International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Intra Operative Findings and Fetal Outcome in Primigravidae Taken for Caesarian Section on the Basis of Non-Reassuring Cardiotopographic Traces

Khayrul Nisa[1], Syed Masuma Rizvi[2]

[1]Postgraduate/ Research scholar, Department of Obstetrics and Gynaecology, GMC Srinagar, India

[2]Prof. and Head, Department of Obstetrics and Gynaecology, GMC Srinagar, India

Abstract: ***Background: An important function of cardiotocography (CTG) is to promptly identify non-reassuring fetal status during delivery, as these deviations often prompt primigravidae to undergo a caesarean section. However, these abnormal CTG traces may or may not correspond to intraoperative findings such as meconium-stained liquor or low APGAR scores at birth. It's worth noting that not all abnormal CTG changes result in poor outcomes. Therefore, there is a pressing need for research to explore their correlation, demonstrating the benefits of CTG in accurately detecting non-reassuring fetal status and how it correlates with subsequent intraoperative findings. Aim: To demonstrate the correlation of intra operative findings and fetal outcome in primigravida undergoing caesarean section for non reassuring cardiotocography. Methods: A prospective study of 50 cases of primigravida undergoing emergency caesarean section for non reassuring CTG was taken at the department of Obstetrics and Gynaecology Lalla Ded hospital Srinagar was taken. Their CTG traces were correlated with their intraoperative findings such as meconium stained liquor, cord around neck, oligohydramnios, placental abruption and apgar score at birth. Results: Out of these 50 primigravida who underwent emergency caesarean section,62% had CTG with decelerations-Non reactive, 30% had a CTG trace with persistent decreased variability while 8% had a persistent low baseline on CTG . Among patients with CTG trace showing decelerations 58% had meconium stained liquor, 16.5% had cord around the neck and 25.8 % had low APGAR scores at birth . Among the group of patients with decreased variability 42.1% had meconium stained liquor, 10.5% had cord around the neck and 21% had low APGAR scores at birth. Among the group with low baseline, 51% had meconium stained liquor, 23% had cord around neck and 39 % had low birth apgar. Conclusion: Cardiotocography shows a positive correlation with meconium-stained liquor and APGAR scores at birth, but not with cord entanglements. Therefore, it's crucial to use CTG judiciously and consider employing other non-invasive, cost-effective tests to detect non-reassuring fetal status, aiming to reduce unnecessary caesarean sections.***

Keywords: Primigravida, Intraoperative findings Neonatal outcome, Electronic fetal monitoring, perinatal outcome, CTG

1. Introduction

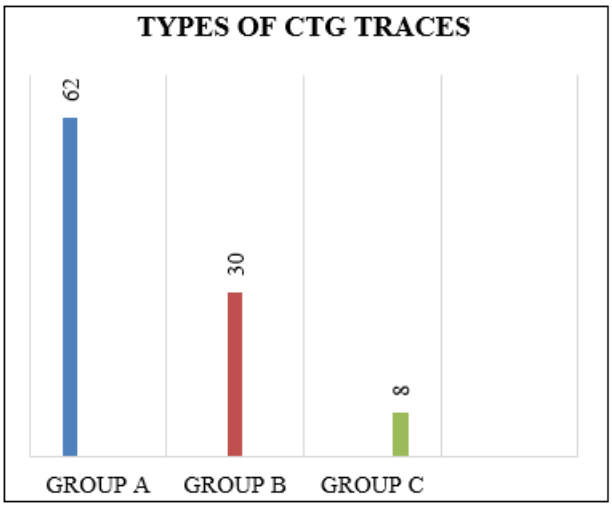
The rate of Caesarean sections is increasing, posing risks of neonatal and maternal morbidity and impacting future pregnancies. The primary indication for emergency Caesarean sections is fetal distress, detected through intermittent fetal heart monitoring or continuous electronic cardiotocography (CTG). While CTG is a simple, non-invasive method for assessing fetal status during labor, its predictive value is limited by inter and intraobserver variability. CTG results can be influenced by metabolic, hypoxic, or qualitative maternal blood alterations. Fetal bradycardia, tachycardia, lack of variability, low fetal heart rate baseline, and decelerations are indicative of hypoxic injury. Meconium-stained liquor (MSL) in primigravidae may also signal fetal distress, regardless of whether abnormal fetal heart rates are evident. The sensitivity of electronic fetal heart monitoring in predicting adverse perinatal outcomes has been questioned. Therefore, a study correlating intraoperative findings in primigravidae who underwent emergency Caesarean sections based on non-reassuring cardiotocographic changes is essential to understand the cause of the rising Caesarean section rates.

2. Methods

It was a prospective study conducted in the department of Obstetrics and Gynaecology Lalla ded Srinagar from January to april 2024. A total of 50 primigravidae who underwent LSCS on the basis of non reassuring cardiotocograph were taken. CTGs were divided into 3 groups GROUP A- CTGs showing variable or late decelerations, GROUP B- CTGs showing persistent decreased variability and GROUP C – CTGs showing persistent decreased baseline in fetal heart rate. Intra operative findings were classified as meconium stained liquor, cord around neck, low APGAR score at birth, oligohydramnios or macroscopic abruption. They were correlated with the type of CTG trace in labor. Statiscal tests that were applied were Chi square tests using SPSS data.

3. Results

Out of these 50 primigravida who underwent emergency caesarean section,62% had CTG with decelerations-Non reactive, 30% had a CTG trace with persistent decreased variability while 8% had a persistent low baseline on CTG.



Among patients with Group A CTG trace showing decelerations 58% had meconium stained liquor, 16.5% had cord around the neck and 25.8% had low APGAR scores at birth.

Among the group of patients with decreased variability

Group B CTGs	Meconium Stained Liquor	Cord Around Neck	Low APGAR at Birth
31	18	5	8

42.1% had meconium stained liquor, 10.5% had cord around the neck and 21% had low APGAR scores at birth.

Group B CTGs	Meconium Stained Liquor	Cord Around Neck	Low APGAR at Birth
19	8	2	4

Among the group with low baseline, 20% had meconium stained liquor, 0% had cord around neck and 20 % had low birth apgar.

Group C CTGs	Meconium Stained Liquor	Cord Around Neck	Low APGAR at Birth
5	1	0	1

4. Discussion

Cardiotocography provides a straightforward and non-invasive means of evaluating fetal well-being during labor. However, during childbirth, instances of "non-reassuring fetal state" or fetal distress due to fetal hypoxia are increasingly linked to severe perinatal outcomes, including stillbirth.

Hypoxia during delivery can lead to adverse fetal outcomes in terms of morbidity and mortality. Lactic acidosis, resulting from prolonged and excessive hypoxia with anaerobic metabolism in the fetus, exacerbates acidosis. Therefore, monitoring for non-reassuring fetal heart patterns during delivery is crucial, as it serves as a key indicator for prompt intervention, such as urgent cesarean delivery, to prevent neonatal ischemic crises.natal mortality, seizures, and cerebral palsy.

As labour is itself a state of stress to the foetus, uterine contractions sometimes may adversely affect the foetus, especially in an already compromised state of poor placental reserves, oligohydramnios, meconium-stained liquor or cord around the neck or iatrogenic uterine hyperstimulation with injudicious use of prostaglandins and oxytocin.

During surgery, findings like meconium-stained liquor, cord entanglement, oligohydramnios, or placental abruption, among others, discovered later, are correlated with fetal hypoxia manifested by non-reassuring cardiotocography (CTG). In our study, the presence of meconium-stained liquor was highest in CTG showing variable or late decelerations, followed by decreased beat-to-beat variability, and this association was statistically significant. However, decision-making for delivery should consider overall assessment rather than solely relying on CTG traces, as some cases may present with normal CTG despite the presence of meconium-stained liquor.

In our study, only a quarter of primigravidae with abnormal CTG had a nuchal cord, and this association was not statistically significant. While nuchal cord leading to fetal distress has been reported in some studies, multiple cord entanglements and tight cords are more commonly associated with fetal distress compared to a single cord, as shown in our study.

Various studies, including Ozden et al., have found a positive correlation between abnormal CTG and low APGAR scores at birth. In our study, abnormal CTG with late decelerations was significantly associated with low APGAR scores, similar to observations by Salustiano et al. The relatively high prevalence of normal APGAR scores in patients with abnormal CTG in our study could be attributed to early intervention via cesarean section and limited access to fetal scalp blood sampling to confirm acidosis. Therefore, intrapartum electronic fetal monitoring can improve fetal outcomes, but careful interpretation is essential to mitigate the increasing rates of cesarean sections**.**

5. Conclusion

For the past decade, the most common reason for cesarean sections has been fetal non-reassuring status. The identification of this condition, based on anomalies in fetal heart rate observed via electronic monitoring, has led to a significant increase in cesarean births without harming the fetuses. The rising cesarean section rates for fetal distress can be attributed to the widespread use of cardiotocography (CTG) for accurately detecting fetal heart rate alterations. However, it's essential to acknowledge that not all fetuses with abnormal FHR patterns detected by CTG have unfavorable birth outcomes.

References

[1] Bhatia N, M KK. Intraoperative findings in primary caesarean section for non-reassuring fetal status and its correlation with cardiotocography. Int J Reprod Contracept Obstet Gynecol. 2018;7:2351–4. [Google Scholar]
[2] Hon EH. Apparatus for continuous monitoring of the fetal heart rate. Yale J Biol Med. 1960;32:397–9. [PMC free article] [PubMed] [Google Scholar]

[3] Intrapartum Fetal Monitoring |GLOWM. [Last accessed on 2021 Nov 19]. Available from: http://www.glowm.com/section-view/heading/intrapartum-fetal-monitoring/item/202 .
[4] Steer PJ, Eigbe F, Lissauer TJ, Beard RW. Interrelationships among abnormal cardiotocograms in labor, meconium staining of the amniotic fluid, arterial cord blood pH, and Apgar scores. Obstet Gynecol. 1989;74:715–21. [PubMed] [Google Scholar]
[5] Sen M, Samal S, Datta S, George M. Abnormal cardiotocographic findings and perinatal outcome:A prospective study. Int J Reprod Contracept Obstet Gynecol. 2019;8:4261–70. [Google Scholar]
[6] Nandhini S, Anuradha CR, Renuka S, Vijayalakshmi K, Sailatha R. Incidence of umbilical cord around the neck and its effects on mode of delivery and fetal outcome at tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. 2021; 10:516–9. [Google Scholar]
[7] Alfirevic Z, Gyte GM, Cuthbert A, Devane D. Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. Cochrane Database Syst Rev. 2017;2:CD006066. doi:10.1002/14651858.CD006066.pub3. [PMC free article] [PubMed] [Google Scholar]
[8] Oyelese Y, Ananth C. Placental abruption. Obstet Gynecol. 2006;108:1005–16. [PubMed] [Google Scholar]
[9] Crawford JS. Cord around the neck:Further analysis of incidence. Acta Paediatr. 1964;53:553–7. [PubMed] [Google Scholar]
[10] Lichtman Y, Wainstock T, Walfisch A, Sheiner E. The significance of true knot of the umbilical cord in long-term offspring neurological health. J Clin Med. 2020;10:E123. doi:10.3390/jcm10010123. [PMC free article] [PubMed] [Google Scholar]
[11] Magann EF, Sandlin AT, Ounpraseuth ST. Amniotic fluid and the clinical relevance of the sonographically estimated amniotic fluid volume:Oligohydramnios. J Ultrasound Med. 2011;30:1573–85. [PubMed] [Google Scholar]