Original Article

Justification of Cesarean section in fetal distress: experience in a tertiary care military hospital in Bangladesh

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Abstract

Background: *The trend of Caesarean section (CS) carried out is rising worldwide. One of the most common indications of CS is fetal distress which is based on the cardiotocograph (CTG) recording, abnormal fetal heart rate pattern and meconium stained liquor. The aim of this study was to carry out an audit of CS performed due to fetal distress in a tertiary care military hospital with a view to justify the methods for diagnosis of fetal distress to fetal outcome.*

Methods: *This cross-sectional observational study was carried out over a period of 1 year and 6 months (July 2013 to January 2015) in the Combined Military Hospital (CMH), Dhaka. All pregnant women at or beyond 37 weeks of gestation who underwent CS for fetal distress were included. Neonatal outcome were assessed based on APGAR score and neonatal intensive care admission.*

Results: *Among the 260 (100%) women who underwent CS due to fetal distress, mean age was 27.8 ± 5.3 years. More than half (54.6%) of the women were primigravida. Majority (48%) of the patients presented with spontaneous onset of labor and in 43% cases labor was induced by medical methods. In the majority (40%) of the patients, fetal distress was diagnosed by seeing abnormal patterns in CTG. During CS, signs of fetal distress was found in the majority (64.6%) of the patients (meconium stained liquor 42.3%, cord abnormality 13.5% and placental abnormality 8.8%). APGAR score of the newborn babies was abnormal (<7) in the majority (60%) cases. More than half of the newborn babies required admission in neonatal intensive care unit for different diagnosis. There was only 4 (1.5%) cases of neonatal death.*

Conclusion: *The rate of CS for fetal distress in this study was comparable to other study findings and within recommendation of WHO. The high rate of identifiable causes of fetal distress as well as neonatal outcome justifies doing CS in these cases.*

Key words: Cesarean section, fetal distress, justification.

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Introduction

Over the past 30 years, one of the most significant developments in obstetric practice has been an increase in the number of deliveries by Caesarean section (CS).[1,2] The current World Health Organization (WHO) recommendations state that the rate of CS should not exceed 15%.[3,4] The rate of CS has been increasing in Bangladesh like the rest of the world. Although most of this increase is due to increase in elective CS, emergency CS should be done promptly whenever necessary.

One of the main fetal indications for emergency CS is fetal distress, which is diagnosed by either fresh meconium staining of the amniotic fluid or an abnormal cardiotocograph (CTG).[5] During labour it is very important to detect early signs of fetal compromise and to intervene immediately to avoid

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adverse neonatal outcomes. But identification of fetus at risk of hypoxia is not always easy. The methods most commonly used include auscultation of fetal heart rate (FHR), detection of meconium stained liquor and electronic FHR monitoring if facilities are available.[6] Although cardiotocograph (CTG) is the most widely used tool for antepartum and intrapartum surveillance, suspicious FHR patterns lack specificity, and false-positive FHR tracings often result in unnecessary CS. Fetal blood sampling (FBS) is a particularly helpful tool for diagnosis of fetal acidosis and therefore hypoxia but difficult to do and not widely available.[7]

Due to inherent shortcomings of obstetric services and lack of adequate intrapartum monitoring, majority of cases present with well-established signs of fetal hypoxia to tertiary care centers. Although diagnosis of fetal jeopardy based on CTG alone has led to an increase in CS rate, but it has also been associated with a drop in the perinatal mortality rate.[8,9] This is not solely due to increasing CS rate. Other factors like organized and improved antenatal care, diagnosis of fetal anomalies and selective termination, better intrapartum fetal surveillance and advanced pediatric care have all contributed to improve perinatal outcome.

This study was aimed at finding the justification of doing CS in fetal distress by correlating with the fetal outcome.

Methods

This was a cross-sectional observational study conducted in Combined Military Hospital (CMH), Dhaka from July 2013 to January 2015. All pregnant women at or beyond 37 weeks of gestation who underwent an emergency CS primarily for fetal distress were included. The exclusion criteria covered any severe maternal or fetal pathology which may lead to fetal distress before labor or at its onset, pre term labor, malpresentation, previous history of CS.

During this period, a total of 2309 pregnant women underwent CS in CMH Dhaka, out of which 285 (12.34%) CS were due to fetal distress. From them 260 were included in this study, while the rest 25 were excluded as they had severe eclampsia, severe intrauterine growth restriction, fetal anomalies, non-immune hydrops, failure to progress without fetal distress and preterm labor.

An abnormal CTG, meconium stained liquor, abnormal fetal heart rate pattern was taken as the primary indicator of fetal distress. CTG tracings are classified according to international guidelines.[10] In case where diagnosis was based on abnormal CTG pattern, two tracings were obtained to confirm fetal jeopardy.

As regards other data (e.g. particulars of patients, type of CS, neonatal outcome), the indication was considered according to history taking and direct observation of patients. The other data considered are amniotic fluid color; time from the decision to carry out a CS until delivery, and neonatal outcome by measurement of an APGAR score at 1 and 5 minutes, cord pH (where possible) and admission to neonatal intensive care. The immediate factors leading to CS were identified. Rates of CS and CTG abnormalities were compared with the literatures.

Results

Among the 260 pregnant women who underwent CS due to fetal distress, mean age was 27.8 ± 5.3 years. Majority (48%) of the patients were in the 20-29 year age group (Table I). More than 50% of the women were primigravida (Table II). Majority (48%) of the patients presented with spontaneous onset of labor and in 43% cases labor was induced by medical methods like oxytocin drip (Table III). In the majority (40%) of the patients, fetal distress was diagnosed by seeing abnormal patterns in CTG (Table IV). During CS, signs of fetal distress was found in the majority (64.6%) of the patients (meconium stained liquor 42.3%, cord abnormality like-cord around neck or true knot 13.5% and placental abnormality like placental abruption 8.8%) (Table V). APGAR score of the newborn babies was abnormal (<7) in the majority (60%) cases (Table VI). Among 260 newborn babies, 144 (55.4%) required admission in neonatal intensive care unit for different diagnosis (neonatal jaundice 34.7%, meconium aspiration syndrome 33.3%). There was 4 (1.5%) cases of neonatal death (Table VII).

Table I Age distribution of the study population (n=260)

Age (years)	Number	Percentage
20-29	125	48.1
30-39	80	30.7
>39	55	21.2

Table II Distribution of Parity among study population (n=260)

Parity	Number	Percentage
Primigravida	142	54.6
Multigravida	118	45.4

Table III Distribution of study population according to mode of onset of labor (n=260)

Mode of labor	Total number	Percentage
Spontaneous onset	125	48.1
Induced by medical methods	112	43.1
Not in labor	23	8.8

Table IV Distribution of cases according to the mode of diagnosis of fetal distress (n=260)

Mode of diagnosis of fetal distress	Total number	Percentage
Abnormal CTG	103	39.6
Meconium stained liquor	92	35.4
Abnormal fetal heart rate pattern	65	25.0

Table V Distribution of cases according to findings during CS (n=260)

Findings during CS	Total number	Percentage
Meconium stained liquor	110	42.3
Cord abnormality	35	13.5
Placental abnormality	23	8.8
Normal finding	92	35.4

Table VI Distribution of APGAR Score of the newborn babies (n=260)

APGAR SCORE	Total number	Percentage
0-3	31	11.9
4-6	126	48.5
7-10	103	39.6

Table VII Distribution of cases according to neonatal diagnosis in admitted babies (n=144)

Outcome of baby	Number	Percentage
Neonatal jaundice	50	34.7
Meconium aspiration syndrome	48	33.3
Acute respiratory distress syndrome	26	18.1
Neonatal sepsis	16	11.1
Death	04	2.8

Discussion

In this study 12.34% of CS were done for fetal distress. In different studies throughout the world this rate of CS due to fetal distress has been variable, e.g. Bahrain 19%, Pakistan 16.3%, Jordan 30% and Zambia 21%.[5, 11-13]

In the developing world due to inadequate maternal health care system and traditional and cultural beliefs, the laboring women come to the hospitals only when some maternal or fetal complications have developed. Moreover, a number of obstetric and medical problems during pregnancy may subject the fetus to chronic distress. Unless monitored carefully, these cases are more likely to develop hypoxia during labor and cause fetal distress, thus leading to emergency CS.

In this study most of the patients belonged to 20-29 age group which is similar to other studies.[12]

This is due to the fact that most of the girls have early marriage and child bearing in developing and less developed countries.

In this study, about 55% of the cases were primigravida, which is similar to other studies.[13] This could have a future implication in obstetric course of the patient and making them vulnerable to all the complications associated with scarred uterus.

In this study, in 40% of patients fetal distress was diagnosed based on abnormal CTG patterns and in the majority by meconium stained liquor. This finding is in contast with finding of another study where more than 80% of the fetal distress was diagnosed by abnormal CTG.[5]This may be due to the fact that majority patients presented late to the hospital. Being a tertiary care military hospital, a large number of patients come from different parts of the country who were not on regular antenatal follow up in this hospital or at all and came here after onset of labor.

Majority of the neonates (>60%) in this study had APGAR score less than 7 after five minutes of birth and required some resuscitative measures. Among the delivered babies, more than half (55%) required neonatal intensive care admission due to some complication. Since majority of the neonates had compromised state after delivery and improved by resuscitation, this clearly justifies doing the emergency CS in these cases.

This was a single center study comprising family of military personnel, so the result may not reflect the status of the whole country. Future multicenter study with availability of fetal blood sampling is warranted for better understanding.

Conclusion

The rate of CS for fetal distress in this study was comparable to other study findings and within recommendation of WHO. The high rate of identifiable causes of fetal distress as well as neonatal outcome justifies doing CS in these cases.

Conflict of interest: Nothing to declare.

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