean section, rate, emergency, Saudi

Cesarean section (CS) is a common procedure in medical practice (Rachatapantankorn & Tongkumchum, 2009). CS rate is an indicator of its utilization in the community (Long, Kempas, Madede, Klemetti, & Hemminki, 2015). It is challenging to set a minimum CS rate (Jurdi & Khawaja, 2004). In 1985, the WHO set a CS rate limit not exceeding 10-15% of total deliveries, declaring that rates above this limit do not contribute to better outcomes (Thomas & Paranjothy, 2001). On the other hand, according to UNICEF et al. (1997), a CS rate below 5% results in poor health consequences (Thomas & Paranjothy, 2001). Internationally, the UK and Canada have reported CS delivery rates of 20% and 22.5%, respectively. Domestically, the Hassan Ba'Aqeel study showed an 80% increase in the CS rate from 1997 to 2006 (Ba'aqeel, 2009).

A CS delivery is indicated for many reasons, and the indications include childbirth abnormalities, such as cephalopelvic disproportion (CPD), hemorrhage, preeclampsia and premature rupture of membrane (PROM). Other indications are previous CS, fetal malpresentation, malposition, fetal distress or multiple pregnancies (Al Rowaily, Alsalem, & Abolfotouh, 2014). Additionally, maternal age, maternal parity, mode of onset of labor, unbooked patients for antenatal care (ANC) and medical care practice play a role (Al-Kadri, Al-Anazi, & Tamim, 2015; Al Rowaily et al., 2014).

Rationale

The aim of this study was to measure the CS rate and influencing factors in all maternity care units (MCU) in Al-Khobar and to compare the CS rates between private and governmental hospitals. Another objective was to compare emergency and elective CS rates.

Methodology

This work was a retrospective cross-sectional study conducted at MCU in the Al-Khobar area. All women who delivered via CS from the 1st of July 2014 to the 1st of July 2015 were included in the study. Women who had no medical records at the MCU were excluded.

The private hospitals were Procure Hospital, GAMA Hospital, Al-Manaa Hospital and Saad Hospital. The only governmental hospital is King Fahd University Hospital. All hospitals were tertiary hospitals.

The CS rate was calculated by the ratio of total coverage to all

deliveries performed at all MCU. The study sample consisted of a total of 300 medical records of CS deliveries during the study period. The sample was equally allocated to each hospital; 60 medical records from each hospital were selected by systematic random sampling. The data collection sheet was designed based on demographic data and influencing factors from thorough literature review. The data collection sheet was reviewed and approved by one family consultant and one community medicine consultant. Data were coded, entered and analyzed on a personal computer using Statistical Package of Social Sciences (SPSS) version 21. Descriptive statistics were used to describe all socio-demographic factors and frequencies of influencing factors. The collected data were kept confidential and not used for any other reason. Required approval was gained from the hospitals involved in the study and from the Ministry of Health (MOH).

Results

Cesarean Section Rate

As shown in Table 1, 3,767 out of 12,074 deliveries were CS deliveries. As detailed in Table 1, the calculated CS rate was 31.19%.

Table 1. CS Rate among Private and Governmental Hospitals

Hospital	Elective CS	Emergency CS	Total CS	Total Deliveries	CS Rate (%)
KFUH (public)	115	211	326	1,244	26
Private 1*	512	467	979	4,232	23
Private 2*	517	409	926	1,972	46.9
Private 3*	407	355	762	2,151	35.4
Private 4*	332	442	774	2,475	31
Total private	1,768	1,673	3,441	10,831	31.77
TOTAL	1,883	1,884	3,767	12,074	31.19
	49.99	50.01%	100%		

* Hospitals were not labeled due to confidentiality issues.

Elective and Emergency CS Rate

Almost half of the CS deliveries (50.01%) were emergency deliveries, and 49.98% were elective deliveries. Only 8.65% of the CS occurred in public units, whereas the majority (91.35%) occurred in private units. Emergency CS constituted 64.7% of the total CS in the public sector and 48.6% of the total in the private sector.

Frequency of Maternal and Fetal Factors

Influencing factors were analyzed based on whether they were maternal or fetal. As shown in Table 2, approximately 80% of the sample had maternal factors. Previous CS scar contributed to the majority of CS deliveries (41.3%). A scar was an indication for CS delivery if the women had 2 or more previous CS. On the other hand, 10% of women had a failure to progress during labor, 9% had a CS delivery due to a tender scar from a previous CS delivery after labor, 8.7% had a failed labor induction and 7.7% had the complication of preeclampsia.

Table 2. Frequency of Maternal and Fetal Factors

Maternal Factor	Number (%)	Fetal Factor	Number (%)
Maternal factors	240 (80)	Fetal factors	121 (40.3)
CPD	11 (3.7)	Malpresentation	42 (14)
Failure to progress	30 (10)	Malposition	4 (1.3)
Previous scar	124 (41.3)	Fetal distress	51 (17)
Hemorrhage	7 (2.3)	Cord prolapse	2 (0.7)
Preeclampsia	23 (7.7)	Multiple pregnancy	19 (6.3)
Failed induction	26 (8.7)	Fetal macrosomia	2 (0.7)
PROM	11 (3.7)	Placental insufficiency	1 (0.3)
Maternal request	3 (1)	Oligohydramnios	4 (1.3)
Tender scar	27 (91)	IUFD	1 (0.3)

On the other hand, 40.3% of the sample had fetal factors that contributed to their CS. Fetal distress was the most common contributing fetal factor, constituting 17%.

Discussion

Cesarean Section Rate

As shown in this study, the CS rate exceeds the 15% threshold determined by the WHO, which is consistent with other studies (Al-Kadri et al., 2015). This high CS rate could be explained by inexperienced physicians, history of previous CS, fetal heart monitoring (FHM), unbooked patients, lack of educated mothers, inconsistent ANC and maternal request. Additionally, incontinence and pelvic repair surgeries might play a role (Adekanle, Adeyemi, & Fadero, 2008; Al-Kadri et al., 2015). Unfortunately, the repeated CS rate was documented to exceed 90% (Barber et al., 2011).

Cesarean Section Rate Among Private and Government Hospitals

There is clear difference in CS rates between private and governmental hospitals. This difference could be attributed to a higher proportion of private to government hospitals. It could also be attributed to a higher percentage of women that deliver in private care because they are seeking better quality service, privacy and convenient care (Hanvoravongchai, Letiendumrong, Teerawattananon, & Tangcharoensathien, 1998; Vieira, Fernandes, de Oliveira, Silva, & Vieira Tde, 2015). Additionally, physicians may be willing to perform CS delivery for convenience (time) or profitability (Hanvoravongchai et al., 1998; Jurdi & Khawaja, 2004). Other reasons for CS delivery were that women were avoiding labor pain, a longer delivery period or contraceptive sterilization post-delivery (Hanvoravongchai et al., 1998).

Elective and Emergency Cesarean Section Rates

There was no significant difference among emergency and elective CS rates, which differs from observations in other studies (Al Rowaily et al., 2014). Most CS performed in government hospitals were emergency deliveries, whereas elective CS were more frequent in private hospitals, warranting further studies. However, the reluctance to attempt vaginal delivery might explain this difference.

Demographic Data

Many studies have been conducted to evaluate the effect of maternal age on CS rate (Benli, Cetin Benli, Usta, Atakul, & Koroglu, 2015). The pattern of this study could be explained by increasing maternal complications with increasing maternal age. Moreover, women in their thirties have a high repeated cesarean section rate. The lower rates in women aged 40 years or older was opposite to what was found in other studies (Dietl, Cupisti, Beckmann, Schwab, & Zollner, 2015; Thomas & Paranjothy, 2001). This difference could be explained by fewer pregnancies occurring in this age group.

The highest percentage of CS was conducted in multiparous women with a history of CS, and the lowest percentage of CS occurred in multiparous women with no history of previous CS. Therefore, the

high rate among multiparous women with a history of CS could be justified by repeated CS, especially if they were aware of uterine rupture risk, which may have increased their anxiety (Barber et al., 2011). However, among women who did not have a previous CS, primigravida women were more likely to end up with CS due to failure to progress or fetal distress, especially with FHM (Tikkala, 2016). Additionally, less experienced junior doctors might contribute to this factor (Al-Kadri et al., 2015).

Regarding labor mode of onset, most women had a labor less than 12 hours, which raises concerns whether women are receiving adequate vaginal delivery time.

Almost two-thirds of the women were admitted 3 days or longer post-delivery. Additional profits for the private hospital and maternal preference might justify this observation.

In this study, the most common maternal indication was previous CS scar among women who had 2 more previous CS. Reduced performance of instrumental vaginal delivery (IVD) by a junior doctor might be a contributing factor to this issue (Patel & Murphy, 2004).

On the other hand, the most common fetal factor was fetal distress, which might be due to FHM. One study found that 74% of women with fetal distress were unbooked patients in the delivery hospital (Najmi, 1997). Additionally, fetal distress was found to have a high prevalence among induced labor (Najmi, 1997).

Study Limitations

There was difficulty acquiring approval from private hospitals as they did not have a clear policy. Maternal request was not recorded appropriately in medical records as a reason for CS, which minimized its proper assessment.

Conclusion

The CS rate among Al-Khobar MCU has exceeded the recommended threshold advised by the WHO. The emergency CS rate in private hospitals was almost equal to the elective CS rate; in contrast, the emergency CS rate was higher than the elective CS rate in governmental hospitals.

Recommendations

It is recommended that the MOH institutes specific protocols for the indication of CS delivery. Additionally, practice protocols among private and government hospitals should be studied. Physicians should have more training in IVD and external cephalic version (ECV) while increasing the awareness of young women about the risks of CS deliveries and the importance of their maternal pregnancy passport.

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