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Original Research Article

A study of maternal morbidity associated with caesarean delivery in tertiary care hospital

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ABSTRACT

Background: Cesarean section is one of the most commonly performed surgical procedures in the world. Several studies have demonstrated that c/s poses a greater risk of maternal morbidity and mortality compared to vaginal delivery. Therefore, it is important to assess the morbidities associated with a c/s.
Methods: A hospital based, cross sectional study was conducted among 240 women during the period of March-May 2014. A semi-structured questionnaire was used to evaluate the socio-demographic characteristics, obstetrical characteristics, indications and complications following c/s.
Results: A total of 150 (62.5%) respondents underwent emergency c/s whereas 90 (37.5%) were having elective c/s. The most common indication for cesarean delivery was a previous c/s observed in 70 (29.2%). No postpartum morbidity was observed in 152 (63.3%) of the respondents, whereas 88 (36.7%) had reported some or other kinds of morbidities. Among the various maternal morbidities, postpartum anemia was the most commonly observed morbidity in 22 (9.2%) of the respondents, followed by postpartum hemorrhage by 10 (4.2%) and wound infection was observed in 15 (6.25%).
Conclusions: High maternal morbidity following c/s was observed in studied sample as more than one third of the women had shown some or other kinds of morbidities. Efforts should be made to evaluate the reasons for increasing c/s rate and to reduce the incidence of c/s by careful antenatal and intranatal management.

Keywords: Cesarean delivery, Indications, Maternal morbidity

INTRODUCTION

Increasing caesarean section rate is an issue of public health concern globally for last 30 years; its use has increased since 1970 to a level that is medically unjustified. Thus bringing negative, economic and health related repercussion.[1] Increased caesarean section rate in the developed countries is mainly due to fear of litigation, health insurance system, caesarean section by choice, increased use of electronic fetal cardiac monitoring and increased proportion of breech deliveries by caesarean section. In developing countries the reasons for increasing caesarean section rate are different. Poor socioeconomic conditions, low literacy level, lack of primary health care and low threshold of some doctors for caesarean section are the main reasons.

The steadily increasing global rate of caesarean section have become one of the most debated topics in maternity care as its prevalence has increased alarmingly in the last few years.[2]

The WHO published guidelines regarding Caesarean Section rates in 1985 which was revised in1994. The guidelines published in 1997 by UNICEF, WHO and UNFPA states that proportion of Caesarean births should range between 5 to 15%. The rate of Caesarean Sections below 5% seems to be associated with gaps in obstetric care leading to poor health outcomes for mothers and children, whereas rates over 15% don't seem to improve either maternal or infant health.[3]

Several studies conducted across India have shown an alarming increase in the rate of cesarean section deliveries. The caesarean delivery rate reached an all-time high of 31.8% in 2007. Although the caesarean rate rose 50% since 1995, there has been no concomitant reduction in neonatal mortality.[4] In medical colleges and teaching hospitals in India the overall rate for caesarean deliveries is 24.4%.[5]

Numerous studies have demonstrated that cesarean section poses a greater risk of maternal morbidity, mortality and high cost of health care compared with vaginal deliveries hence it is important to assess the morbidities associated with a cesarean delivery. Keeping in view the above background, the objective of the present study was to evaluate the various indications for cesarean section deliveries and to assess the maternal morbidity associated with cesarean deliveries.

METHODS

A hospital based descriptive study was conducted during March –May 2014 among 240 women who attended OPD clinic in OBG department of Prathima Institute of Medical Sciences, Karimnagar. The study protocol was approved by the institutional ethics committee of the institute. The purpose of the study was explained and written and signed informed consent was obtained. A semi-structured questionnaire consisting of the socio-demographic characteristics, obstetrical characteristics, indications for cesarean delivery and various complications following cesarean section was administered to 240 women attending OPD clinic.

Inclusion criteria

Inclusion criteria were all the pregnant women who underwent caesarian section during study period, those who were willing to participate and gave consent for the study.

Exclusion criteria

Exclusion criteria were critically ill patients, patients not willing to participate in the study, those pregnant women who delivered by normal vaginal delivery**.**

Socio-demographic characteristics include information regarding the age of the respondents, education and socio-economic status, parity and booking status. Socioeconomic status was calculated using modified Kuppuswamy's classification. The respondents were divided into those undergoing elective caesarean section and those undergoing emergency caesarean section. Detailed history and examination was done and the indications for caesarean section, the preoperative findings and complications noted in detail with the help of a proforma. Information regarding post-operative morbidity was also collected. Data was entered into an excel spreadsheet and statistical measures obtained were mean values and percentages.

RESULTS

The socio-demographic characteristics of the respondents are depicted in table 1. The mean age of the respondents was 24.4±4.62 years and most of the women 130 (54.2%) were below the age group of <25 years. Majority of them, 125 (52.6%) were had tertiary education, while only 10 (12.5%) were illiterate. As per Kuppuswamy's socio-economic status scale, the majority of the respondents 167 (69.6) were belonged to the lower socioeconomic class. There were 240 cases of caesarean section, out of which 90 cases were elective (37.5%) and 150 cases were emergency caesarean sections (62.5%). Maximum c/s were done on multiparty women 136 (56.7%) compared to primigravida 104 (43.3%). Results showed clearly that the majority of unbooked cases 140 (58.3%) had undergone c/s compared to the booked cases 100 (41.7%).

Table 1: Baseline characteristics of the respondents.

Variables		Number (%)
Age in years	<25 yrs	130 (54.2)
	>25yrs	110 (45.8)
Educational status	Illiterate	10 (4.2)
	Primary	24(10)
	Secondary	80 (33.3)
	Tertiary	126(52.5)
Socio-economic status	Upper	10 (4.2)
	Middle	63(26.2)
	Lower	167 (69.6)
Type of LSCS	Elective	90 (37.5)
	Emergency	150(62.5)
Parity	Primi	104 (43.3)
	Multi	136 (56.7)
Booking Status	Booked	100(41.7)
	Unbooked	140(58.3)
Total		240 (100)

Table 2 presents the various indications for cesarean delivery the respondents had underwent. The most common indication was previous c/s 70 (29.2%) followed by Cephalo pelvic disproportion (CPD) 64 (26.6%) and fetal distress 40 (16.6%). In elective c/s group the most common indication was previous c/s 48 (20%) followed by CPD 26 (10.8%) and pregnancy induced hypertension

(PIH) 6 (2.5%). Other indications in this group were diabetes during pregnancy 4 (1.7%) multiple gestations 1(0.4%) and breech presentation 1 (0.4%). In emergency c/s group commonest indication was fetal distress 40 (16.7%), CPD 38 (15.8%) and previous c/s 22 (9.2%) and other includes PIH 14 (5.8%), failed induction 10 (4.2%), ante partum haemorrhage (APH) 6 (2.5%), breech presentation 5 (2.1%), obstructed labor 3 (1.3%) and multiple gestations 2 (0.8 %). While only 12 (5%) of the respondents were unclear about their indication.

Table 2: Indications for caesarean section.

Indications	Number	Emergency	Elective
Previous caesarean section	70 (29.2)	22 (9.2)	48 (20)
Cephalo pelvic disproportion	64 (26.6)	38 (15.8)	26 (10.8)
Fetal distress	40 (16.6)	40 (16.7)	0
pregnancy induced Hypertension	20 (8.3)	14 (5.8)	6 (2.5)
Failed induction	10 (4.2)	10 (4.2)	0
Ante partum hemorrhage	6 (2.5)	6 (2.5)	0
Obstructed labour	3 (1.3)	3 (1.3)	0
Breech presentation	6 (2.5)	5 (2.1)	1 (0.4)
Multiple gestation	3 (1.3)	2(0.8)	1 (0.4)
Diabetes mellitus during pregnancy	5 (2.1)	1 (0.4)	4 (1.7)
Chorioamnionitis	1 (0.4)	1 (0.4)	0
Unclear indication	12 (5)	8 (3.3)	4(1.7)
Total	240	150 (62.5)	90 (37.5)

Table 3: Maternal complications associated with caesarean section.

Complications	Number (percentage)	Emergency	Elective
1.Nil complication	152 (63.3)	82 (54.7)	70 (77.8)
2.With complication	88 (36.7)	68 (45.3)	20 (22.2)
Total	240	150	90
A) Intra-operative complications			
1. Hemorrhage	14(5.8)	10 (6.7)	4 (4.5)
2. PPH	6 (2.5)	5(3.4)	1(1.1)
3.Complication from anesthesia	5 (2.1)	3(2)	1 (1.1)
4.Transfusion reactions	3 (1.3)	2(1.3)	1 (1.1)
5. Bladder injury	0	0	0
6. Hysterectomy	2 (0.8)	2(1.3)	0
7. Maternal death	0	0	0
Total	30 (12.5)	22 (14.7)	7 (7.8)
B) Post-operative complications			
1 .Anemia	22 (9.2)	16 (10.7)	6 (6.7)
2. post partum hemorrhage	10 (4.2)	8 (5.3)	2(2.2)
3. UTI	8 (3.3)	6 (4)	2(2.2)
4.Upper respiratory tract infection	2(0.8)	2 (1.3)	0
5.wound infection	5 (2.1)	4 (2.7)	1(1.1)
6. Post operative fever	3 (1.3)	3 (2)	1 (1.1)
7.Prolonged cathetharization	2 (0.8)	2(1.3)	0
8. prolonged hospital stay	6 (2.5)	5(3.3)	1(1.1)
Total	58 (24.2)	46 (30.6)	13 (14.4)

Table 3 shows the various complications suffered by the respondents during their post natal period. No postpartum morbidity was observed in 152 (63.3%) of the respondents, whereas 88 (36.7%) had reported some or other kinds of morbidities. Intraoperative complications were found to be higher (14.7%) in emergency caesarean sections when compared to elective caesarean section (7.8%). Excessive hemorrhage was the commonest complication in both types of c/s 14 (5.8%) followed by PPH 6 (2.5%). Other complications were anesthetic complications 5 (2.1%) and transfusion reactions 3 (1.3%). Only 2 (0.8%) respondents had undergone obstetric hysterectomy for Atonic PPH. No cases of bladder injury and maternal death during the period of study in both types of c/s.

Postoperative complications were found to be associated more with emergency caesarean section 46 (30.6%) than elective caesarean section 13 (14.4%). Anemia was found to be the most common postoperative complication in both c/s 22 (9.2%) followed by PPH 10 (4.2%) and infections 15 (6.25%). Infections seen were UTI 8 (3.3%), respiratory infection 2 (0.8%), wound infection 5 (2.1%). Other complication includes postoperative fever 3 (1.3%), prolonged catheterization 2 (0.8%) and prolonged hospital stay 6 (2.5%).

Table 4: Complications after follow up for one month following caesarean section.

	No. (%)	Emergency	Elective
Anemia	16	10	6
UTI	10	6	4
Vaginal candidiasis	3	3	0
Wound sepsis	4	4	0
Gapped episiotomy	2	2	0
Headache	2	1	1
Deep vein thrombosis	1	1	0

Table 4 shows after one month follow-up of complications during post natal period, Anemia was found in majority 16 patients in emergency caesarean section whereas in elective c/s group anemia was found in 7 pts. UTI was the second most common complication found in both type of c/s. In emergency caesarean section group wound sepsis was observed in 2 cases, vaginal candiasis in and deep vein thrombosis in while there were no cases were found in elective c/s group.

DISCUSSION

Caesarean sections have been long practiced as a lifesaving procedure for the mother and fetus. Though it is classified as a major procedure, the incidence of Caesarean section has risen considerably over the years. In June 2010, WHO stated that there is no empirical evidence for the rate it recommends, as it has been a debatable issue. Now the WHO recommends that caesarean section should be done only when it is needed.[6] The situation now is that c/s is adopted for even trivial cases. Though advances in the field have reduced maternal mortality considerably, the problems of maternal and fetal morbidity after c/s still persist. The present study was undertaken to analyze the maternal morbidity associated with c/s with particular emphasis on timing of the procedure.

It is known that unnecessary c/s do more harm than good. When everything is normal with the women c/s has an 8 fold higher mortality, 8-12 times higher morbidity and a higher incidence of complications than vaginal delivery.[7] Higher incidence of emergency c/s is a major contribution for increased rate of maternal and fetal mortality and morbidity in caesarean deliveries.[8] In emergency c/s maternal mortality and morbidity is high.[9] The current study shows the emergency CS rate 62.5% is higher than elective CS 37.5% and the most common indication for cesarean section is previous cesarean section 29.2%. This is probably because our hospital is a referral hospital and most cases were unbooked 58.3%. The study findings is in comparison to a study by Mc Carthy et al which showed an incidence of 64.14% emergency and 35.8% elective sections, and their most common indication was also previous cesarean section.[10] Onankpa et al study reported cesarean section rates of 8.4%, of these 80.6% were emergency and 19.4% were elective.[11]

Incidence of previous CS pregnancy contributing to CS is high in our study as compared to other studies. However due to higher number of post CS pregnancies undergoing trial of labour there has been sharp decrease in CS proportion attributable to post CS pregnancies in 2012. Recent studies all over the world have shown repeat CS pregnancy as the main factor in rise of CS.[12] Our study showed repeat cesarean section (29.2%), cephalopelvic disproportion (26.6%) and fetal distress (16.6%) as the most common indications for caesarean section which are consistent with the study conducted by Lakshmi et al repeat cesarean (43%) was, this was followed by CPD (15%).[13] While in a study done by Chiheriya reported the caesarean section in emergency group (2521) was more than elective group (696) and the most common indication was previous LSCS in both the group,76.87% in elective and 46.44% in emergency group, followed by breech, oligohydromnios, placenta previa, wants cesarean section, for primary infertility, transverse lie, in both group respectively and meconium stained liquor, cephalopelvic disproportion, non-progress of labour, abruption placentae, failed induction respectively in only emergency group.[14] The increased incidence of repeat caesarean section in both groups was due to the absence of patients opting for vaginal birth after caesarean section. In our study there was a definite indication for undergoing c/s and none of the case was performed at maternal request.

It is well documented that caesarean section carries a much higher maternal mortality and morbidity as compared to a vaginal delivery.[15] Even though caesarean section is being performed for indications like foetal distress and many antenatal conditions; maternal morbidity continues to be very high among in caesarean section deliveries. Even though the risk of maternal death after cesarean section is 5 times higher than normal vaginal delivery, there was no maternal death during the study period. But, the overall maternal morbidity rate in our study was 88 (36.6%) which is slightly higher than 20% reported from Jimma Hospital, Ethiopia.[16] While in a study conducted by Jain et al the maternal morbidity was seen in 18.5% of cases which was lower than the present study.[17]

In present study the intra operative complications were found to be associated more with Emergency c/s (14.7%) than elective caesarean section (7.8%). The major complication that developed in both types of c/s was excessive bleeding (5.8%). In a study conducted by Ghazil et al also reported the same that intra operative complications were associated more with emergency caesarean section than with elective caesarean section. Excessive heamorrhage was the most common complication seen in their study.[18] A study from Lahore showed that intra operative haemorrhage was the most common complication in C/S being responsible for two maternal deaths in their study.[19] Only 2 (0.8%) respondents had undergone obstetric hysterectomy for atonic PPH. There were no cases of bladder injury and maternal deaths reported during the study period.

Our study findings revealed that, postoperative complications were found to be higher in emergency caesarean sections (10.7%) when compared to elective caesarean section (6.7%) such as anemia, postpartum hemorrhage (PPH), fever, wound sepsis, upper respiratory tract infection and urinary tract infection. The commonest postoperative complication was anemia in majority 16 (10.7%) cases of emergency caesarean section group, while in elective caesarean section group anemia found in only 6 (6.7 %) cases followed by PPH in emergency (5.3%) & elective c/s (2.2%) and findings were consistent with the study conducted by Mehnaz Raees et al found anemia in majority of cases among patients in emergency c/s groups followed by PPH in emergency & elective c/s.[20] Other postoperative complications were infections (14.8%), prolonged catheterization (0.8%) and postoperative fever (1.3%). An international study reported that the postoperative morbidity were 35.7%, most frequent was fever (24.6%) followed by blood loss (4%) hematoma (3.5%) and UTI (3%). Among these PPH remains the major cause of maternal mortality.[21] Another study conducted by pomela et al reported that postoperative complications were more in patients who had emergency CS compared with patients undergoing elective CS such as fever (26.0% and 16.1%), wound infection (12.7% and 6.5%) and urinary tract infection (14.3% and 5.4%).[22]

The study finding showed that women who underwent emergency caesarean section (3.3%) had longer hospital stay as compared to elective caesarean section group (1.1%) and this was significant as duration of hospital stay was one of our study criterions to assess the maternal morbidity. In a study conducted by Daniel found that in the elective CS group 96.1% had hospital stay for 6 days and 92.1% of the emergency group, had hospital stay of 6 days.[23] In an another study also it was found that postoperative hospital stay was significantly prolonged in patients who had undergone emergency caesarean section when compared to elective caesarean section.[24]

In this study we followed up these patients for one month and majority of patients in emergency caesarean section group came for follow up for their postoperative complications like anemia (10), urinary tract infection (6), wound sepsis (4), vaginal candidiasis (3), and wound gaping (4) and deep venous thrombosis (1). While only a very few complications were noted after one month follow up in elective c/s group. These include anemia (6), urinary tract infection (4), and headache (1). Other complications were not reported in this group.

Currently there is no evidence that elective caesarean is safer than vaginal delivery. In fact, most evidence indicates that caesarean section has much higher risk than normal labour. Therefore, obstetric care providers should continue to advocate for vaginal delivery as the optimal mode of birth.[25]

CONCLUSION

The present study revealed a high maternal morbidity following cesarean section in studied sample as more than one third of the women had shown some or other kinds of morbidities. Unnecessary caesarean delivery not only may complicate maternal and child health but also put strain on family. Therefore, the decision to perform a C-section delivery must be chosen carefully and should not be profit oriented. Good antenatal and intrapartum care and early referral, better doctor patient communication, doctor's commitment to reduce the rate of CS, government's intention to develop better health care infrastructure and strict vigil on the private health institutions will reduce the maternal morbidity associated with caesarean delivery.

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