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Research Article

Analytical study of indications of cesarean section

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ABSTRACT

Background: There has been an increase in rate of cesarean section over last few decades. There are various factors involved in the rise of rate of cesarean section. There has been an increase in primary cesarean section rate, a decrease in VBAC (Vaginal birth after cesarean section) trial, decrease in operative vaginal deliveries (Forceps/Ventouse), increase in litigations, increasing facility of electronic monitoring, and decreasing threshold of patients for bearing labor pains.

Methods: A retrospective study was carried out in 500 patients in the tertiary care hospital). The data were collected in a pre-designed proforma. Data were analysed by using SPSS version 20.0 Software. We have done a retrospective study of different indications of cesarean section amongst 500 patients who underwent cesarean section from March 2015 to June 2015.

Results: In our study, we found out that the most common indication was Previous cesarean section (46.2%), followed by Fetal Distress (13.4%) and malpresentations (11.4%). Non progress of labour (10.2%) and toxemia of pregnancy (6.6%) were amongst the other indications.

Conclusions: Reduction of number of primary cesarean sections and successful VBAC trials are recommended to keep the rate of cesarean sections to the possible minimum level.

Keywords: Previous cesarean Section, Fetal Distress, Malpresentations

INTRODUCTION

The rate of cesarean section has increased in last few decades. According to WHO, "There is no justification for any region to have CS (cesarean Section) rates higher than 10-15%".¹ In USA, the rate was 27.5% in 2003 which increased to 32.8% in the year 2010.² Some Latin American countries were noted having higher rates of around 40%.³ In Britain, the rate was 21.5% in 2005.⁴ The cesarean section rate in East Asia⁵ was above 15%. According to ICMR study conducted in 30 teaching hospitals in India; there is an increase in CS rates from 21.8% in 1993 -1994 to 25.4% in 1998 – 1999. In a study conducted in Madras, the rate of cesarean section was as high as 50%.^{6,7}

There are various factors involved in the rise of rate of cesarean section. There has been an increase in primary cesarean section rate, a decrease in VBAC trial, decrease in operative vaginal deliveries (Forceps/Ventouse), increase in litigations, increasing facility of electronic monitoring, and decreasing threshold of patients for bearing labor pains. We reviewed data of 500 patients who underwent cesarean delivery for studying various factors associated with cesarean delivery. The other objective of this study was to make efforts of reducing the high rate of cesarean section. The most common indication was Previous CS (46.2%), which indicates that there are more women undergoing primary cesarean section. The second commonest indication was fetal distress followed by malpresentations. Unnecessary cesarean sections may prove to be hazardous.⁸

Cesarean section is associated with maternal postpartum morbidity, higher chances of new-borns getting postpartum respiratory morbidity, less breast-feeding and possibly more atopic disease.⁹ There are increased chances of abnormal placentation in future pregnancy with previous cesarean section.^{9,10} The objective of this study is to analyse the indications so as to find the causes behind the rise in the rate of CS and modify them so as to reduce the rate or to keep the rate to the minimum possible level.

METHODS

We conducted retrospective analytical study of various indications of cesarean section in 500 patients who underwent cesarean delivery from March 2015 to June 2015. We took detailed history, including age, obstetric history, indications and date of cesarean sections, sex & birth weight of new-born born to those mothers. Partogram was made in patients undergoing trial of labor for plotting the progress of labor. Continuous fetal monitoring was done in every patient undergoing trial of labor.

We analysed the data so as to study the factors responsible for high rate of cesarean section. Data of all the 500 patients were analysed by using SPSS version 21.0 Software and Microsoft excel.

RESULTS

Table 1: Indications of cesarean section.

Sr. No.	Indication	Number of cesarean	Percentage (%)
1	Previous CS	231	46.2
2	Fetal Distress	67	13.4
3	Malpresentations	57	11.4
4	Non Progress of Labour	51	10.2
5	Toxaemia of pregnancy	33	6.6
6	Antepartum haemorrhage	18	3.6
7	Severe Oligohydramnios	17	3.4
8	Obstructed Labour	16	3.2
9	Twins	6	1.2
10	Precious Pregnancy	4	0.8
Total		500	100

In our institute, the rate of cesarean section is 29.2%. In our study of 500 cases that underwent cesarean section, the most common indication was previous cesarean section, followed by fetal distress, followed by malpresentations.

Out of 500 cases reviewed, 231 (46.2%) patients were having previous cesarean section as indication followed by fetal distress (67 (13.4%)), Malpresentations (57 (11.4%)), NPOL (non-progress of Labour) (51 (10.2%)), Toxaemia of pregnancy (33 (6.6%)) and Antepartum haemorrhage (18 (3.6%)) (Table 1). As shown in Table-2 out of Previous CS cases, 42 (18.18%) patients were having previous 2 cesarean sections, 44 (19.09%) patients were having previous cesarean section with scar tenderness, 35 (15.15%) patients were having contracted pelvis along with previous cesarean section. In 21 (9.09%) cases, there was fetal distress during VBAC trial, 20 (8.65%) cases were noted as non-progress of labour in VBAC trial. Oligohydramnios and Toxaemia in pregnancy were seen in 16 (6.92%) and 13 (5.62%) respectively. Others are Breech (13 (5.62%)), Placenta Previa (11 (4.76%)), MSL (9 (3.89%)), Twins (4 (1.73%)) and Abrupton (3 (1.29%)).

Table 2: Cases with previous cesarean section (CS).

Sr. No.	Indication	Number of Cesarean Section (%)
1	Previous 2 CS	42 (18.18)
2	Previous CS + Scar Tenderness	44 (19.09)
3	Previous CS + Cephalopelvic Disproportion	35 (15.15)
4	Previous CS + Fetal Distress	21 (9.09)
5	Previous CS + Non Progress of Labour	20 (8.65)
6	Previous CS + Oligohydramnios	16 (6.92)
7	Previous CS + Toxaemia	13 (5.62)
8	Previous CS + Breech	13 (5.62)
9	Previous CS + Placenta Previa	11 (4.76)
10	Previous CS + Meconium Stained Liquor	9 (3.89)
11	Previous Cs + Twins	4 (1.73)
12	Previous CS + Abrupton	3 (1.29)
Total		231 (100)

There were 67 patients having fetal distress. Malpresentations was seen in 57 patients. Non Progress of labour was stamped as an indication in 51 patients. 33 cases were noted as having toxaemia of pregnancy.

Antepartum Haemorrhage was an indication in 18 cases, out of which, 13 patients were having placenta previa and 5 patients were diagnosed with abrupton placentae.

There were 17 cases diagnosed with severe oligohydramnios/absent liquor, 16 cases of obstructed labour, 6 cases of twins and 4 cases of precious pregnancy that underwent cesarean delivery.

Table 3: Age wise distribution of cesarean section.

Sr. No.	Age Group	Number of CS	Percentage (%)
1	<20	25	5
2	21-30	390	78
3	31-40	85	17
Total		500	100

Table 4 : Elective vs emergency cesarean section.

Sr. No.	Type of Cesarean	Number of CS	Percentage (%)
1	Elective	214	42.8
2	Emergency	286	57.2
Total		500	100

We divided all the patients in 3 age groups. Out of which, 390 patients belonging to the age group 21-30 years, 85 patients were of age group 31-40 years, 25 cases were from age group less than 20 years. (Table 3) There is highly statistical difference (P value<0.005) between two age groups: 21-30 and <20 years by using chi-square test with significance level 0.05. There is also highly statistical difference between age groups 21-30 and 31-40 years with the same chi-square test. 214 cases (42.8%) were taken as elective cesarean, while 286 cases (57.2%) presented in emergency (Table 4). There is no statistical difference between elective and emergency CS by using chi-square test with significance level 0.05.

DISCUSSION

We reviewed 500 cases which underwent cesarean section for their indications. The most common indication was previous cesarean section, followed by fetal distress, followed by malpresentations. Similar results were obtained in studies conducted in USA and in South India.^{11,12} Previous cesarean Section was the commonest indication in a study conducted in developed countries as well.¹³ There were 42 cases with history of previous 2 cesarean sections. There were 189 cases with history of prior cesarean section; the major cause behind it is higher rate of primary cesarean section, putting next pregnancy at higher than normal.

Out of 189 previous CS, various associated risk factors were scar tenderness, contracted pelvis. There was failure of VBAC trial in cases because of fetal distress (21 cases) and non-progress of labour (20 cases). Other factors which guided towards repeat cesarean were: severe oligohydramnios, malpresentations, toxemia of pregnancy, placenta previa, meconium stained liquor, twins and abruption placentae. More number of VBAC trials with proper selection criteria and proper monitoring will help in reducing the rate of CS in general. There are evidences which prove VBAC to be safer for women having prior CS.¹⁴ There were 67 cases (13.4%) operated

for cesarean because of fetal distress with poor Bishop Score. Majority of them were having thick meconium stained liquor. 3 cases were having cord around neck, which were diagnosed intra-operatively.

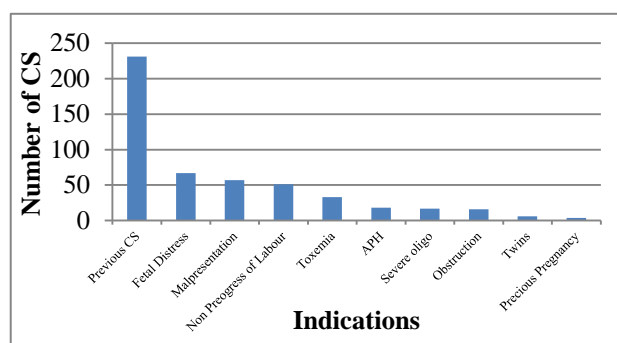


Figure 1: Indications of cesarean section.

Third commonest indication was malpresentations (11.4%) of which 51 cases were having Breech presentation (excluding previous CS + Breech). Of total 51 Breech presentation cases, 41 cases were primi para Breech, rest of 10 patients included Breech with footling, preterm breech and Breech with big baby. External cephalic version can be tried with proper precautions, but planned cesarean is found to have lesser complications rate.¹⁵⁻¹⁷ Transverse lie was noted in 3 of the cases, compound presentation was seen in 2 cases and 1 case of hand prolapsed was noted.

Fourth common indication was non-progress of labour (10.2%). These cases included having non-progress due to cephalopelvic disproportion, non-progress after induction/augmentation of labour and the cases with prolonged rupture of membranes.

There were 33 cases of toxemia, including 17 patients having pre-eclampsia, 12 patients having eclampsia and 4 cases of HELLP (Haemolysis, Elevated Liver Enzymes, Low Platelet count) syndrome. The cases with pre eclampsia and eclampsia were operated for cesarean because of changes in fetal Doppler, uncontrolled maternal blood pressure, aggravating pre-eclamptic toxemia and non-progress of labour. Patients with HELLP syndrome were taken for cesarean with correction of coagulopathy with blood components.

Out of total patients studied, 13 patients were having placenta previa, making it difficult to go for vaginal delivery. There were 5 cases of abruption placentae in which trial of labour failed and cesarean was done considering maternal wellbeing.

Oligohydramnios cases are routinely given trial of labour with proper fetal heart monitoring. But there were 17 cases with severe oligohydramnios with absent liquor, and were taken for cesarean section. Absent liquor at full term with no labour pain or poor Bishop score makes chances of normal labour difficult as there will be more

chances of fetal compromise due to cord compression and fetal distress.

16 cases presented with obstructed labour, which needed to be operated with cesarean delivery. There were 6 cases of twins with first fetus in non-cephalic presentation which underwent cesarean. 4 cases of precious pregnancy underwent cesarean, which included 2 patients with bad obstetric history and 2 patients conceived with infertility treatment with active married life more than 5 years.

With age wise distribution of patients, majority (78%) of them belonged to the age group of 21-30 years of age. There were 17% cases which belonged to 31-40 age groups, which included previous 2 CS, precious pregnancy and patients with bad obstetric history.

57.2% of cases were operated in emergency for cesarean section, while 42.8% patients were planned for elective cesarean section. In case of emergency indications, like prolonged rupture of membranes, obstructed labour, there are more chances of high maternal and fetal morbidity, along with poor uterine scar healing due to infection, which ultimately reduces success rate of future VBAC trial.

CONCLUSIONS

The rate of cesarean section has been increasing worldwide, due to various reasons and indications. There is a possibility of keeping the rate to minimum by reducing number of primary cesarean sections, by proper counselling of the patients, proper monitoring of maternal and fetal parameters, promoting institutional deliveries, promoting VBAC in previous CS cases with non-recurrent indications.

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