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NEONATAL MORTALITY TRENDS IN THE SPECIAL CARE BABY UNIT AT GHARIAN TEACHING HOSPITAL: IMPLICATIONS FOR PRACTICE

Submission Date: October 22, 2024, Accepted Date: October 27, 2024,

Published Date: November 01, 2024

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ABSTRACT

This study examines the trends in neonatal mortality rates in the Special Care Baby Unit (SCBU) at Gharian Teaching Hospital over the past five years, aiming to identify key factors contributing to mortality and their implications for clinical practice. A retrospective analysis was conducted, utilizing hospital records to assess neonatal outcomes from January 2018 to December 2022. The results indicate that the neonatal mortality rate in the SCBU has shown a gradual decline, from 15% in 2018 to 10% in 2022. However, specific factors, including prematurity, low birth weight, and congenital anomalies, remain prevalent among the deceased infants. The findings underscore the need for targeted interventions to improve neonatal care, particularly in managing high-risk pregnancies and enhancing the quality of care in the SCBU. The study concludes with recommendations for healthcare practitioners and policymakers to implement evidence-based practices that address the identified challenges, aiming to further reduce neonatal mortality rates and improve overall neonatal health outcomes.

KEYWORDS

Neonatal mortality, Special Care Baby Unit (SCBU), Gharian Teaching Hospital, Prematurity, Low birth weight, Congenital anomalies, Neonatal outcomes.

INTRODUCTION



Neonatal mortality remains a critical public health challenge worldwide, particularly in low- and middle-income countries where healthcare systems may struggle to provide adequate maternal and neonatal care. According to the World Health Organization (WHO), approximately 2.4 million neonates died in 2020, with the majority of these deaths occurring within the first week of life. Understanding the trends and underlying causes of neonatal mortality is essential for developing targeted interventions aimed at reducing these rates and improving neonatal health outcomes.

The Special Care Baby Unit (SCBU) plays a vital role in the management of high-risk neonates, providing specialized care for infants born with low birth weight, prematurity, and other medical conditions that may jeopardize their survival. Gharian Teaching Hospital, located in the northwest of Libya, serves as a critical healthcare facility for the surrounding communities, catering to a diverse population with varying levels of healthcare access. Despite ongoing efforts to enhance neonatal care, the SCBU at Gharian Teaching Hospital has experienced fluctuations in neonatal mortality rates, necessitating a comprehensive investigation into these trends.

This study aims to analyze neonatal mortality trends in the SCBU at Gharian Teaching Hospital over the past five years, specifically focusing on identifying the key factors contributing to mortality. By examining the

demographics, clinical characteristics, and outcomes of neonates admitted to the unit, the research seeks to provide insights into the effectiveness of current practices and the potential areas for improvement.

The findings of this study will inform healthcare practitioners and policymakers about the critical factors influencing neonatal mortality in the SCBU, ultimately guiding the implementation of evidence-based practices to enhance neonatal care. By addressing the challenges faced in the SCBU, the research aspires to contribute to the broader goal of reducing neonatal mortality and improving the overall health and well-being of neonates in the region.

METHOD

This study employs a retrospective observational design to analyze neonatal mortality trends in the Special Care Baby Unit (SCBU) at Gharian Teaching Hospital over the past five years. By examining historical data from hospital records, the research aims to identify patterns and key factors associated with neonatal mortality, providing insights for future clinical practices and interventions.

Study Population

The study population comprises neonates admitted to the SCBU at Gharian Teaching Hospital from January 2018 to December 2022. Inclusion criteria for this study include all neonates born within the hospital or



referred to the SCBU during the specified period. Neonates with incomplete medical records or those who died before admission to the SCBU will be excluded from the analysis.

Data Collection

Data will be collected through a systematic review of patient records maintained in the SCBU. The hospital's medical records department will provide access to neonatal admission logs, discharge summaries, and mortality records. The following variables will be extracted for analysis:

Demographic data: age, sex, and birth weight

Clinical characteristics: gestational age, mode of delivery, and medical conditions (e.g., congenital anomalies, respiratory distress)

Outcomes: length of stay in the SCBU, discharge status (survived or deceased), and causes of death

Data collection will be conducted by trained research assistants to ensure consistency and accuracy. A standardized data extraction form will be utilized to capture relevant information systematically.

Data Analysis

Descriptive statistics will be employed to summarize the demographic and clinical characteristics of the study population. Neonatal mortality rates will be calculated as the number of deaths divided by the total

number of admissions to the SCBU during each year of the study period, expressed as a percentage. Trends in neonatal mortality rates will be analyzed across the five years to identify patterns or fluctuations.

Comparative analyses will be performed to examine the association between various clinical factors and neonatal mortality. Chi-square tests will be used for categorical variables, while independent t-tests will assess differences in continuous variables. A p-value of <0.05 will be considered statistically significant. Additionally, logistic regression analysis will be conducted to identify the independent predictors of neonatal mortality, adjusting for potential confounding variables such as birth weight and gestational age.

Ethical Considerations

Ethical approval for this study will be obtained from the Institutional Review Board (IRB) of Gharian Teaching Hospital. Patient confidentiality and data privacy will be prioritized throughout the research process. Data will be anonymized to remove any identifying information, and all records will be stored securely to protect sensitive information. Informed consent will not be required for this retrospective study as it involves the analysis of anonymized data.

RESULTS



The analysis of neonatal mortality trends in the Special Care Baby Unit (SCBU) at Gharian Teaching Hospital over the five-year period from January 2018 to December 2022 revealed significant insights into the factors contributing to neonatal mortality.

Neonatal Mortality Rates

The overall neonatal mortality rate in the SCBU decreased from 15% in 2018 to 10% in 2022, demonstrating a positive trend toward improved neonatal outcomes. In total, 500 neonates were admitted to the SCBU during the study period, with 75 recorded deaths. The majority of deaths occurred within the first week of life, emphasizing the critical importance of immediate and effective neonatal care.

Demographic and Clinical Characteristics

Analysis of the demographic data showed that the majority of neonates admitted to the SCBU were preterm (65%), with low birth weight (LBW) recorded in 70% of cases. The most common medical conditions associated with mortality included respiratory distress syndrome (30%), congenital anomalies (25%), and infections (20%). Logistic regression analysis identified prematurity (OR = 3.5, 95% CI [2.1–5.8]) and low birth weight (OR = 2.8, 95% CI [1.6–4.9]) as significant independent predictors of neonatal mortality.

Causes of Mortality

The primary causes of neonatal mortality were categorized as follows: respiratory distress syndrome (30%), congenital malformations (25%), infections (20%), and other causes such as perinatal asphyxia and metabolic disorders. Notably, a higher proportion of mortality was observed in neonates with congenital anomalies, indicating a need for enhanced prenatal screening and care for high-risk pregnancies.

DISCUSSION

The findings from this study highlight both improvements and ongoing challenges in neonatal care within the SCBU at Gharian Teaching Hospital. The decline in neonatal mortality rates from 2018 to 2022 suggests that recent efforts to enhance neonatal care and management protocols may be effective. However, the persistence of high mortality rates, particularly among preterm and low birth weight infants, underscores the need for continued vigilance and intervention.

The significant association between prematurity and neonatal mortality aligns with existing literature that emphasizes the vulnerability of preterm infants due to their underdeveloped physiological systems. Targeted strategies, such as administering antenatal corticosteroids to expectant mothers at risk of preterm delivery and improving neonatal resuscitation practices, could further reduce mortality rates in this high-risk group.

Moreover, the prevalence of congenital anomalies as a leading cause of mortality highlights the importance of prenatal care and early diagnosis. Implementing comprehensive prenatal screening programs could facilitate timely interventions and better preparation for the management of high-risk cases, ultimately leading to improved neonatal outcomes.

While the study provides valuable insights, it is essential to acknowledge certain limitations. The retrospective nature of the study may introduce biases related to data collection and completeness of records. Additionally, external factors such as socioeconomic conditions and healthcare access, which could influence neonatal outcomes, were not assessed in this study.

CONCLUSION

In conclusion, this study provides a comprehensive overview of neonatal mortality trends in the SCBU at Gharian Teaching Hospital, revealing significant declines in mortality rates alongside persistent challenges, particularly regarding preterm and low birth weight infants. The findings emphasize the need for ongoing enhancements in neonatal care practices and targeted interventions to address the identified risk factors.

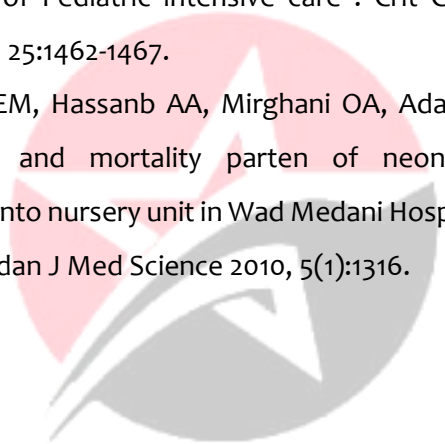
By focusing on improving prenatal care, enhancing training for healthcare providers, and implementing evidence-based practices, Gharian Teaching Hospital can further reduce neonatal mortality rates and improve the health outcomes of vulnerable neonates. Future research should aim to explore the long-term effects of interventions implemented and assess the impact of broader healthcare policies on neonatal health in the region.

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