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ORIGINAL ARTICLE

PERINATAL OUTCOME OF PATIENTS UNDERGOING CAESAREAN SECTION FOR FETAL DISTRESS

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ABSTRACT

Background: Caesarean section is lifesaving procedure, but it also bring drastic outcomes for neonates and mother. This study was designed to assess the perinatal outcomes of patients undergoing caesarean section for fetal distress.

Material and Methods: This was a cross-sectional study conducted at Lady Reading Hospital, Peshawar, from January 01, 2022 to June 30, 2022. All those women (aged 18 to 40 years) who underwent CS due to fetal distress, were included. Normal vaginal birth and CS due to other indications were excluded. SPSS v 26 was used to record and analyze data. A P-value was calculated and <0.05 was kept as significant.

Results: During the study period, 671 deliveries were through caesarean section for fetal distress. The mean age of the patients was 28.25±6.87 years. The majority (33.4%) of the patients were in the age group of 26-30 years. More than half (52.75%) had a history of fresh meconium stain liquor. Perinatal outcomes were measured and most of the cases (644) had A/H, followed by 21 early neonatal deaths, and the rest (6) were stillborn.

Conclusion: Stillbirth and early neonatal mortality were the primary perinatal outcomes. When combined with those of parity and meconium aspiration, these results were statistically significant.

KEY WORDS: Perinatal Outcomes; Fetal Distress; Caesarean Section; Neonatal Death.

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INTRODUCTION

Although emergency caesarean section (CS) is a life-saving intervention when problems arise during labor, global CS rates have prompted concerns about the possibility of an overuse.[1] However, during the past decade, the rise in caesarean section has become a global public health problem of grave concern and has been widely adopted in the majority of developing nations, including Pakistan.[2] Recent Pakistan demography and health census reveals that the prevalence of CS in Pakistan is 22%.[3] South East Asia has experienced one of the world's highest absolute rises in CS rates over the past decade, from 4.4% to 19.2%.[4] The World Health Organization recommends that CS rates should not exceed 10 percent and should not go below 5 percent, as both of these levels are associated with negative mother and newborn health outcomes.

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In addition to dystocia, previous caesarean, and breech presentation, fetal distress is one of the four most common causes for caesarean surgery (CS). The diagnosis of suspected FD during labor, typically based on fetal heart rate characteristics or measurement of fetal scalp blood pH, is always considered an emergency.[5] On cardiotocography (CTG), FD presents clinically as an aberrant fetal heart rate (tachycardia 160 beats/minutes or bradycardia 110 beats/minutes).[6] WHO and the International Federation of Gynecology and Obstetrics recommend assessing the fetal heart rate every 15-30 minutes during the first stage of active labor and every 5 minutes during the second stage of labor.[7] It is a fetal and obstetrical emergency, complicating up to 2% of all pregnancies and accounting for 8.9% of births due to CS, particularly in underdeveloped nations.[8] Intrapartum hypoxia complicates approximately 1 percent of births and causes death in approximately 0.5 per 1000 births and cerebral palsy in 1 per 1000 births.[9]

The care of fetal distress necessitates the safest and quickest delivery route to reduce perinatal morbidity and mortality caused by neonatal asphyxia (NA) or hypoxic ischemic encephalopathy after birth. No specific literature exists in this part of the province; hence, a cross-sectional research study was conducted for outlining the Perinatal Outcome in Patients Undergoing Caesarean Section for Fetal Distress.

MATERIALS AND METHODS

This was a descriptive cross-sectional study conducted at Lady Reading Hospital, Peshawar, from 1st January 2022 to 30th June 2022. All those women who underwent CS due to fetal distress, age 18 to 40 years were included. Normal vaginal birth and CS due to other indications were excluded. A total of 671 patients were involved during the study time.

The study was started after approval was obtained from the Advanced Studies & Research Board and ethical board of Lady Reading Hospital, Peshawar. The purpose of our research was explained to all parents/guardians and informed written consent was taken as well. Patient information such as demographics and clinical tests was recorded on a specifically developed questionnaire. Term pregnant women admitted to a prenatal ward who match the inclusion criteria were enrolled in the study. At the beginning, a full history was obtained and physical examinations, including obstetrical examinations, were done. Early gestational age was assessed by the date of LMP, clinical examination, and USG report in the early weeks of pregnancy. Fetal distress was detected by history of fetal movement, detection of FHR & rhythm, and color of liquor. Fetal heart rate was deemed to be normal if it was within 100-179 beats per minute and rhythm was taken as normal if the heart beats were at regular intervals.

SPSS v 26 was used to record and analyze data. Descriptive statistics were used to calculate the mean and standard deviation for all numerical variables, while categorical variables were presented in percentage and frequency. The discrete variables were analyzed by the chi-square test. A P-value of <0.05 was kept as significant.

RESULTS

During the study period, 671 deliveries were through caesarean section. The mean age of the patients was 28.25±6.87 years. The majority of the patients 224 (33.4%) were in the age group of 26–30 years. More than one third (37.3%) were nulliparous. On CTG, the majority 269 (40.1%) had bradycardia, with a heart rate less than 100 beats per minute. More than half 354 (52.75%) had the history of fresh meconium stain liquor. Most of the decisions were made by the resident trainee 500 (74.5%). In most cases 437 (65.1%), the duration of the caesarean section was more than 30 minutes. Demographic characteristics are shown in Table 1.

Most of the patients in our study had no risk factors. However, 92 had a risk factor of previous 2 caesarian sections and 72 were handled cases. The rest are shown in figure 1.

Regarding perinatal outcomes, most of the cases 644(95.9%) had A/H, followed by 21(3.2%) early neonatal deaths, and the rest 6(.9%) were still born shown in figure 2.

Table 1: Demographic characteristics of the participants

Characteristics	Frequency	Percentage
Age group		
<20 years	102	15.2%
21-25 years	161	24%
26-30 years	224	33.4%
31-35 years	91	13.6%
>35 years	93	13.9%
Parity		
Primigravida	250	37.3%
Para 2-5	321	47.8%
>5	100	14.9%
POG		
<37 weeks	196	39.2%
37-40 weeks	390	58.1%
>40 weeks	85	12.7%
Fetal heart rate		
<100	269	40.1%
100-179	253	37.7%
>180	123	18.3%
Variability <5	26	3.9%
Meconium stain		
Grade 1	50	7.5%
Grade 2	186	27.7%
Grade 3	152	22.7%
Grade 4	8	1.2%
No MSL	275	41%
Decision taken by		
Resident trainee	500	74.5%
Consultant	171	25.5%
Duration of cesarean section		
30 min	234	34.9%
>30min	437	65.1%

By doing comparative analysis, parity was statistically significant with a p value of 0.007. With the rise in parity, there is a rise in stillbirths and END. Similarly, with a rise in the grade of meconium stain, there is a rise in complications. p = 0.008 as shown in table:2.

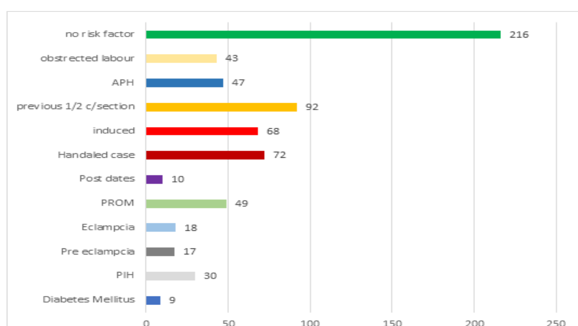

Figure 1: Risk factors of the patients undergone caesarean section.

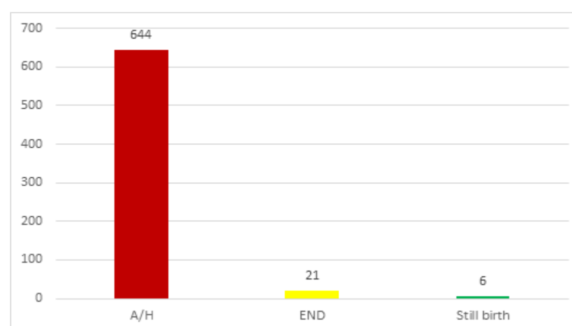

Figure 2: Perinatal outcomes of the participants in our study

Table 2: competitive analysis of Neonatal outcomes with demographic characteristics

Characteristics	Perinatal outcome			P value
Age group	A/H	END	Still Birth	
<20 years	100(14.9%)	2(0.3%)	0(00)	0.931
21-25 years	155(23.1%)	5(0.7%)	1(0.1%)	
26-30 years	213(31.7%)	8(1.2%)	3(0.4%)	
31-35 years	86(12.8%)	4(0.6%)	1(0.1%)	
>35 years	90(13.4%)	2(0.3%)	1(0.1%)	
Parity				
Primigravida	241(35.9%)	7(1%)	2(0.3%)	0.007
Para 2-5	310(46.2%)	11(1.6%)	0(00)	
Para >5	93(13.9%)	3(0.4%)	4(0.6%)	
POG				
<37 weeks	189(28.2%)	7(1%)	0	0.594
37-40 weeks	373(55.6%)	12(1.8%)	5(0.7%)	
>40 weeks	82(12.2%)	2(0.3%)	1(0.15%)	
Fetal heart rate:				
<100 bpm	254(37.9%)	11(1.6%)	4(0.6%)	0.289
100-179 bpm	249(37.1%)	3(0.4%)	1(0.1%)	
>180 bpm	116(17.3%)	6(0.9%)	1(0.15%)	
Variability >5	25(3.7%)	1(0.1%)	0(00)	
Meconium stain				
Grade 1	50(7.5%)	0	0	0.008
Grade 2	176(26.2%)	7(1%)	3(0.4%)	
Grade 3	139(20.7%)	11(1.6%)	20.3%)	
Grade 4	7(1%)	1(0.1%)	0(0.00)	
No MSL	272(40.5%)	2(0.3%)	1(0.15%)	
Decision taken by				
Consultant	159(23.7%)	8(1.2%)	4(0.6%)	0.026
Resident trainee	485(72.3%)	13(1.9%)	2(0.3%)	
Duration of CS				
30 minutes	225	5	4	0.149
>30 minutes	419	16	2	

DISCUSSION

Since a few decades, the most frequent reason for a caesarean section (CS) has been suspected fetal distress identified by cardiotocography (CTG). Many fetuses exhibit heart rate variations without experiencing any negative effects, and CTG has come under criticism for causing an unnecessarily high proportion of surgical deliveries. Therefore, it is important to understand which fetal heart defects may result in poor newborn outcomes.

In our study 62.29% had accurate clinical diagnosis of fetal distress. This suggests that the clinical diagnosis of fetal distress presented in this study, which relies only on fetal heart rate monitoring, is leading to a high number of needless caesarean procedures with serious obstetric repercussions. However, the clinical diagnosis of FD in this study is higher than previous reports. [10, 11] In one study from India by Richa et al.[12] the 14.38% were diagnosed with fetal distress who underwent CS. In one local study by Aqsa et al.[13] fetal distress were observed in 24.55%.

In the majority of cases in our research, the perinatal outcomes were stillbirth, early neonatal death (END), and AH. The incidence of END and stillbirth significantly rises with increased parity (p=0.007). According to reports, newborns born to nulliparous women have a higher risk of dying and experiencing other negative consequences, such as low birth weight, small for gestational age, and preterm.[14] According to a meta-analysis that included data from Asia, Africa, and Latin America and compared it to women between the ages of 18 and 35 who had one or two prior pregnancies, these risks were highest among nulliparous women. [15] The majority of participants in our study were single mothers.

Various investigations shown that these poor neonatal outcomes are influenced by a variety of maternal and fetal variables and are more common in emergency than planned CS.[16, 17] The percentage of early infant deaths (3.12%) was similar to a report from a research carried out at Attat Hospital in Ethiopia (3.6%)[18] however less than India.[19]

Similar to this, the likelihood of a poor perinatal outcome rises as meconium aspiration (MA) grade increases (p=0.008). Desai et al. found a significant correlation between fetal distress and meconium-stained fluid.[20] The diagnosis of fetal distress using a history of passing fresh meconium-stained fluid is still debatable in light of this dispute. Strategies to avoid MA must be practicable, safe, effective, and based on risk assessment. MA increases neonatal intensive care unit admissions as well as long-term morbidity and death.[21]

There was no statistically significant correlation between perinatal outcomes and the fetal heart rate, gestational age, length of CS, or maternal age group. Similar to earlier reports, there was no statistically significant difference in the perinatal outcome between patients who gave birth within 30 minutes of the decision and those who gave birth after 30 minutes.[22, 23] In the current study 33.5% deliveries were completed in under 30 minutes DDI. This is over 40% of the parturient in the United Kingdom who gave birth within 30 minutes of the decision being made.[24]

CONCLUSION

In our study, AH, stillbirth, and early neonatal mortality were the primary perinatal outcomes. When combined with the parity and meconium aspiration, these results were statistically significant.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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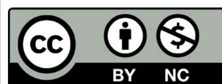
AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	MR, LZ
Acquisition, Analysis or Interpretation of Data:	MR, LZ
Manuscript Writing & Approval:	MR, LZ

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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