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Research Article

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Maternal and Fetal Outcomes in Elective and Emergency Caesarean Section at Ali Omar Asker Hospital, 2016

Turaia Abdalmaksod[@1,2] and Zahra Ibran[1]

[1]Department of Obstetrics and Gynecology department, Tripoli Medical Center

[2]Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tripoli, Libya

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ABSTRACT

Caesarean section (CS) is one of the most performed surgical procedures all over the world and its incidence is increasing throughout the world. This increasing rate does not seem to improve the overall fetal outcome but is associated with increased morbidity and costs. The study aimed to compare the maternal and fetal outcomes in elective versus emergency caesarean sections in Ali Omar Asker hospital.

Retrospective study was carried out at obstetrics and gynecology department of Ali Omar Askar hospital, Sebea, including 600 womenwho underwent caesarean section. The data was collected from the medical records; demographic andobstetrics characteristics, maternal and fetal morbidity, and mortalities outcomes were analysed by SPSS program version 16.

A total of 331 (55.2%) respondents underwent emergency SC whereas 269 (44.8%) hadelective CS. The mean age of pregnant women in this study was 31 ± 6 years; most ofthewomen were term between 37- 40 weeks. The most common indication for cesarean delivery was a previous CS (41.2%). The most common intra operative complication was excessive bleeding; presented more in emergency group (9.4%). Regarding postoperative complication, anaemia was more frequent in emergency group (50.4%) as compared to elective group (36.5%). Neonatal death reported in 9 cases (1.5%). Majority (86.2%) of neonates had no complication, while the remaining show respiratory distress syndrome, birth asphyxia, neonatal sepsis, meconium aspiration, more common in emergency than elective group (P= 0.025).

Maternal and fetal morbidity was found to be more in emergency caesarean sections than in elective caesarean sections deliveries.Careful antenatal and intranatal management to decrease the risks and complications is recommended.

Key words- *Caesarean section; Emergency; Elective; Complication; Maternal; Fetal .*

INTRODUCTION

Caesarean section (CS) is one of the most commonly performed abdominal operations in women worldwide.[1]It is a life-saving surgical procedure when certain complications arise during pregnancy and labour. However, it is a major surgeryassociated with immediate maternal and perinatal risks, and may have implications for future pregnancies as well as long-term effects that are still being investigated.[2-5] In the past 30 years, the rate of caesarean section has steadily increased from 5% to more than 20%, the reason being, avoidance of mid-forceps and vaginal breech deliveries, use of fetal monitoring during labour and the belief that caesarean section will reduce perinatal mortality.[6]

The rates vary widely by country, health care facility, and delivering physician, partly because of differing perceptions of its benefits and risks by health care providers as well as by pregnant women.[7]

Short- and long-term maternal and infant problems associated with caesarean section are higher than those associated with vaginal birth.[8,9] The short-term adverse associations of cesarean delivery for the mother, includes infection, haemorrhage, visceral injury, and venous thromboembolism.[10]

Postpartum maternal morbidity associated with caesarean sections include wound sepsis, postpartum hemorrhage, endometritis, chest infection, septicemia, febrile morbidity, blood transfusion complications, abdominal distension and burst abdomen, prolonged catheterization, and urinary tract infections. Elective caesarean may reduce the incidence of emergency caesarean that is associated with high maternal morbidity and mortality.[11]

Increasing rate and number of cesarean deliveries are known to be associated with fetal risks including prematurity, low Apgar score, stillbirth, and early neonatal death.[12]

As a major surgical procedure, CS not only predisposes short term adverse events to pregnant women, and in infants, but also long-term obstetric risks in the subsequent pregnancy such as placenta previa, morbidly adherent placenta, and uterine rupture The risks of adverse outcomes following CS increase with an increased number of CS.[13,14]

About one-third of performed caesarean sections are repeat procedures. Repeat caesarean sections are associated with an increased incidence of placenta praevia and placentaaccreta, scar dehiscence and rupture.[15]

@ Author to whom correspondence should be addressed: Dr. Turaia Almaksoud*; e-mail:*tutu_mak@yahoo.com*; Tel. 00218 925054922.*

The type of CS, whether it is emergency or elective, may have an impact on the neonatal outcome. Among term babies, the risk of neonatal respiratory distress necessitating oxygen therapy is higher if delivery is by CS.[16] It has been recognized that most studies looking at the risk of CS may have been biased, as women with medical or obstetric problem were more likely to have been selected for an elective CS. Thus, the occurrence of poor maternal or neonatal outcomes may have been due to the problem necessitating the CS rather than to the procedure itself.[16]

The study was conducted to compare the maternal and fetal outcomes in elective versus emergency caesarean sections at Ali Omar Asker hospital.

MATERIALS AND METHODS

This study was cross sectional type. It was conducted at the department of obstetrics and gynecology in Ali Omar Askar Hospital – Sebea; during 6 months periodfrom 1st of June to 31 December 2016. Six hundred pregnant women who underwent an elective and emergency caesarean section were included. The data was collected from the medical records; by using case sheet, which consisted of three sections. Section one includes maternal characteristics (maternal age, parity, gestation age, indication of cesarean section, number of caesarean section, types of caesarean section). Section two includes maternal morbidity outcome variables as intraoperative injury, postpartum hemorrhage, blood transfusion, wound infection, spinal headache, postoperative fever; and section three includes variables about neonatal morbidity outcome (Apgar score, cause of NICU admission, length of stay in nursery and outcome of baby alive or died).

Data were analyzed using the statistical Package for Social Sciences (SPSS version 16; SPSS Inc., IBM, USA). The frequency, percentage, mean, and standard deviation were computed. The Chi-square was implemented. The 5% level was chosen to judge the significance of the obtained results.

RESULTS

Overall, 600 cases of cesarean section were carried during the study period. There were 269 (44.8%) mothers whohad elective caesarean section and 331 (55.2%) had emergency caesarean section.

The mean age of pregnant women in this study was (31 ± 6 years) with youngest age was 18 years and oldest age was 44 years. The majority of patients (49.2%) were between 31- 40 years. In elective caesarean section, less than 20 years was about (0.4%), 20-30 years was (36.8%), and more than 40 years was about (4.8%), while in emergency caesarean section those less than 20 years were (3%), 20-30 years were (52%), and more than 40 years (3%).

Regarding the parity distribution, most of the patients (60.8%) were multipara, the maximum parity was 8 and the minimum parity was 1, with mean of 2 ±1.7.In elective caesarean section group (23.4%) were para one and (76.6%) were multipara; whereas in the emergency caesarean section group (52%) were para one and (48%) were multipara. The present study showed that the maximum gestational age was 42 weeks and the minimum gestational age was 30 weeks with mean of 38.3 ±1.5, most of women were term between 37- 40 weeks (84.3%) (Table 1).

Table 1: Participants' characteristics according to type of caesarean section

Character	Type of CS		Total
	Elective	Emergency	
Age			
<20	1(0.4%)	10(3%)	11(1.8%)
20-30	99 (36.8%)	172(52%)	271(45.2%)
31-40	156(58%)	139(42%)	295(49.2%)
>40	13(4.8%)	10(3%)	23(3.8%)
Parity			
Primiparous	63 (23.4%)	172(52%)	235(39.2%)
Multiparous	206(78.6%)	159(48%)	365(60.8%)
Gestational Age			
<37	5(1.9%)	38(11.5%)	43(7.2%)
37-40	253(49.1%)	253(76.4%)	506(84.3%)
>40	11(4.1%)	40(12.2%)	51(8.5%)

Detailed analysis of the cases showed that the number of patients who underwent primary section were (34.2%) and repeated caesarean were (65.8%). Most common indication was previous caesarean section (41.2%). Among those who had elective caesarean sections, most indication was previous caesarean section (68.8%) and oligohydraminous (7.1%) and precious pregnancy (6.7%); while in emergency caesarean section group, fetal distress (34.1%), previous caesarean section (18.7%) and failure to progress (16%) were the main indications. The association between indication and type of caesarean was statistically significant (*P*- value <0.0001) (Table 2).

Table 2 : Indiction of ceasrean section according to its type

Indication	Elective	Emergency	Total
Previous CS	185(68.8%)	62(18.7%)	247(41.2%)
Fetal Distress	0	113(34.1%)	113(18.8%)
Failure to progress	0	53(16%)	53(8.8%)
Malpresentation	15(5.6%)	29(8.8%)	44(7.3%)
History of infertility, BOH	18(6.7%)	9(2.7%)	27(4.5%)
Oligohydraminous	19(7.1%)	3(0.9%)	22(3.7%)
Hydrocephalus	11(4.1%)	11(3.3%)	22(3.7%)
Twin pregnancy	4(1.5%)	11(3.3%)	15(2.5%)
Macrosomia	7(2.6%)	8(2.4%)	15(2.5%)
PET	0	12(3.6%)	12(2%)
Abruptio placenta	0	9(2.7%)	9(1.5%)
Placenta previa	7(2.6%)	2(0.6%)	9(1.5%)
Cord prolapse	0	5(1.5%)	5(0.8%)
Rupture uterus	0	1(0.3%)	1(0.2%)
Others	3(1.1%)	3(0.9%)	6(1%)
Total	269(100%)	331(100%)	600(100%)

The most common intra operative complication was excessive bleeding; presented more in emergency group (9.4%). There was a significant difference between two groups (*P*- value = 0.009). Increase the frequency of extension of uterine incision among emergency cesarean section group (*P* value = 0.001). Bladder injury was seen in emergency groups (1.2%). Only one caesarean hysterectomy was performed in emergency group (0.3%) because of uterine atony and heavy bleeding.

Table 3: Intraoperative complication according to type of caesarean section

Complication	Elective	Emergency	Total	*P* value
Haemorrhage	10(3.7%)	31(9.4%)	41(6.8%)	0.009
Extension of uterine incision	6(2.2%)	29(8.8%)	35(5.8%)	0.001
Bladder injury	0	4(1.2%)	4(0.7%)	NS
Hysterectomy	0	1(0.3%)	1(0.2%)	NS
No complication	253(94%)	266(80.3%)	519(86.5%)	NS
Total	269(100%)	331(100%)	600(100%)	-

Regarding postoperative complications, anaemia was more frequent in emergency group (50.4%) as compared to elective group (36.5%). Thirty-seven (11.2%) patients needed blood transfusion in emergency group, while 6 patients (2.2%) neededtransfusion in elective group. Wound infection reported in 8 cases (2.4%) in emergency group as compared to only one case (0.4%) in elective group; the UTI reported more among emergency group. The results were statistically significant with all above complications (*P*<0.05), while there was no significant difference between both groups regarding the spinal headache, PPH and postpartum fever complications (Figure. 1),

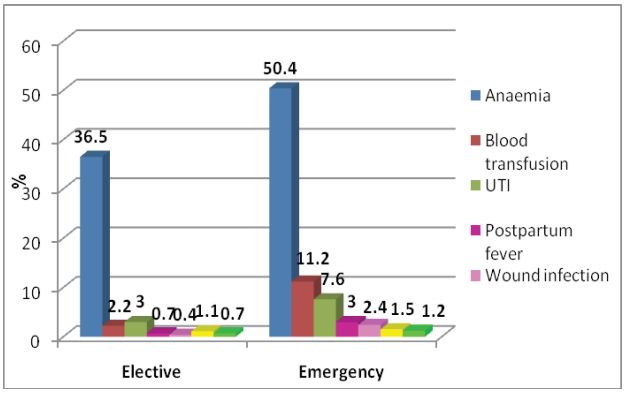

Figure 1: Post-operative complication among both group

In the current study, approximately 99.5% of the neonates were alive at birth, 49.5% babies were males, and 50.5% were females. Neonatal death reported in 9 cases (1.5%) and IUFD in 3 cases (0.5%), there was no case of still birth. Neonatal outcome in the elective group, 99.2% were live births and only 0.4% were perinatal deaths .While in the emergency group, there were 96.9% live births and 2.4% perinatal deaths (*P* =0.47) (Table 4).

The newborns in the group with the elective caesarean section had considerably better Apgar score level in the first minute and fifth minute than in emergency group (*P*< 0.0001). Majority (86.2%) of those neonates had no complication, while the remaining show respiratory distress syndrome, birth asphyxia, neonatal sepsis, meconium aspiration, more common in emergency than elective group (*P*= 0.025). Among those who need admission to nursery intensive care unit (NICU), the

Table 4: Outcomes of neonates among elective and emergency caesarean section groups

	Elective	Emergency	Total	p-value
Fetal outcome				
Alive	267(99.2%)	321(96.9%)	588(98%)	
Died	1(0.4%)	8(2.4%)	9(1.5%)	0.47
IUFD	1(0.4%)	2(0.6%)	3(0.5%)	
Apgar score at First min				
<7	4(1.5%)	28(8.5%)	32(5.3%)	<0.0001
>7	265(98.5%)	303(91.5%)	568(94.7%)	
Apgar score at Fifth min				
<7	2(0.7%)	9(2.7%)	11(1.8%)	0.123
>7	267(99.3%)	322(97.3%)	589(98.2%)	
Admission to NICU				
No admission	252(93.7%)	284(85.8%)	536(89.3%)	0.006
1-7 day admission	16(5.9%)	40(12.1%)	56(9.3%)	
>7 days admission	1(0.4%)	7(2.1%)	8(1.3%)	
Neonatal complication				
No complication	243(90.3%)	274(82.8%)	517(86.2%)	
Birth asphyxia	1(0.4%)	7(2.1%)	8(1.3%)	
RDS	11(4.1%)	32(9.7%)	43(7.2%)	
Congenital hydrocephalus	11(4.1%)	11(3.3%)	22(3.7%)	0.025
Meconium aspiration	0	2(0.6%)	2(0.3%)	
Sepsis	3(1.1%)	5(1.5%)	8(1.3%)	

duration recorded 7 days or more, although 89.3% of newborn had no nursery admission; only (5.9%) in elective group and 12.1% in emergency group stayed in NICU for 7 days, and 0.4% in elective caesarean section and (2.1%) in emergency group stayed more than 7 days (P =0.006). Majority (86.2%) of neonates had no complication, while the remaining show respiratory distress syndrome, birth asphyxia, neonatal sepsis, meconium aspiration, more common in emergency than elective group (P= 0.025) (Table 4).

DISCUSSION

Several studies have shown an inverse association between CS rates and maternal and infant mortality at population level in low-income countries where large sectors of the population lack access to basic obstetric care. On the other hand, CS rates above a certain limit have not shown additional benefit for the mother or the baby, and some studies have even shown that high CS rates could be linked to negative consequences in maternal and child health.[1]

The incidence of caesarean section in our study was 41.2%, out of which 55.2% were emergency caesarean section and 44.8% were elective. This is higher than England study, where overall national caesarean section rates of 23.8% for women in England with singleton births, (9.3%) elective and (14.5%) emergency procedures.[7]This increased rateisbecause our hospital being referral center receives complicated cases of the catchment area.

The most common indication for elective group was previous cesarean section, while fetal distress followed by previous caesarean section were most indications for emergency group; these results were similar to study done by Daniel *et al.*[14]

In our study, overall intraoperative complications were more among emergency group (19.7%) when compared to elective group (6%). Burshan et al. results revealed that morbidity in emergency caesarean section was higher than elective caesarean section group (46.9% versus 24.4%). [17]Also Daniel study reported that Maternal intraoperative and postoperative complication were more common in emergency cesarean section cases as compared to elective SC.[14]

Concerning intraoperative complication, massive hemorrhage was the most common complication and the difference was statistically significance between both groups (P=0.009), which occurred due to uterine atony and abnormal adherence of placenta. Gayathry et al reported similar finding.[18]

The result of uterocervical laceration in our study was 5.8%, being significantly more common in emergency than elective CS. This incidence is somewhat higher than that of Bergholt, who found that the incidence of cervical laceration was 3.9%.[19]

The reported incidence of bladder injury at the time caesarean section ranges from 0.14- 0.56%, an overall incidence of 0.28%. Most injuries occur in the dome of the bladder and rarely involve the trigone. Bladder injuries occur because of number of factors, including surgical difficulty encountered while developing the bladder flap over the lower uterine segment. The difficult is usually caused by scar tissue from previous surgery.[20]In current study the bladder injury seen only in emergency caesarean section group (1.2%).

Regarding postoperative complications, there were significantly more in emergency group (77.3%) when compared to elective group (44.7%).

The commonest postoperative complication was anemia in both groups, it found in majority of cases 50.4% in emergency caesarean section group, while in patients of elective caesarean section group anemia was found in 36.5%, this justified that emergency caesarean section associated with greater blood loss and higher blood transfusion rate. This is because elective caesarean section is properlyplanned and performed by more competent personnel with better skills. This is against the emergency caesarean sections that may come up at nights when the very skilled hands have gone.[21]

A study conducted by Gayathry*et al* reported that postoperative complications were found to be associated more with emergency caesarean section (30.6%) than elective caesarean section (14.4%) and anemia was found to be the most common postoperative complication in both CS (9.2%).[18]

Urinary tract infection(UTI) was the second postoperative complication seen in our study 7.6% and 3% in emergency and elective CS respectively (P<0.001), followed by postpartum fever 3% in emergency group. In agreement with Thakur *et al* findings, where UTI was reported in 10% of emergency CS group and febrile morbidity in 6.2% of emergency group.[22]

Wound infection recorded in 2.4% of emergency caesarean section and 0.4% elective CS; this result is similar to Suwal et al finding, which revealed that wound infection rate as 6.58% vs 3.44% in emergency and elective caesarean section respectively.[23]This finding could be attributable to the fact that in emergency cases membrane rupture and multiple vaginal examinations are frequent.There was no maternal death during the period of study in both groups.

In present study, 99.5% of neonates were live births and only 1.5% were perinatal deaths, by comparing emergency CS with elective CS, live births were 96.9% vs 99.2%, and perinatal deaths were 2.4% vs 0.4%. Neonatal complications were higher in emergency cesarean group, where fetal morbidity was reported among 13.8% of cases, 17.2% of them were in the emergency caesarean group, and 9.7% were elective cesarean group. Mostneonatal morbidity was respiratory problem. Prematurity, birth asphyxia, respiratory morbidity, and admission in neonatal intensive care unit were significantly more frequent in emergency caesarean group than in elective group. Other studies have reported similar facts.[14, 24]

Also our data revealed that the neonatal outcome was less favorable in emergency CS, with more cases with Apgar score of <7 (8.5%), than in patients with elective caesarean section (1.5%). These findings were in accordance with the findings of Karlstrom et al study.[25]

In a study conducted by Ansaretal Apgar score <7 at 5 min was 7.8% in elective group and 13.99% in emergency cases.[26]

CONCLUSION

Maternal and fetal morbidity are higher in emergency caesarean sections than in elective caesarean sections.

RECOMMENDATIONS

Education of patients, improving antenatal facilities and, early referral and good transport system and improved diagnostic skills are suggested to reduce the number of emergency caesarean section and thus decrease the risks and complications associated with such cases. Emergency cases should be handled by experienced staff and emergency operations should be performed as early as possible while taking into account all neccessary precautions.

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