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Original Research Article

Maternal Outcome in Elective Vs Emergency Caesarean Section at A Tertiary Care Center

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Conflict of interest: Nil

Abstract:

Objective: To study the maternal outcome in elective vs emergency caesarean section at a tertiary care center.

Material and method: The study was conducted for one year. Patients irrespective of gestation age undergoing caesarean sections at our tertiary referral center were enrolled. The study was conducted after obtaining the approval of the institutional ethics committee. In this study twogroups of pregnant females were studied.

Group 1: Women who underwent elective caesarean section.

Group 2: Women who underwent emergency caesarean section.

Results: There were total 3296 deliveries during the study period. Out of total deliveries, 1306 women with singleton pregnancy underwent LSCS. There were 917(70.2%) emergency LSCS and 389(29.8%) elective LSCS. Maternal outcomes were recorded and compared between elective and emergency LSCS group. In the present study, maternal complications were seen in 41.3% of emergency LSCS as compared to 20.3% of elective LSCS. The maternal intraoperative complications were seen in 23.6% of emergency LSCS as compared to 12.3% of elective LSCS. Maternal postoperative complications were seen in 17.7% cases in emergency group as compared to 8% in elective group.

Conclusion: Maternal intraoperative complications were more (23.6%) in emergency group as compared to elective group (12.3%). It was statistically significant. Maternal postoperative complications were more (17.1%) in emergencygroup as compared to elective group (7.7%). It was statistically significant.

Keywords: Maternal Outcome, Elective Caesarean Section, Emergency Caesarean Section.

Introduction

Caesarean delivery is defined as birth of the fetus through an incision in the abdominal wall and the uterine wall. [1] The removal of fetus from the abdominal cavity as abdominal ectopic pregnancy or rupture of uterus is excluded.[2] Most common obstetric major surgical procedure performed now a days is Caesarean section. Its rate varies internationally from 10 to 25%. [3] World Health Organization suggested that caesarean rate should not exceed 15%, but the rate is rising. Caesarean sections lead to short-term and long-term risks and affect the health of the mother, her child and also future pregnancies. [4]

Mortality rate in caesarean section is about 5.8 per 100,000 deliveries and the caesarean section morbidity accounts for 27.3 per 1,000 deliveries compared to normal delivery, which has a morbidity of 9 per 1,000 deliveries. [5]

Caesarean section (CS) used to be carried out primarily for obstetric indication. However now a days, other factors such as reduced risk to the mother as a result of improved anesthetic procedures and surgical techniques, elective caesarean section in view of breech presentation or previous caesarean section have contributed to change in obstetric practice. [6] The major causes of mortality in 19th century were hemorrhage and infections. Aseptic and antiseptic methods with antibiotic therapy, use of blood transfusion as well as improved anesthetic measures have all contributed to the dramatic decline in mortality seen during that century.[7] The disadvantages of caesarean section are much more as compared to normal vaginal delivery. This is not only due to

pain and trauma associated with an abdominal operation, but also because of the other complications that may be associated with it.[8] It is expensive in terms of cost of the procedure and also the duration of postpartum stay in the hospital.[9]

The nature of the caesarean section performed is generally predicted depending upon the indication of caesarean section.[11] Caesarean deliveries are classified as elective if the operation is decided before the onset of labor. Caesarean deliveries are classified as an emergency when the patients are admitted in labor or the CS is not scheduled/pre-planned and there is a concern of impending feto-maternal compromise.[12] The complications that arise from elective caesarean sections are much less as compared to emergency caesarean sections.[13]

After excluding medical disorders and antenatal complications, the relative risk of intrapartum complications in emergency caesarean compared with elective caesarean is approximately 1.7: 1.0. [14] Emergency caesarean birth in labor has been associated with an increased chance of sepsis, bleeding (increasing the requirement of blood transfusion) and deep venous thrombosis when compared with both elective caesarean birth and vaginal birth.[10]

Aim of the study was to compare the maternal outcome of emergency and elective LSCS at a tertiary care center.

Materials and Methods

A prospective comparative study of one year was conducted in the department of Obstetrics and Gynaecology at Rajindra Hospital, Patiala from June 2020 to May 2021.

Patients irrespective of gestation age undergoing caesarean sections at our tertiary referral center were enrolled. The study was conducted after the approval of institutional ethics committee. In this study, two groups of pregnant females were studied.

Group 1: Women who underwent elective caesarean section

Group 2: Women who underwent emergency caesarean section

Patients fulfilling inclusion criteria were enrolled in the study. Complete history of the patient was taken. Examination along with relevant investigations was carried out.

Inclusion criteria

All pregnant women with singleton pregnancy, irrespective of parity status, with or without pregnancy associated complications, with or without medical or surgical high risk, with any gestational age undergoing lower segment caesarean sections at our tertiary referral center, irrespective of their registration status (patients who are referred at the time of delivery and those registered in the antenatal period) were included.

Exclusion criteria

Vaginal deliveries, multiple pregnancies and classical caesarean section were excluded from the study. Caesarean sections in covid positive subjects were also excluded from the study.

Data relating to socio-demographic information, previous obstetric history, associated medical conditions were collected for each case. Maternal age, parity, presence of maternal risk factors, history of previous CS, indication of CS in current pregnancy, fetal presentation (cephalic or non-cephalic), gestational age at delivery, type of anesthesia were recorded. Maternal intraoperative and postoperative complications were documented

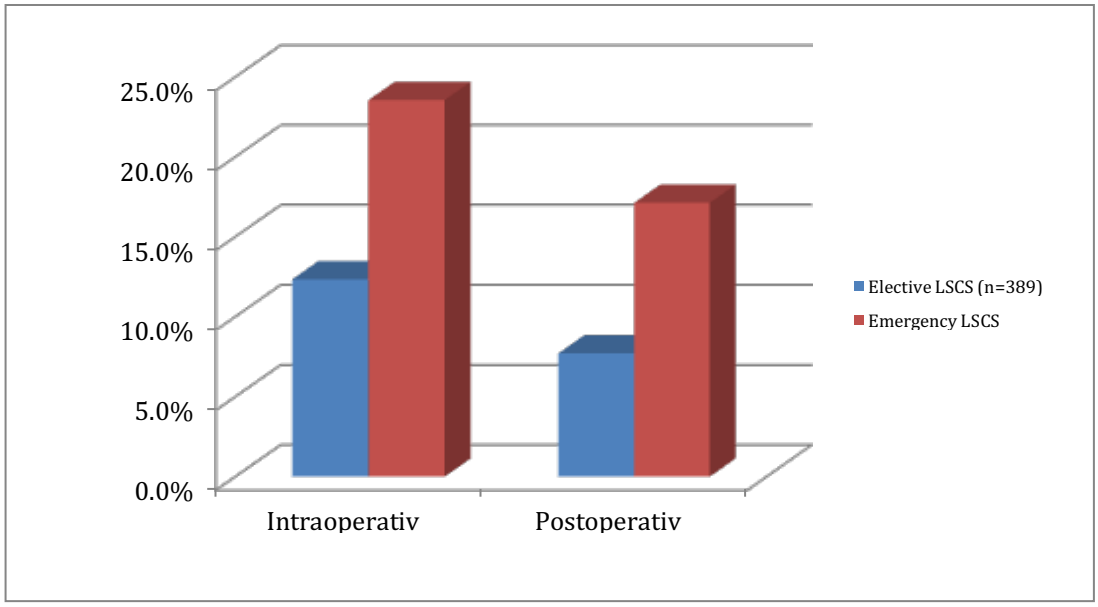
Observations and Results

There were total 3296 deliveries during the study period. Out of total deliveries, 1306 women with singleton pregnancy underwent LSCS. There were 917(70.2%) emergency LSCS and 389(29.8%) elective LSCS. Maternal outcomes were recorded and compared between elective and emergency LSCS group. The data obtained was compiled and analyzed statistically using Chi-square test and T-test. Significant P-value was taken as <0.05.

Table 1: Distribution of Subjects According to MaternalComplications

Maternal complications	Elective LSCS (n=389)		Emergency LSCS (n=917)	
Intraoperative	48	12.3%	216	23.6%
Postoperative	31	8%	162	17.7%
Total	79	20.3%	378	41.3%

Table 1 show maternal complications were more in emergency group (41.3%) as compared to elective group (20.3%).



Graph 1: Distribution of Subjects According to MaternalComplications

Table 2: distribution of subjects according to maternalintraoperative outcomes

MaternalOutcome		Mode of delivery				Total	Chi-square value	P-value
		Elective LSCS (n=389)		Emergency LSCS (n=917)				
Hemorrhage	No	386	99.2%	877	95.6%	1263	11.061	0.000
	Yes	3	0.8%	40	4.4%	43		
Uterine atony	No	388	99.7%	912	99.5%	1300	0.496	0.676
	Yes	1	0.3%	5	0.5%	6		
Blood transfusion	No	359	92.3%	806	87.9%	1165	5.472	0.019
	Yes	30	7.7%	111	12.1%	141		
Broad ligament hematoma	No	389	100%	915	99.8%	1304	0.850	0.357
	Yes	0	0%	2	0.2%	2		
Adhesions	No	379	97.4%	892	97.3%	1271	0.025	0.873
	Yes	10	2.6%	25	2.7%	35		
Placentaaccreta	No	388	99.7%	914	99.7%	1302	0.044	0.834
	Yes	1	0.3%	3	0.3%	4		
Need of uterotonics	No	387	99.5%	906	98.8%	1293	1.302	0.254
	Yes	2	0.5%	11	1.2%	13		
Intrapartum eclampsia	No	389	100%	909	99.1%	1298	3.415	0.114
	Yes	0	0%	8	0.9%	8		
Caesarean hysterectomy	No	388	99.7%	906	98.8%	1294	2.665	0.103
	Yes	1	0.3%	11	1.2%	12		
Maternal intraoperative outcomes	No	341	87.7%	701	76.4%	1042	21.303	0.001
	Yes	48	12.3%	216	23.6%	264		

Table 2 shows that maternal intraoperative complications were seenin 12.3% subjects in elective group as compared to 23.6% subjects in emergency group, which was statistically significant (P value – 0.001). There were significantly more cases of hemorrhage (P value — 0.000) and need ofblood transfusion (P value — 0.019) in emergency group as compared to elective group.

Table 3: Distribution of Subjects According to Maternal Postoperative Outcomes

MaternalOutcome		Mode of delivery				Total	Chi- square value	P-value
		Elective LSCS (n=389)		Emergency LSCS(n=917)				
PPH	No	385	99%	909	99.1%	1294	0.073	0.787
	Yes	4	1%	8	0.9%	12		
Fever	No	386	99.2%	893	97.4%	1279	3.627	0.057
	Yes	3	0.8%	24	2.6%	27		
Abdominaldistention	No	388	99.7%	903	98.5%	1291	3.878	0.050
	Yes	1	0.3%	14	1.5%	15		
Wound sepsis	No	389	100%	909	99.1%	1298	3.415	0.114
	Yes	0	0%	8	0.9%	8		
Respiratory tract infection	No	385	99%	913	99.6%	1298	1.573	0.248
	Yes	4	1%	4	0.4%	8		
UTI	No	388	99.7%	893	97.4%	1281	8.102	0.004
	Yes	1	0.3%	24	2.6%	25		
Headache	No	388	99.7%	913	99.6%	1301	0.229	0.632
	Yes	1	0.3%	4	0.4%	5		
Prolonged catheterization	No	380	97.7%	885	96.5%	1265	1.242	0.265
	Yes	9	2.3%	32	3.5%	41		
Anemia	No	386	99.2%	908	99%	1294	0.133	0.716
	Yes	3	0.8%	9	1%	12		
Burst abdomen	No	388	99.7%	916	99.9%	1304	0.391	0.532
	Yes	1	0.3%	1	0.1%	2		
Wound dehiscence	No	388	99.7%	891	97.2%	1279	8.976	0.003
	Yes	1	0.3%	26	2.8%	27		
Paralytic ileus	No	388	99.7%	917	100%	1305	2.359	0.298
	Yes	1	0.3%	0	0%	1		
Unhealthylochia	No	389	100%	916	99.9%	1305	0.425	0.515
	Yes	0	0%	1	0.1%	1		
Electrolyte abnormality	No	388	99.7%	915	99.8%	1303	0.018	0.893
	Yes	1	0.3%	2	0.2%	3		
Maternalmortality	No	388	99.7%	912	99.5%	1300	0.496	0.481
	Yes	1	0.3%	5	0.5%	6		
Maternal PostoperativeOutcomes	No	358	92%	755	82.3%	1113	20.394	0.000
	Yes	31	8%	162	17.7%	193		

Table 3 shows that maternal postoperative complications were seen in 8% subjects in elective group as compared to 17.7% in emergency group, which was statistically significant (P value – 0.000). There were significantly more cases of abdominal distension (P value – 0.050), UTI (P value — 0.004) and wound dehiscence (P value — 0.003) in emergency group as compared to elective group.

Discussion

The present study was a one year prospective study conducted in the Department of Obstetrics and Gynecology Government Medical College and Rajindra hospital Patiala. The study aimed to compare fetal and maternal outcome in elective and emergency LSCS. Before starting the study, permission was taken from ethical/ research committee of the institution.

There was total 3296 deliveries during the study period. Out of total deliveries, 1306 singleton women underwent LSCS. There were 917(70.2%) emergency LSCS and 389(29.8%) elective LSCS.

In the present study, maternal complications were seen in 41.3% of emergency LSCS as compared to 20.3% of elective LSCS. Emergency LSCS were associated with significantly more maternal complications as compared to elective LSCS. This finding was similar to the studies by Raees M et al. (2013)[17], Thakur V et al. (2015)[18], Burshan NM et al. (2015)[24], Diana V et al. (2016)[20], Soren R et al. (2016)[21], and Darnal N et al. (2020)[23]. Burshan NM et al. (2015)[24] reported 46.9% of maternal complications in emergency group and 24.4% in elective group, which was comparable to our study.

In the present study, the maternal intraoperative complications were seen in 23.6% of emergency LSCS as compared to 12.3% of elective LSCS.

There were significantly more intraoperative complications in emergency group as compared to elective group (P value - 0.001). It was comparable to the study by Renuka PA et al. (2016)[19] in which they reported intraoperative complications in 34.7% of emergency LSCS and 10% of elective LSCS.

Table 4: Comparison of Hemorrhage (Intraoperative) in Elective and Emergency Group

Author	Haemorrhage	
	Elective	Emergency
Ashraf R et al. (2006)[15]	2.6%	3.8%
Present Study	0.8%	4.4%

Table 4 shows comparable incidence of hemorrhage in the study done by Ashraf R et al. (2006)[15] with the present study.

Table 5: Comparison of Blood Transfusion(Intraoperative) in Elective and Emergency Group

Author	Blood transfusion		P value
	Elective	Emergency	
Thakur V et al. (2015)[18]	5.17%	22.53%	0.000
Darnal N et al. (2020)[23]	7.6%	14.1%	0.02
Present study	7.7%	12.1%	0.019

Table 5 shows blood transfusions were significantly more in emergency group as compared to elective group (P value – 0.019) in the present study, which was comparable to the study done by Thakur V et al. (2015)[18] and Darnal N et al.(2020).[23]

Table 6: Comparison of Caesarean Hysterectomy in Elective and Emergency Group

Author	Caesarean hysterectomy		P value
	Elective	Emergency	
Ashraf R et al. (2006)[15]	0.6%	0.9%	
Thakur V et al. (2015)[18]	0	0.04%	0.59
Gurunule AA et al. (2017)[22]	1%	0	0.24
Present Study	0.3%	1.2%	0.103

Table 6 shows no statistically significant difference in the need of caesarean hysterectomy in emergency and elective groups (P value- 0.103) in the present study, which was comparable to the study done by Thakur V et al. (2015)[18] and Gurunule AA et al. (2017).[22]

Table 7: Comparison of Broad Ligament Hematoma in Elective and Emergency Group

Author	Broad ligament hematoma		P value
	Elective	Emergency	
Renuka PA et al. (2016)[19]	0	0.7%	
Gurunule AA et al. (2017)[22]	0.3%	1.7%	0.21
Present Study	0%	0.2%	0.357

Table 7 shows no statistical significance of occurrence of broad ligament hematoma in emergency and elective group (P value- 0.357), which was comparable to the study done by Gurunule AA et al. (2017).[22]

Table 8: Comparison of Incidence of Maternal Postoperative Complications in Emergency and Elective Group

Author	Maternal postoperative complications	
	Elective	Emergency
Ashraf R et al. (2006)[15]	6.6%	14.28%
Gurunule AA et al. (2017)[22]	5%	13.3%
Present study	8%	17.7%

In the present study, maternal postoperative complications were seen in 17.7% cases in emergency group as compared to 8% in elective group.This was comparable to the study done by Ashraf R et al. (2006)[15] and Gurunule AA et al. (2017).[22]

Table 9: Comparison of Wound Dehiscence in Elective and Emergency Group

Author	Wound dehiscence		P value
	Elective	Emergency	
Thakur V et al. (2015)[18]	4.74%	6.51%	0.000
Renuka PA et al. (2016)[19]	0	2.7%	
Present study	0.3%	2.8%	0.003

Table 9 shows wound dehiscence was significantly higher in emergency group as compared to elective group (P value – 0.003) in the present study. It was comparable to the study done by Thakur V et al. (2015).[18]

Table 10: Comparison of Maternal Mortality in Elective and Emergency Group

Author	Maternal mortality		P value
	Elective	Emergency	
Soren R et al. (2016)[21]	0%	0.42%	0.15
Gurunule AA et al. (2017)[22]	0%	0.3%	1.0
Present study	0.3%	0.5%	0.676

Table 10 shows there was no statistical difference in maternalmortality between elective and emergency group (P value — 0.676) in the present study. It was comparable to the study done by Soren R et al. (2016) [21] and Gurunule AA et al. (2017).[22]

Table 11: Comparison of Other Postoperative Complications in Elective and Emergency Group

Author	Respiratory tract infections			Paralytic ileus		
	Elective	Emergency	P Value	Elective	Emergency	P Value
Soren R etal. (2016)[21]	2.08%	3.69%	0.56	0.16%	0	0.12
Presentstudy	1%	0.4%	0.248	0.3%	0%	0.298

Table 11 shows no statistically significant difference in the occurrence of respiratory complications (P value – 0.248) and paralytic ileus(P value — 0.298) between emergency and elective groups in the present study. Similar results were seen in the study done by Soren R et al. (2016).[21]

Conclusion

Maternal intraoperative complications were more (23.6%) in emergency group as compared to elective group (12.3%). It was statistically significant. Maternal postoperative complications were more (17.1%) in emergency group as compared to elective group (7.7%). It was statistically significant.

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