OPEN ACCESS ORIGIONAL ARTICLE

FETAL OUTCOMES IN DELIVERIES WITH MECONIUM STAINED LIQUOR AT TERM PREGNANCY.

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ABSTRACT

OBJECTIVE: To determine the frequency of adverse fetal outcomes in deliveries with meconium stained liquor at term. **MATERIAL AND METHODS:** This research constitutes a descriptive study aimed at investigating the association between meconium-stained amniotic fluid in term pregnancies and adverse fetal outcomes. The study was carried out at the Department of Obstetrics and Gynaecology Hayatabad Medical Complex Peshawar (HMC), spanned from September 2020 to March 2021. A total of 130 participants were included in the study as the sample size **RESULTS:** Among the cases observed, 40(30.8%) exhibited abnormal fetal heart rates, while the remaining 90(69.2%) demonstrated normal heart rate. Low Apgar score was observed in 26(20%) of newborns, indicating that they needed immediate medical attention and support for a smooth transition to life outside the womb. On the other hand, 104(80%) of newborns scored well on the Apgar assessment. **CONCLUSION:** Our study has concluded that meconium stained liquor is associated to increased perinatal morbidity.

KEYWORDS: Pregnancy, Meconium stained liquor, Fetal outcomes.

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How To Cite This Article: Qaiser F[1], Wazir N[2], Rauf N[3]. **FETAL OUTCOMES IN DELIVERIES WITH MECONIUM STAINED LIQUOR AT TERM PREGNANCY.** JPUMHS;2023:13:04,1-5. http://doi.org/10.46536/jpumhs/2023/13.04.462

Received September 01.2023, Accepted On 15 December 2023, Published On 31 December 2023.

NTRODUCTION

Meconium, the first intestinal discharge of a newborn, is typically expelled postnatally.[1] However, in certain cases, it can be released into the amniotic fluid before birth, leading to a condition known as meconium-stained amniotic fluid (MSAF). The presence of meconium in the amniotic fluid is often indicative of fetal stress, and its significance in term pregnancies has been a subject of extensive research and clinical investigation.[2,3] Term pregnancy, conventionally defined as a gestational age between 37 and 42 weeks, is a critical period in fetal development, where the transition from intrauterine to extrauterine life takes place.[4,5] While meconium-stained amniotic fluid can arise in both preterm and term pregnancies, this discussion focuses on its implications specifically in term pregnancies. The relationship between meconium-stained amniotic fluid and fetal outcomes in term pregnancies has been an area of active research and clinical interest due to its potential association with adverse neonatal outcomes.[6,7] The presence of meconium in the amniotic fluid is believed to result from various physiological mechanisms, including fetal maturity, oxygenation, and intrapartum stress.[8] Meconium-stained amniotic fluid may indicate fetal distress, as it is thought to be a response to

hypoxia, a reduction in the supply of oxygen to fetal tissues, which can occur during labor. Consequently, the observation of meconium-stained amniotic fluid often prompts obstetricians and perinatologists to closely monitor the wellbeing of both the mother and the fetus during labor.[9,10] Given the clinical significance of meconium-stained amniotic fluid in term pregnancies, it is imperative to comprehensively understand the potential implications it holds for both maternal and neonatal health. This research article aims to delve into the existing body of knowledge regarding the fetal outcomes associated with deliveries involving meconium-stained amniotic fluid in term pregnancies. By critically reviewing the available literature, we seek to provide a comprehensive overview of the current understanding, controversies, and gaps in knowledge pertaining to this topic. Additionally, this article intends to shed light on the clinical management strategies employed in cases of meconium-stained amniotic fluid to optimize fetal and neonatal outcomes.

MATERIALS AND METHODS

This research constitutes a descriptive study aimed at investigating the association between meconium-stained amniotic fluid in term pregnancies and adverse fetal outcomes. The study was carried out at the Department of Obstetrics and Gynaecology Hayatabad Medical Complex Peshawar (HMC), spanned from September 2020 to March 2021. A total of 130 participants were included in the study as the sample size. Inclusion Criteria: Participants in the study were women aged 18 to 40 years, experiencing singleton pregnancies as confirmed by ultrasound. The gestational age of these pregnancies was greater than 36 weeks based on the last menstrual period (LMP). All parities were considered eligible. Additionally, participants needed to have meconium-stained amniotic fluid as per the operational definition, either after spontaneous rupture of membranes or artificial rupture during labor. Exclusion Criteria: Excluded from the study were neonates with congenital anomalies, cases of eclampsia, instances of antepartum hemorrhage, cases of intrauterine fetal death confirmed by ultrasound, and pregnancies where pre-existing maternal heart or lung diseases were present. Patients meeting the inclusion criteria were selected from the indoor department of Obstetrics and Gynaecology HMC, after obtaining ethical committee approval. Basic demographic data such as age, gestational age, and parity were documented. Informed consent was procured from each participant following a comprehensive explanation of the study's potential benefits. A monitoring grid was employed to track participants throughout labor and after delivery, focusing on potential fetal complications. The primary investigator, assisted by a 4th-year resident available during the study period, recorded relevant parameters. Adverse fetal outcomes like abnormal fetal heart rate, Low Apgar score, neonatal resuscitation, neonatal asphyxia, and low birth weight were identified based on the operational definitions. Statistical analysis was performed using IBM-SPSS version 23. Adverse fetal outcomes were analyzed in relation to age, gestational age, and parity, and post-stratification chi-square tests were applied. A significance level of $p \leq 0.05$ was considered statistically significant.

RESULTS

Table I presents the demographic characteristics of the participants in the study. The mean age of the participants was 28.684 ± 1.67 SD. The mean gestational age at the time of delivery was 38.5 ± 1.05 weeks. The mean parity was 1.29 ± 1.07 SD, highlighting that most participants were in their first or second pregnancy. Table-1 Among the cases observed, 40(30.8%) exhibited abnormal fetal heart rates, while the remaining 90(69.2%) demonstrated normal heart rate. Low Apgar score was observed in 26(20%) of newborns, indicating that they needed immediate medical attention and support for a smooth transition to life outside the womb. On the other hand, 104(80%) of newborns scored well on the Apgar assessment. Approximately 19(14.6%) of newborns required resuscitative measures, emphasizing the importance of medical interventions in helping newborns establish proper breathing and stability after birth. Remarkably, the majority 111(85.4%) did not necessitate such interventions, showcasing the successful start of their postnatal journey. Neonatal asphyxia had affected 22(16.9%) of newborns, signaling challenges in their oxygen supply during the crucial transition period. Total 7(5.4%) of newborns had low birth weights, which can potentially pose health challenges in the early stages of life. However, a reassuring 123(94.6%) of newborns exhibited healthy birth weights, setting a positive tone for their early development. Table-2

Table- I: Demographic and other characteristics of patients (Mean ± SD*)*

Demographics	Mean ± SD
Age(years)	28.684±1.67
Gestational age (weeks)	38.500±1.05
Parity	1.292±1.07

Table- II: OUTCOME OF THE STUDY

Adverse fetal outcome	Frequency	%age
Abnormal Fetal Heart Rate		
Yes	40	30.8%
No	90	69.2%
Low Apgar Score		
Yes	26	20%
No	104	80%
Neonatal resuscitation		
Yes	19	14.6%
No	111	85.4%
Neonatalasphyxia		
Yes	22	16.9%
No	108	83.1%
Low birth weight		
Yes	7	5.4%
No	123	94.6 %

DISCUSSION

The outcomes presented in this study illuminate the intricate landscape of meconium-stained liquor's impact on term pregnancies, offering critical insights into maternal and neonatal health.[11,12] By delving into the demographic characteristics and adverse fetal outcomes, we can discern meaningful patterns and implications for clinical practice and future research endeavors. The average age of 28.684 years among the participants underscores the reproductive diversity within the study cohort. This aligns with the widely recognized age range for pregnancies and ensures a representative sample for analysis.[13] The mean gestational age of 38.5 weeks alludes to the timing of meconium-stained amniotic fluid occurrences primarily in the late stages of term pregnancies. This temporal aspect is in line with existing knowledge that attributes meconium presence to fetal maturation and the establishment of gut function. Notably, the mean parity of 1.29 offers a glimpse into the predominance of participants experiencing their first or second pregnancy. This could signify a potential link between lower parity and the likelihood of meconium staining, prompting further investigation into this intriguing connection. The revelation that 30.8% of cases exhibited abnormal fetal heart rates underlines the complexity of maternal-fetal physiology during labor. The correlation between meconium-stained amniotic fluid and these cardiac aberrations resonates with established literature, reinforcing the clinical significance of vigilant heart rate monitoring.[14,15] The observation of low Apgar scores in 20% of newborns is a poignant reminder of the challenges these infants face as they make their first breaths. This underscores the necessity for meticulous neonatal care and readiness for immediate interventions to ensure a smooth transition into the world. The narrative of neonatal resuscitation unfolds, revealing the pivotal role of medical interventions in helping newborns initiate breathing and establish vital stability.[16] A prevalence of 14.6% necessitating resuscitation underscores the vulnerability of these infants and calls for a multidisciplinary approach that seamlessly integrates obstetric and neonatal care. The distressing yet important occurrence of neonatal asphyxia in 16.9% of cases amplifies the urgency of minimizing oxygen-related complications during the crucial transition period. This phenomenon spotlights the intricate balance that healthcare providers must strike to ensure a safe passage for newborns. Intriguingly, the study's findings uncover that 5.4% of newborns faced the challenge of low birth weight. This insight raises the question of whether meconium-stained liquor might be an indicator of broader developmental concerns and invites exploration into potential links between these two parameters. Meanwhile, the reassuring prevalence of healthy birth weights (94.6%) imparts optimism and serves as a testament to

the resilience of the majority of neonates born from pregnancies with meconium-stained amniotic fluid. The intricate interplay of adverse fetal outcomes presented here underscores the imperative for a holistic approach in managing pregnancies marked by meconium-stained liquor. Vigilant monitoring, personalized interventions, and a robust continuum of care emerge as essential pillars. However, the scope of this study invites further exploration through larger-scale research, potentially encompassing multiple healthcare settings to validate the observed trends and identify potential confounding variables.

LIMITATION

While our study provides valuable insights, it's important to acknowledge its limitations. First, the relatively small sample size and single-center design May somewhat restrict the broader applicability of our findings. The study's retrospective nature, relying on historical data, could introduce data inaccuracies and missing information, and it only allows us to identify associations rather than establish causation. Additionally, our exclusion criteria, though carefully chosen, might introduce selection bias, potentially limiting the representation of real-world scenarios. Moreover, we acknowledge that we didn't comprehensively explore all potential confounding variables that could influence fetal outcomes. These limitations underscore the need for larger, more diverse studies with a prospective approach, considering a wider array of factors, to offer a more comprehensive understanding of the intricate relationship between meconium-stained amniotic fluid and adverse fetal outcomes in term pregnancies.

CONCLUSION

This study sheds light on adverse fetal outcomes in term pregnancies with meconium-stained liquor. The prevalence of abnormal fetal heart rates, low Apgar scores, neonatal resuscitation, neonatal asphyxia, and low birth weight underscores the need for vigilant monitoring and timely interventions. These findings underscore the urgency of tailored clinical approaches to safeguard maternal and neonatal health in such cases. Further research can expand upon these insights for more comprehensive understanding and effective management.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

FUNDING: The work was not financially supported by any organization. The entire expense was taken by the authors

ACKNOWLEDGEMENTS: We would like to thank the all contributors and staff and other persons for providing useful information.

AUTHORS' CONTRIBUTIONS: All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST: No competing interest declared.

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