

## Comparison of the Elective and Emergent Ceasarean Section Complications in Kermanshah, Iran (2008-9)

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**Abstract: background:** The complications such as fever, hematoma, urinary tract infection and blood loss, are more frequent in emergent cesarean sections (C/S). We have conducted this study to compare the frequency of complications in two types of C/S. **Material and Methods:** This study conducted in Maternity Research Center (MRC) and two educational hospitals; (Motazedi and Imam Reza) in Kermanshah University of Medical Sciences, Kermanshah, Iran. It conducted on 512 cases of C/S performed in two educational health care centers (256 emergent and 256 elective C/S). Mothers with previous history of background diseases (diabetes, hypertension, lupus, history of twin birth, and history of corticosteroid therapy, microbial and fungal infections) during pregnancy and delivery were excluded from the study. For comparing the complications between two groups we used the, Chi square and Fisher's exact tests. **Results:** Our findings indicated that 40.6% of emergent C/S were performed due to disproportionate fetal head to maternal pelvic and 62.1% of elective C/S were performed due to previous C/Ss. APGAR scores of 1-6 were observed in first minute of 4.3% and fifth minute of 1.6% of neonates delivered with emergent C/S, and 3.5% and 0.8% in elective C/S respectively. In general, 12.5% of emergent C/S and 6.6% of elective C/Ss developed complications. **Discussions:** Our study indicates the C/S complications for both mother and neonate, and these complications are more frequently observed with emergent C/S.

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### Introduction

Cesarean section (C/S) is delivering a live fetus through a surgical incision on the abdominal and uterine walls, aiming primarily to save the mother's life. C/S has gradually gained broader applications. The objective of which is mentioned to be reducing mortality and complications for mothers and neonates during delivery (scott, 2003). Despite the fact that C/S reduces maternal and fetal mortality during delivery, studies conducted to this moment reveal certain dangers accompanying C/S. It has been reported that both emergent and elective types of C/S entail complications such as fever, surgical site hematoma, urinary tract infection, copious blood loss, low neonatal APGAR score and maternal sepsis (chhabra, 2007; chaillet, 2007; dimitrova, 2005). Apart from the complications, surgeons recommend and perform C/S under certain conditions in order to save mother and neonate's lives. Therefore, indications of C/S may be classified into two groups. One group involves emergent C/Ss, indicated for failure of delivery induction, cephalopelvic disproportion, and lack of delivery progress, proven fetal distress, placental abruption, placenta previa and umbilical cord prolapse which leave no choice for the physician but to perform C/S. The other group entails

elective C/Ss, including breech presentation, repeated C/S, fetal anomalies, history of myomectomy, macrosomia, intrauterine growth retard (IUGR) and cervical cancer (scott, 2003). Obstetrician surgeons and researchers have reported emergent C/S to involve complications more frequently (chhabra, 2007; villar, 2007). Thus, it has been recommended to inform mothers about the risks of C/S, particularly the emergent C/Ss, and encourage them to abstain from unnecessary C/Ss and choose normal delivery (silver, 2010), because the accompanying risks of C/S increases mortality in mothers and neonates as well (villar, 2007). It is important to note that despite the fact that C/S is performed to reduce complications of delivery for mothers and neonates, it involves its own risks which increase maternal and fetal mortality. Thus, we have conducted this study the aforementioned research, conducted based on the approved formalities of the university, in order to find and compare the frequency of complications (suture disintegration, surgical site hematoma, neonatal APGAR score, length of hospital stay, surgical site infection and fever) after elective and emergent C/Ss in women who had given birth in two educational hospitals in

Kermanshah University of Medical Sciences in 2008-9.

### Materials and Methods

This is a cohort study, using patients' medical records for selecting of cases and follow up them for 6 weeks. All cases of C/S were selected from the entire files of women who had undergone C/S discharged from hospital due to the patients' written consent. Patients selected by convenience sampling in MRC and two educational hospitals (Motazedi and Imam Reza), in Kermanshah from March 21, 2008 to March 19, 2009. For data collection; first the medical records were studied, and next patients visited by the chief resident. The project carried out within the first week of study daily within 7 days, then once a week for 5 weeks for complications such as suture disintegration, surgical site hematoma, neonatal APGAR score, length of hospital stay, surgical site infection and fever. Assuming prevalence of complication equal 51.5% and 65.4% in emergent and elective C/S patients respectively in previous studies(villar,2007), with 95% confidence level and 90% power of test, we calculated the sample size by using the "comparison of two percent formula", we needed to have at least 259 patients in each group. In the end, regarding our limitation (due to the low

willingness of cooperation in filling out the questionnaires, 3 persons were omitted in each group.) all of elective C/Ss (256 patients) in above period were selected. Then 256 cases from emergent C/Ss were matched and selected in the same time. Data were collected by using a data collection form specifically designed based on the objectives and the variables of our study. In this study, the confounding variables (mothers with history of background diseases such as diabetes, hypertension, lupus, twin birth, corticosteroid therapy, and microbial and fungal infection) were excluded. Furthermore, cases of amniotic rupture, fever and fetal anomalies during C/S were also excluded from our study. For comparing of complications between two groups we used the Chi square and Fisher's exact tests and SPSS 16.0 software. The level of significant for tests was <0.05 considered.

### Results

The findings of our study indicated that most number of C/S and gestational age matched in the two groups, but age categories not matched indicating the cephalopelvic disproportion (40.6% of cases) and umbilical cord prolapse (1.2%) to be the most and the least frequent causes of emergent C/S, respectively (table 1).

Table (1): Comparison of demographic variables distribution in two type cesarean section

variables		elective N (%)	emergency N (%)	P value
Most No C/S	First time	134 (52.3)	144 (56.3)	0.374
	Repeat	122(47.7)	112 (42.7)	
Mother age (year)	<25	108(42.2)	57(22.3)	0.001
	25-29	76(29.7)	118(46.1)	
	30-34	49(19.1)	81(31.6)	
	35+	23(9)	0(0)	
Gestational age	term	187(73)	108 (69.5)	0.378
	Pre term	69(27)	78 (30.5)	

Furthermore, previous C/S (62.1%) and transverse lie (3.1%) were the most and the least frequent causes of

elective C/S, respectively. 2% of cases of elective C/S were performed due to "Other Causes" (table 2).

Table (2): Frequency distribution of causes in emergency and elective cesarean cases

Cesarean type	Cause of Ceasarean	Number (Percent)
Emergency	CPD	104 (40.6)
	Fetal distress	54 (21.1)
	Preeclampsia	42 (16.4)

	Meconium	23 (9)
	Failure to progress	21 (8.2)
	Placenta abruption	6 (2.3)
	Placenta previa	3 (1.2)
	Prolapsed of placenta	3 (1.2)
	Total	256 (100.0)
Elective	Previous Ceasarean	159 (62.1)
	Breech presentation	50 (19.55)
	Macrosomia	11 (4.3)
	HX of APR	10 (3.9)
	IUGR	12 (4.7)
	Transverse Presentation	8 (3.1)
	Others	6 (2.35)
	Total	256 (100.0)

Emergent C/Ss yielded APGAR scores of 1-6 in 4.3% and 1.6% of cases in the first and fifth minutes of birth, respectively (P=0.816). The APGAR scores of elective C/Ss were 1-6 in 3.5% and 0.8% of cases in the first and fifth minutes, respectively (P=0.411). Hospital stays of 5 days or more occurred in 8.6% of emergent C/Ss and 2.7% of elective C/Ss (P=0.001).

In general, 6.6% of elective C/Ss developed complications, including fever (5.4%), (P=0.012), surgical site infection (0.4%), and surgical site hematoma (0.8%). 12.5% of emergent C/Ss developed complications, including fever (11.7%), surgical site infection (0.4%) and surgical site hematoma (0.4%), (table 3).

Table (3): Comparison of complications between elective and emergency cesarean cases

Variables	C/S types	Emergency Number (Percent)	Elective Number (Percent)	P. Value
First minute APGAR < 7		9 (3.4)	10 (3.5)	0.816
Fifth minute APGAR < 7		4 (1.6)	2 (0.8)	0.411
2 days of admission		68 (26.6)	110 (42.8)	0.001
3 days of admission		116 (45.3)	114 (44.5)	
4 days of admission		50 (19.5)	26 (10.1)	
admission ≥ 5 days		22 (8.6)	7(2.6)	
fever		30 (11.7)	14 (5.4)	0.012
Surgical site infections		1(0.4)	1 (0.4)	0.999
Surgical site hematoma		2 (0.8)	2 (0.8)	0.999

No cases of surgical site cellulites, urinary tract infection, vesicle injury or suture disintegration were observed in either group.

### Discussion

The finding of our study clearly reveals that the sought after complications occur more frequently in emergent C/S compared to elective. On the other hand, those complications observed with emergent C/S occur ones elective C/S, as well, although to a lesser extent. Surgical site hematoma, however, occurred more frequently in elective C/S which was

unexpected. Post-surgical fever was the most frequent complication in both groups.

According to our findings, disproportionate fetal head to maternal pelvic is the most common cause of emergent C/S, whereas previous C/Ss constituted the most common cause of elective C/S. Furthermore, our study indicates a difference in first and fifth minute APGAR scores of newborns delivered with each type of C/S. APGAR scores of lower than 7 were more frequent in neonates delivered via emergent C/S.

Complications such as cellulites, urinary tract infection, and surgical incision disintegration were not observed in any of our cases.

Findings reported by previous researchers have revealed numerous complications following C/S. In a study conducted during the period 1989 to 93, complications such as fever, urinary tract infection, and surgical site infection were observed with greater frequency compared to our study; however, the first minute APGAR score of neonates of mothers with elective C/S was better than ours (marcollet, 2002) which may reflect better neonatal care. In contrast, another study reported fewer complications in both elective and emergent C/Ss compared to our study (dimitrova, 2005), although medical advances have changed the conditions of performing C/S since then. Two studies have evaluated post C/S complications (silver, 2010, berghoolet, 2003) both of which have reported greater frequencies for both elective and emergent C/S compared to our findings, although one of them, conducted in 1983, is chronologically outdated. One of the issues assessed in our study is the cause of C/S. Another study on the same issue reported fetal distress (inappropriate heartbeat) and lack of delivery progress as the most common causes of C/S (silver, 2010). Some studies have referred to intra-abdominal adhesion bands following C/S as a result of surgical manipulation of the viscera and even the powder of surgical gloves (hillemanns, 2003; Wikipedia, 2011). Follow up of C/S patients may reproduce similar results. Generally speaking, most studies indicate that complications are more frequent with C/S than normal

delivery (hader, 2011; grivell, 2011; lynch, 2003).

Regarding the low scoring of APGAR, the results of our study is similar to that of the other researches, but there has been no clear pointing-out regarding the incisional hematoma.

Conclusion: The findings of our study, as well as other similar studies, indicate that performing C/S, whether emergently or electively, entails complications for mother and newborn which are more frequent with emergent C/S. Our study and other similar studies have differences regarding the type and frequency of complications which may be accounted for by chronologic separation, advances in surgical techniques, different techniques used and also the function of surgery team. We recommend that researchers should focus on the causes of C/S and the possible methods of circumventing them in order to facilitate and encourage normal delivery. It is recommended, due to generalization of the results, similar studies to be performed by more sampling volumes.

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