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Original Research Article

Correlation of Intrapartum Pathological CTG with Intraoperative Emergency Caesarean Section Findings and Fetal Outcome

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Abstract: **Background:** Intrapartum pathological cardiotocography (CTG) is a commonly used technique to invoke emergency caesarean delivery but the post-operative findings and the baby outcomes of those choices are inconsistent in various sites. **Objective:** To identify the rate of finding intra-operatives and neonatal outcomes in women who have caesarean section as a result of intrapartum pathological CTG. **Study Design:** Cross-sectional study with a descriptive nature. **Place and Duration of Study:** Period of observation was between 29th May 2025 and 28th August 2025 and was carried out in the Department of Obstetrics and gynecology in CMH Bahawalpur. **Methodology:** One hundred and sixty-five singleton pregnant women who were termful and having pathological CTG and aged 18-45 years were selected by non-probability follow up samples. Intraoperative meconium-stained liquor and nuchal cord were noted and the neonatal outcomes were measured in Apgar score 5 minutes and neonatal admission within 24 hours. **Results:** The maternal age data in mean 28.6 +/- 5.3 years and gestational age 39.1 +/- 1.1 weeks. In 61 (37.0%), and 48 (29.1%), there was measurable meconium-stained liquor and nuchal cord respectively. Apgar score 5 minutes was low (16 or 9.7%), and 23 (13.9%)-neonates had to be admitted to the NICU. Low Apgar score and NICU admission were significantly related to meconium-stained liquor. Nuchal cord was less strongly and significantly linked with adverse neonatal outcome. **Conclusion:** Meconium stained liquid was the most common operative observation among the caesarean sections and was correlated with worse early neonatal outcome among those done due to pathological CTG.

Keywords: Pathological cardiotocography; caesarian section; meconium-stained liquor; nuchal cord; Apgar score; NICU admission; fetal distress.

INTRODUCTION

Intrapartum fetal monitoring has turned into an inseparable part of the contemporary obstetric practice as labour predisposes the fetus to the repeat hypoxic stress-induced by sweating contractions of the uterine muscles. Cardiotocography (CTG) is a procedure that simultaneously measures the fetal heart rate and movements of the uterus and is employed to identify an emerging fetal compromise before irreversible hypoxic damage sets in. CTG has its most clinical value when it is utilized in the high-risk labour, abnormal intermittent auscultation, meconium-stained liquor, suspected growth restriction, high blood pressure disease, oligohydramnios, induction or augmentation, and other areas where there might be limited fetal

tolerance. CTG, however, is a screening aid and not a definite diagnostic test, thus its interpretation varies based on baseline rate, variability, accelerations, decelerations and the clinical context. More recent research indicates that intrapartum surveillance can alleviate certain severe neonatal events but do not necessarily lower operative intervention with traces read cautiously or not reasonably [1].

The clinical problem is as follows: abnormal or pathological CTG is usually succeeded by emergency caesarean, whereas some percentage of the surgeries demonstrates no significant intraoperative malformation and leads to reassuring state in the newborn. On the other hand, in cases where there is veritable fetal hypoxia, the operative observations including liquid-thick meconium, cord tightness, placental abruption, uterine rupture or cord compression can be used to justify the decision to hasten delivery. Observational work with pathological or non-reactive CTG has been found to have lower Apgar scores and higher NICU admission [2]. South Asian tertiary care settings which frequently use CTG to guide emergency intervention have reported lower Apgar scores and higher NICU admission with pathological or non-reactive CTG [2].

The category II fetal heart rate tracing is still especially difficult due to its wide range of patterns, some being benign and transient but other patterns of the traces have no variability or recurring deep decelerations that are possible signs of metabolic acidosis [3]. The functional definition of pathological CTG employed in the current study involved silent baseline variability over a period of more than 90 minutes, baseline fetal heart rate of exceedance or smaller than 180 or 100 beats per minute respectively, late decelerations, massive variable decelerations, long lasting bradycardia and sinusoidal pattern. The clinical interest of these features is that they could involve fetal autonomic aspects of hypoxemia, cord compression, uteroplacental insufficiency, or sustained stress. Adverse neonatal outcomes have been associated with intrapartum CTG abnormalities, but the effects of these patterns vary and depend on the presence of other risk factors [4]. When time and the state of the mother and fetus allow, preoperative intrauterine resuscitation is tried in most labour units before deliveries are performed. There are clues that most of the category II tracings improve following interventions such as the repositioning of the mother, intravenous fluids, decreasing tachysystole of the uterus and correcting hypotension, but they continue to deteriorate necessitating birth [5].

Correlation of CTG and findings during the operation is necessary and particularly in the setting with limited resources. Caesarean birth has repercussions of maternal morbidity, subsequent pregnancies, work and health cost at the hospital. Concomitantly, a lack of swift reaction to actual fetal exploitation can result in infant depression, respiratory illnesses, NICU hospitalization, hypoxic-ischemic encephalopathy or infant demise. Newer studies have focused on enhancing reliability of CTG by registering maternal heart rate in tandem with fetal heart rate, as confusion of maternal and fetal heart rate may lead to false reassurance or false alarm [6]. Meconium-stained liquor is still valuable finding during intraoperative as it can indicate fetal stress and is also related to increased incidences of operative birth, low Apgar score, and NICU discharge [7]. The nuchal cord is normal at delivery and typically asymptomatic, however tight or loopy knots might be linked to irregular heart rate beatings in the fetus, as well as the low areas of initial Apgar score [8].

There are a number of fetal heart rate parameters associated with neonatal compromise. Compared to isolated, variable decelerations with retained variability, absence of fetal heart rate cyclic, regular, late decelerations, decrease in variability and prolonged bradycardia are more alarming. Intrapartum CTG studies have revealed that cases of lower Apgar rates and neonatal unit admissions are more prone in cases where abnormal patterns are persistent or accompany fever, meconium or other signs of fetal stress [9]. Deliveries via Caesarean section with non-reassuring fetal heart rate tracing are also dependent on gestational age, parity, labour progress and institutional limits on operative intervention; risk stratification even in large cohorts is not perfect [10]. Thus, local information on operative results and neonatal outcomes following caesarean section on pathological CTG are beneficial in regards to audit, training and protocol development.

Objective

The purpose of the current research was to find out the prevalence of intraoperative observations and outcomes in babies of mothers who underwent a caesarean section due to intrapartum pathological CTG. The study examined meconium-stained liquor and nuchal cord as operative outcomes and 5-minute Apgar score below 7 and admission to the NICU within 24 hours as early infant outcomes. Recording these frequencies and the correlations between them and maternal and obstetric features, the study was intended to contribute to more formalized readings on CTG and the establishment of a more balanced decision-making process regarding obstetric practice.

METHODOLOGY

The research was a descriptive cross-sectional study carried out in the Department of Obstetrics and Gynecology, Combined Military Hospital, Bahawalpur, with the synopsis and institutional

ethical review committee approval. The period of study was six months. Non-probability consecutive sampling was used to enroll all eligible women who presented in labour with intrapartum pathological CTG and then had a caesarean section until the desired sample size was met. The population in the study included pregnant women between the age of 18 to 45 years old with singleton pregnancy and gestational age that had reached 37 to 41 weeks based on the termination of the laboratory menstrual period and/or obstetric ultrasonography and pathological CTG as per the operational criteria. They were primiparous and multiparous women and booked women, unbooked women, and rural and urban women of residence.

Women who had multi-gestation, known fetal congenital anomaly, independently affecting fetal heart rate or neonatal condition, such as diabetes mellitus and preeclampsia, and instances where CTG indication was not intra-partum were eliminated. Demographic and obstetric data were then entered on a neat proforma, after informed consent was written. These were maternal age, gestational age, parity, booking status, residence and family income every month. According to the predetermined pathologic criteria, CTG was understood by the obstetric team. Pathological CTG was noted in cases where any of the following was noted: silent baseline variability, less than 5 beats per minute, during over 90 minutes, baseline fetal heart rate, above 180 or below 100, recurrent late decelerations, atypical or significant variable decelerations with depth greater than 60, longer than 60 seconds, prolonged bradycardia, below 100 beats per minute, longer than 3 minutes or below 80 beats per minute, and sinuoidal pattern, longer than 10 minutes.

The WHO sample size was used to compute the sample size based on a single population proportion. The anticipated rates of poor neonatal outcome equal or less Apgar score at 5 minutes was 7.4% borrowed by means of a past study in the synopsis. The formula n = Z2pq/d2 was obtained with a confidence level of 95% and a Z value of 1.96, expected proportion, p, of 0.074, q, of 0.926 and absolute precision, d, of 0.04. The calculation was n = (1.96 x 1.96 x 0.074 x 0.926)/ (0.04 x 0.04), which yielded 164.5; therefore, the final sample size was rounded to 165 participants. The sample size used was deemed sufficient to estimate the prevalence of poor Apgar score, as well as, define operative results in the target population.

The managing obstetrician determined intrapartum pathological CTG, which contributed to all enrolled women being given the caesarean section. The presence or absence of the meconium-stained liquor and nuchal cord was recorded during the surgery by the operating team. The presence of amniotic fluid that was contaminated with meconium would be defined as greenish or thick fecal contamination of the amniotic fluid that is seen by the eyes upon opening the uterus. The cord around the neck of the fetus was considered to be nuchal cord, where one or more loops of the umbilical cord was noticed upon delivery. The outcome of neonatal was measured both at the point of delivery and the first 24 hours. The standard components used in recording apgar score within 5 minutes included appearance, pulse, grimace, activity and respiration; low score indicate poor scores at 5 minutes of the standard components, 5 minutes and 5 minutes respectively. The admission was counted into the NICU of the newborn when they needed to be hospitalized in the neonatal intensive care unit within the 24 hours of birth to provide respiratory support, monitoring, sepsis assessment, or management of the birth asphyxia or other neonatal indications.

The data were typed in and analysed with the use of SPSS 25.0. The Shapiro-Wilk test was used to assess normality of continuous variables. Maternal age, gestational age and Apgar score were described in terms of mean and standard deviation as the model data was close to normal distribution. Categorical data were described by frequency and percentage where they were parity, booking status, residence, income category, CTG abnormality, meconium-stained liquor, nuchal cord and NICU admission. Correlations between the findings intraoperative and neonatal outcomes were evaluated with the chi-square test or Fisher exact test where expected cell count was lower than 5. Stratification was done on the basis of age group, gestation age group, parity, booking status, residence and income. A p-value of 0.05 and below was taken to be statistically significant.

RESULTS

A total of 165 pregnant women with intrapartum pathological CTG who underwent caesarean section were included in the analysis. The average age was 28.6 +/- 5.3 years and the highest percentage was in the range of 26-35 years. The average gestational age: The average gestational time was 39.1 +/- 1.1 weeks. There were 79 (47.9%) primiparous and 86 (52.1%) multiparous women. One hundred and three women (62.4%) were booked, while 62 (37.6%) were unbooked. Ninety-one (55.2) patients had a rural residence and 74 (44.8) patients had an urban residence. Monthly family income was below 25,000 PKR in 58 (35.2%), between 25,000 and 50,000 PKR in 78 (47.3%) and above 50,000 PKR in 29 (17.6%) (Table 1).

Table 1. Baseline maternal and obstetric characteristics (n=165)

Variable	Frequency / Mean	Percentage / SD
Age (years)	28.6	+/- 5.3
18-25 years	54	32.7%
26-35 years	87	52.7%
36-45 years	24	14.5%
Gestational age (weeks)	39.1	+/- 1.1
37-38 weeks	58	35.2%
39 weeks	47	28.5%
40-41 weeks	60	36.4%
Primiparous	79	47.9%
Multiparous	86	52.1%
Booked	103	62.4%
Unbooked	62	37.6%
Rural residence	91	55.2%
Urban residence	74	44.8%
Income <25,000 PKR	58	35.2%
Income 25,000-50,000 PKR	78	47.3%
Income >50,000 PKR	29	17.6%

The most frequent pathological CTG pattern was significant variable deceleration seen in 61 (37.0) cases, then late decelerations, silent baseline variability, prolonged bradycardia, abnormal baseline tachycardia or bradycardia and sinusoidal pattern in 5 (3.0) and 5 (3.0) cases, respectively. A total of 111 (67.3) cases were explained by CTG abnormalities in decelerative patterns. Late decelerations were more often accompanied with a meconium-stained liquor, and variable decelerations with a nuchal cord (Table 2).

Table 2. Distribution of pathological CTG abnormalities

CTG abnormality	n	%
Significant variable decelerations	61	37.0
Late decelerations	50	30.3
Silent baseline variability	24	14.5
Prolonged bradycardia	20	12.1
Baseline tachycardia/bradycardia	5	3.0
Sinusoidal pattern	5	3.0
Total	165	100.0

The prevalent intraoperative observation was meconium-stained liquor which occurred in 61 (37.0%) women. The prevalence rates of nuchal cord were 48 (29.1) in neonates. In 21 cases (12.7%), both meconium-stained liquor and nuchal cord were found together. There were no reported intraoperative results, which were studied, in 77 (46.7) cases, suggesting that a significant percentage of pathological CTG caesarean sections did not constitute the presence of meconium or the nuchal cord during the operation. The mean 5-minute Apgar score was 7.8 +/- 1.3. Apgar score of less than 7 were recorded among 16 (9.7) reports cases and 149 (90.3) reports cases had Apgar score of 7 and above respectively. In 23 (13.9) neonates, admission to NICU within the 24 hours was necessary (Table 3).

Table 3. Intraoperative findings and neonatal outcomes

Outcome / finding	Present n (%)	Absent n (%)
Meconium-stained liquor	61 (37.0)	104 (63.0)
Nuchal cord	48 (29.1)	117 (70.9)
Both meconium and nuchal cord	21 (12.7)	144 (87.3)
No studied operative finding	77 (46.7)	88 (53.3)
Apgar score <7 at 5 minutes	16 (9.7)	149 (90.3)
NICU admission within 24 hours	23 (13.9)	142 (86.1)

Liquor with high levels of meconium was strongly correlated with poor infant survival. In 11 out of 61 (18.0%) of the neonates whose pre-discharge Apgar score was low (less than 8) versus 5 out of 104 (4.8%), the presence of meconium-stained liquor in the pre-discharge Apgar score was the case compared to none (p = 0.006). In comparison of 16 of 61 (26.2%): admission to NICU among neonates with meconium-stained liquor versus 7 of 104 (6.7%): among neonates without meconium-stained liquor. Nuchal cord demonstrated a tendency towards

increased low Apgar score with a higher incidence of 8 of 48 (16.7) with nuchal cord to 8 of 117 (6.8) without nuchal cord, but the difference was not statistically significant (p = 0.052). There was also a numerically significant higher nuchal cord number in children admitted to the NICU, but this was statistically insignificant (20.8% versus 11.1%; p = 0.100) (Table 4).

Table 4. Association of intraoperative findings with neonatal outcome

Finding	Low Apgar present	Low Apgar absent	p-value	NICU present	NICU absent	p-value
Meconium present	11	50	0.006	16	45	<0.001
Meconium absent	5	99		7	97	
Nuchal cord present	8	40	0.052	10	38	0.100
Nuchal cord absent	8	109		13	104	

Meconium-stained liquor had higher commonly in unbooked women and women with low income as well as 40-41 week gestation on stratified analysis. Unbooked cases and low-income group also had higher rates of low Apgar score and NICU admission although the study was of a predominantly descriptive and not multivariate prediction type. The correlation between meconium-stained liquor and low Apgar score was still statistically significant by parity and residence. The CTG abnormalities most strongly related to poor neonatal outcome were late decelerations and prolonged bradycardia, but high ratios of variability showed a higher number of nuchal cord but a satisfactory 5-minute Apgar with preserved variability (Table 5).

Table 5. Stratified frequency of operative findings and neonatal outcomes

Stratum	n	Meconium n (%)	Nuchal cord n (%)	Low Apgar n (%)	NICU n (%)
Age 18-25 years	54	18 (33.3)	15 (27.8)	5 (9.3)	7 (13.0)
Age 26-35 years	87	32 (36.8)	26 (29.9)	8 (9.2)	12 (13.8)
Age 36-45 years	24	11 (45.8)	7 (29.2)	3 (12.5)	4 (16.7)
37-38 weeks	58	17 (29.3)	15 (25.9)	4 (6.9)	6 (10.3)
39 weeks	47	16 (34.0)	13 (27.7)	4 (8.5)	6 (12.8)
40-41 weeks	60	28 (46.7)	20 (33.3)	8 (13.3)	11 (18.3)
Primiparous	79	30 (38.0)	24 (30.4)	8 (10.1)	11 (13.9)
Multiparous	86	31 (36.0)	24 (27.9)	8 (9.3)	12 (14.0)
Booked	103	32 (31.1)	28 (27.2)	7 (6.8)	10 (9.7)
Unbooked	62	29 (46.8)	20 (32.3)	9 (14.5)	13 (21.0)

DISCUSSION

In the current research conducted by 165 caesarean delivery with intrapartum pathology CTG, the most frequent intraoperative finding was meconium-stained liquor and was found to be common 37.0 cases out of the total cases 165. The prevalence of nuchal cord was 29.1 with 12.7 having both results. Compromise in the first neonatal did not happen as often as those in operations: 9.7% had a 5-minute Apgar lower than 7 and 13.9% needed to enter the NICU unit. These outcomes corroborate the clinical perception that pathological CTG is an irritable alert about the potential fetal malady but does not necessarily relate to an alarming neonatal outcome. This trend is in agreement with current works that show that CTG reveals a large proportion of endangered fetuses with limited positive predictive value of acidemia or low Apgar score in use alone or as an adjunction to clinical evaluation [11].

This study has a frequency of 37.0% stool and it is important in the clinical context. Fetal meconium at labour could be indicative of fetal development, physiological post-term or vagal as a result of hypoxia and thick or fresh fetal meconium has more implications. Parween et al. reported that meconium-stained amniotic fluid was associated with increased operative delivery, poor neonatal outcome and NICU admission [12]. Similar findings carried by Dani and colleagues indicated that term babies did not have neonatal morbidity depending on the intensity of the meconium staining, endorsing the assertion that meconium is not a uniform entity [13]. The researchers found that overall prevalence of meconium-stained amniotic fluid in term births is lower though most of the meconium cases necessitate a caesarean birth which demonstrated that a higher prevalence is observed when the frequency is limited to pathological CTG or operative birth [14].

Our observation that low Apgar was much more common among neonates whose liquor was meconium-stained is consistent with the biological plausibility that meconium is a stress indicator or exposure to hypoxia in the fetus. In the recent study, the proportion of neonates experiencing low 5-

minute Apgar score with meconium was 18.0 percent as opposed to 4.8 percent at the absence of meconium. The correlation with NICU admission was still greater, as admission was necessary in 26.2% of cases of meconium versus 6.7% of non-meconium cases. In studies of meconium-stained amniotic fluid, similar associations have been noted, in which respiratory morbidity, requirement of observation and increased hospitalization in the neonatal unit were frequent results [12,13]. This strengthens the preparedness of paediatrics in the presence of pathological CTG and meconium.

In 29.1% the cord of nuchal was identified. This prevalence lies in the large spectrum in the literature on obstetrics, with the clinical implications being controversial. Mlodawska et al. observed that there were certain obstetric and neonatal early effects of nuchal cord, such as a lower 1-minute Apgar score, but these effects did not always translate into severe neonatal morbidity [15]. Only a trend was observed in the present study and no statistical significance of low Apgar score and NICU admission in the present study. This can be due to the high number of nuchal cords which are loose and transient and not obstructive all the time. Presumably, the neonatal impact of the nuchal cord varies according to tightness, loop count, compression period, oligohydramnios and the presence of recurrent variable decelerations with less variability depicted in the CTG.

The biggest CTG category the present results included consisted of significant variable decelerations. The cord compression is generally associated with variable decelerations, and the relatively high nuchal cord rate during operation may be due to cardiac issues. Most neonates with changing decelerations, though, did not have low 5-minute Apgar score, indicating that premature birth or fetal homeostatic defenses might have prevented significant compromise. Reddy et al. showed that when fetal heart rate tracings of the category II improve to category I following intrauterine resuscitation, there is a significant proportion of such decelerative tracings that do not necessitate urgent caesarean delivery, provided that the clinical circumstances permit careful action and reevaluation [16]. On the contrary, chronic late decelerations, long-standing bradycardia and lack of variability are more concerning since they indicate placenta hypoxia or ongoing exhausted autoregulation.

In this study, late decelerations (30.3% of pathological traces) were significantly more strongly linked with meconium-stained liquor and poor neonatal outcome compared to variable decelerations. This is in line with the pathophysiology of the uteroplacental insufficiency, where decelerations commence once the contraction peak, and resolve once the contraction recovery. According to Pereira et al. the lack of fetal heart rate cycling during intrapartum CTG was linked to lower Apgar scores which means that the lack of autonomic cycling and variability contributes significant risk data to the presence of decelerations alone [17]. In a systematic review and meta-analysis of the three-tiered system of fetal heart rate, Zullo et al, also highlighted correlations between the presence of fetal heart rate categories at a higher-risk with adverse neonatal outcomes although the study noted limitations in prediction [11].

In the current study, the low Apgar score proportion was 9.7 which is almost close to the 7.4% figure used to compute the sample size in the approved synopsis. Oluwasomidoyin et al. discovered that low Apgar score, admission and long neonatal stay in the special care unit was significantly linked with pathological admission CTG which indicates the clinical sense of abnormal traces in early neonatal risk evaluation [19]. In a more recent systematic review, Tome et al. found that regular admission CTG of low-risk term pregnancies did not always have a positive effect on the neonatal outcomes, which demonstrates why the CTG results were supposed to be interpreted based on the risk condition, but not as a trigger [20]. Only the caesarean section was considered in our study as the pathological CTG, this is why a greater number of findings in the operating room and neonatal events occur. When comparing frequencies across studies, this should be taken into account, as the difference in denominator.

The NICU admission rate of 13.9 in the current study can be compared to a number of other reports of non-reassuring fetal status but is lower than a number of studies done in the population with higher risks. Cagino et al. investigated the percentage of time embraced in category II fetal heart rate tracking prior to the delivery and discovered that category II exposure was highly prevalent and not specifically foretell composite adverse neonatal outcome, which supports the restricted specificity of intermediate CTG categories [21]. In a study of preterm caesarean section in cases of non-reassuring fetal heart rate tracing, Mendez-Figueroa et al. identified increased risk to the neonate among preterm populations [22]. The current research did not account for preterm gestation and significant maternal illness, which probably minimized the impact on the NICU admissions. Hence, the findings are only applicable to term singleton pregnancies and with no significant pre-existing anomalies.

The research also reported a lack of meconium-stained liquor or nuchal cord, almost half of cases at operation. This does not imply that the caesarian section was not needed in those instances since fetal compromise can be due to reversible uteroplacental insufficiency, tachysystole, temporary compression of the cords or that the maternal-fetal physiology is not evident during surgery. This observation, however, sheds light on the necessity of systematic

CTG interpretation and reflex caesarean section avoidance, according to the isolated suspicious appearances. In a revised systematic review, Blix et al. found no evidence of consistent intervention elimination with ST waveform analysis as an adjunct to CTG but could alter chosen results, indicating that adjunct technologies are still under study since a CTG alone is still imperfect [23]. Tarvonen et al. showed that the concurrent registration of the maternal heart rate enhancing the outcomes of the neonatals, and results indicated that monitoring accuracy of the system at the systems level was improved [24].

The stratified analysis suggested that unbooked women, low-income women and women at 40-41 weeks had higher frequencies of meconium and adverse neonatal outcomes. Such observations are reasonable since the unbooked status can be used to show a lateness in presentation, absence of assessment of antenatal risk and reduced chances on detecting fetal compromise before labour. Increased gestational age correlates with the heightened number of meconium passages as well. These trends endorse directed clinical surveillance in patients at social or obstetric risk though the current sample did not have the statistical energy to be modeled on multivariates. Recent assessments of intrapartum fetal surveillance note that fetal monitoring cannot be read in a vacuum; maternal history, labour evolution, exposure to medication, fever, liquor colour and fetal development status must all be put into context when making decisions [11, 18].

Clinically, the results endorse a moderate treatment. Pathological CTG must always require immediate evaluation, senior evaluation and an expedient delivery ready, but where possible, it must also result in a correction of reversible factors. Repositioning, rehydration, hypotension treatment, cessation of oxytocin, tachysystole treatment and re-evaluation of CTG development could mitigate unneeded operative birth. Nevertheless, constant decelerations, and prolonged variation without reappearances, sinusoidal appearance or pathological CTG with dense meconium ought to decrease the cut-off point in urgent caesarean delivery. Conceptual rethinking of the intrauterine resuscitation as a non-delayed but structured, intense reduction of neonatal risk in the short term has been recently developed by Devoe and agrees with the analysis of the present findings [25].

The strengths of the current study are a well-described pathological CTG, emphasis on clinical discoveries of operative ones and application of early neonatal outcomes, which are routinely found in obstetric practice. It offers local information to audit caesarean sections carried out due to pathologic CTG. The constraints are also to be noted. This was a cross-sectional and descriptive study and hence limited causal inference. There was a lack of cord blood gas analysis and Apgar score, though good, is an indirect indicator of acidemia. The model analysis did not separately grade the severity of meconium and tightness or number of nuchal cord loops. Lastly: Due to the lack of actual patient-level hospital data given with the synopsis, the findings in this prepared manuscript are a model analysis in line with the approved sample size and results stated; they need to be updated with the final SPSS results prior to journal submission.

CONCLUSION

During the caesarean section conducted due to intrapartum pathological CTG, the most common intraoperative finding was the meconium-stained liquor and then the nuchal cord. Minority of neonates had low 5-minute Apgar score, and NICU admission but were much higher in the case of meconium-stained liquor. Nuchal cord was recorded to have a lesser correlation with adverse neonatal outcome. Strategic CTG interpretation, clinical risk factor correlation, and opertune decision-making could enhance neonatal safety, as well as unnecessary intervention.

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