VOLUME-7, ISSUE-12, DECEMBER-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Paediatrics

CLINICAL PRESENTATION AND OUTCOME OF NICU ADMISSIONS IN GOVERNMENT GENERAL HOSPITAL, ANANTHAPURAMU

Dr. Bellamkonda Sravani Consultant Pediatrician, Ananthapuramu, A.P. India.

Dr. C. V. Prathyusha* Assistant Professor of Pediatrics, Government Medical College, Ananthapuramu, A.P, India. *Corresponding Author

ABSTRACT

Knowing the pattern of neonatal diseases is a useful indicator of the availability, utilization, and effectiveness of maternal and child health care services and varies from place to place and time to time even in the same locality. Information on admission and mortality patterns of hospitalized neonates reflects the major causes of illnesses and standard of care provided to neonates in a particular locality. Such information identify gaps and provide a basis on which interventions to improve neonatal outcomes are designed which ultimately help in reduction of neonatal morbidity and mortality.

OBJECTIVE: To study the clinical presentation of NICU admissions and their outcome in GGH, Ananthapuramu.

MATERIALS & METHODS: A retrospective study of all NICU admissions in the period of six months from January2018 to June 2018. All admissions are analysed in terms of sex, gestational age, birth weight, in or outborn, clinical diagnoses and their outcomes.

RESULTS: During the study period, 945 neonates are admitted in NICU of which 513 (54.28%) are male and 432(45.71%) are female. Majority of the cases are term 644(68.15%) and rest are preterm 301 cases (31.85%). Of the total cases studied, 444(46.98%) are intramural and 501(53.01%) are extramural. 490 cases (51.9%) are admitted on D1OL, 328 cases (34.7%) are admitted on D2-5OL and the rest are admitted after D5OL. The most common indication for admission is prematurity with 31.85% and commonest disease is respiratory distress seen in 265 neonates (28.04%) followed by perinatal asphyxia in 244 neonates (25.8%), neonatal sepsis in 135 neonates (14.28%), NNJ in 128 neonates (13.54%), MAS in 32 cases (3.38%), congenital malformations in 19 (2%), hypoglycemia in 11 neonates (1.16%). Mortality is seen in 165neonates (22.3%), majority in term neonates 93(56.36%) and almost equally distributed among both sexes. Majority 585neonates (62%) are small for gestational age. The most common primary cause for death is perinatal asphyxia (49.69%), followed by respiratory distress (38.18%), neonatal sepsis (27.27%), meconium aspiration syndrome (9.09%), NEC, congenital malformations.

CONCLUSIONS: Improving the survival chances of newborns, and reduction of neonatal morbidity is a health sector priority and remains an urgent challenge. Neonatal period is a very vulnerable period with a high risk of morbidity and mortality; most of which are preventable with good obstetric and subsequent neonatal care. Early anticipation and prompt management is very essential to reduce neonatal mortality. In order to reduce neonatal mortality rates, special emphasis must be placed on ready and affordable access to essential obstetric care, well-equipped and adequately staffed maternal health-care services, skilled attendance at delivery, emergency obstetric care, effective referral and transport to higher levels of care when necessary and post-natal care particularly for those living in areas without access to services

KEYWORDS : NICU admissions, Neonatal mortality.

INTRODUCTION:

Over the last two decades, the world made substantial progress in reducing mortality among children and young adolescents. Still, in 2017 alone, an estimated 6.3 million children and young adolescents died, mostly from preventable causes [1]. Children under age 5 accounted for 5.4 million of these deaths, with 2.5 million deaths occurring in the first month of life. One of the key determinants of a country's development is the status of child survival which otherwise depends upon the chances of a newborn to survive beyond infancy. Neonatal admission generally refers to the admission of newborns under 29 days old into a health facility for medical care. Because neonates are fragile and yet to develop competent immune system, they are prone to infections, and most of the illnesses they acquire usually require critical care, hence their admission to the neonatal intensive care units (NICUs). Neonatal infections may begin in-utero, early in labour or postpartum [2]. Furthermore, infections caused by bacteria, viruses and fungi, contracted either during delivery, at health care facilities or at homes, have been reported as common aetiologies in neonatal morbidity. In addition, premature birth, and genetic defects such as congenital heart defects also contribute to neonatal admissions. In the developing countries, the preventable causes such as prematurity, infections, birth asphyxia, and low birth weight predominate. For applying the preventive strategies, we need to have proper statistical data on the clinical presentation of all admissions and their outcome. So, this study has been done to assess the commonest cause for admission, disease pattern and outcome of neonates admitted to the NICU.

MATERIALS AND METHODS:

A retrospective study of all admitted neonates to NICU of Department of Pediatrics, Government General Hospital, Ananthapuramu is carried out over a period of 6months-January2018 to June2018. It is a tertiary care hospital equipped with various facilities of radiant warmers, phototherapy units, infusion and syringe pumps, CPAP and mechanical ventilators required for newborn care. All babies admitted to the NICU were included in the study. Data of all the admitted babies were analyzed and categorized on the basis of intramural or extramural deliveries, sex, gestational age, birth weight, indications for admission, duration of hospitalization, mortality rate and its causes. Diagnosis was mainly clinical supported with specific laboratory or radiological investigations. Gestational age is diagnosed by clinical and new Ballard scoring. Based on WHO guidelines on Birth weight, all neonates are categorized into LBW (<2500gm), VLBW (<1500gm) and ELBW (<1000gm). The admissions are analysed to know the pattern of clinical presentation and their outcome and categorized into different etiology like prematurity, low birth weight, perinatal asphyxia, respiratory distress, neonatal sepsis, meconium aspiration syndrome, NNJ, hypoglycemia, congenital malformations, NEC, cong. Pneumonia, meningitis, neonatal convulsions, HDN etc.,. Neonatal sepsis was diagnosed by clinical grounds along with CBC (complete blood count), CRP (C-reactive protein), CSF analyses, positive blood, urine, and CSF cultures. Perinatal asphyxia is diagnosed based on sarnat clinical staging for HIE and low APGAR scores. Neonatal jaundice was diagnosed by clinical examination and by estimating serum bilirubin. Pneumonia was diagnosed mainly on clinical examination and radiological findings.

RESULTS:

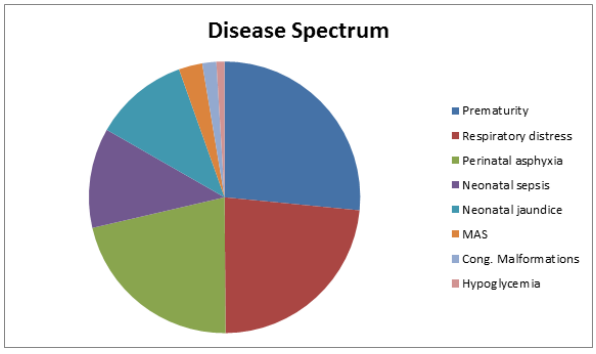
During the study period, 945 neonates are admitted in NICU of which 513 (54.28%) are male and 432(45.71%) are female. Majority of the cases are term 644(68.15%) and rest are preterm which constitute 301 cases (31.85%). Of the total cases studied, 444(46.98%) are intramural deliveries and 501(53.01%) are extramural. 490 cases (51.9%) are admitted on day1 of life, 328 cases (34.7%) are admitted on day2 to day5 of life and the rest are admitted after day5 of life.

Table1: Distribution of cases based on birth weight.

Birthweight	Number	Percentage
>3200gm	65	6.87%
2500gm to 3200gm	473	50.05%
1500gm to 2500gm	290	30.68%
1000gm to 1500gm	93	9.84%
<1000gm	25	2.65%
Total	945	100%

The most common indication for admission is prematurity with 31.85% and commonest disease is respiratory distress seen in 265 neonates (28.04%) followed by perinatal asphyxia in 244 neonates (25.8%), neonatal sepsis in 135 neonates (14.28%), NNJ in 128 neonates (13.54%), MAS in 32 cases (3.38%), congenital malformations in 19 (2%), hypoglycemia in 11 neonates (1.16%). The following figure shows the disease spectrum of admissions.

Figure1: Disease spectrum of admissions.



Out of 945 patients, 165 expired (22.3%). Mortality rate was seen more in term neonates 93(56.36%) and almost equally distributed among both sexes. Majority (62%) are small for gestational age. Most of the deaths were seen in outborn babies (71.2%).The most common primary cause for death is perinatal asphyxia (49.69%), followed by respiratory distress (38.18%), neonatal sepsis (27.27%), meconium aspiration syndrome (9.09%), NEC, congenital malformations.

DISCUSSION:

During a period of 6months, 945 neonates are admitted to this hospital of which 53% are extramural deliveries referred from different hospitals within the town and also from villages surrounding Ananthapuramu. In our study pattern of admissions indicates that bulk of the problems encountered by the neonates are on the 1st day of life (51.9%) and then there is a gradual decline in admission rate with increasing age of the baby. This finding is similar to other studies Abbasi KA in Larkhana[3]. Immaturity and low birth weight tends to increase the severity but reduces the distinctiveness of the clinical manifestation of most neonatal diseases. In our study 68.15% are term newborns and 31.85% are preterm which is similar to that of a study done by Patil Ravindra B et al in Karnataka [4].In other study by Gouri Shankar et al the proportion of premature admissions was 23.2% [5]. In our study low birth weight is seen in 408 babies which is similar to study done by Garg P et al. in New Delhi [6]. Neonatal sepsis is a significant cause of neonatal morbidity and mortality, particularly in preterm and low birth weight infants.. In our study neonatal sepsis is seen in about 14.28% of babies which is less than that of study done by Vasudevan et al.(51%) in 2006 [7]. In our study birth asphyxia is seen in 25.8% cases of which 102 were HIE stage III, 82 HIE stage II and 60 HIE stage I. These findings were similar to that of studies done in Peshawar with 26.9% and less than that of studies from Sri Gangaram Hospital 34.6 %[8]. In our study incidence of neonatal jaundice is 13.54%. Another study done by Gauchan E et al. states that neonatal jaundice is seen in 24.7% neonatal admissions [9]. NNJ was responsible for 11.3% of neonatal admissions to the AKMCC neonatal unit [10], in comparison to 20% in the study done in Peshawar, 15% in Karachi and 8.3% in Lahore. Higher incidences of jaundice in neonates have been reported from other developing countries, such as Bangladesh and Nigeria (30.71% and 17.25%, respectively) [11,12].

The mortality rate in our study is 17.46% which is comparable with that of other studies like VeenaPrasad et al. done in Uttarakhand. Mortality rate is almost equal in both sexes. But in another study done by Gauchan et al, it was higher in males compared to females (65% vs 35%) [9]. Among the total deaths, about 56.36% babies are term neonates and 43.63% are preterm newborns. In another study by Gauchan et al. mortality was seen in 29.8% of preterm babies as compared to 7.3% of term newborns. This is again similar (35%) to a study done in Saudi Arabia [13].In our study most of the deaths were due to perinatal asphyxia (49.69%) majority occurring in term neonates followed by respiratory distress (38.18%) and neonatal sepsis (27.27%). The major causes of neonatal deaths globally were estimated to be infections (35%), pre-term births (28%) and asphyxia (23%) [14]. In our study commonest cause of mortality in preterms is hyaline membrane disease (58%) which is comparable with that of a study done in Nepal (47%). Neonatal septicemia is commonest cause of death in both term and preterm neonates. In a study done by Gauchan et al. neonatal sepsis leads to 12.8% [9] to neonatal deaths which is far less than our study.

CONCLUSION:

According to our study, perinatal asphyxia, respiratory distress, prematurity, low birth weight and sepsis are some important causes of admissions in newborn babies. Commonest causes of mortality were asphyxia, hyaline membrane disease and neonatal sepsis .Most of the morbidities and subsequently the mortalities can be minimized by improving the antenatal care of pregnant women, hospital deliveries, timely interventions and timely referral to tertiary care centers for delivery of high risk pregnancies and adequate postnatal care. Creating awareness among health personnel about the importance of hand-washing, use of sterile technique for safe delivery and educating them with the neonatal resuscitation procedures has to be emphasized to minimize the risk of sepsis and perinatal asphyxia which indirectly contributes to reduction of both neonatal mortality and morbidity.

REFERENCES

1. https://data.unicef.org/resources/levels-and-trends-in-child-mortality
2. Walana W, Acquah Ekuban KS, Abdul-Mumin A, Naafu B, Aruk E, et al. (2016) Pattern, Causes and Treatment Outcomes of Neonatal Admission in the Tamale Teaching Hospital. Clinics Mother Child Health 13: 252. doi:10.4172/2090-7214.1000252.
3. Abbasi KA. Neonatal Disease Profile in Larkana before and After Establishment of Neonatal Ward. J Pak Med Assoc. 1995; 45:235-6.
4. Patil Ravindra B et al. Clinical profile and outcome of babies admitted to NICU, Mc Gann Teaching Hospital Shivamogga, Karnataka: A Longitudinal Study. Sch. J. App. Med. Sci., 2014;2(6G):3357-3360
5. Shah GS, Yadav S, Thapa A, Shah L; Clinical profile and outcome of neonates admitted to Neonatal Intensive Care Unit (NICU) at a Tertiary Care Centre in Eastern Nepal. J Nepal Paediatr Soc., 2013; 33(3): 177-181.
6. Garg P, Krishak R, Shukla DK; NICU in a Community Level Hospital. Indian Journal of Pediatrics, 2005; 72: 26-30.
7. Vasudevan A, Malhotra A, Lodha R, Kabra SK; Profile of neonates admitted in pediatric ICU and validation of Score for Neonatal Acute Physiology (SNAP). Indian Pediatrics, 2006; 43: 344-348.
8. Rahim F, Jan A, et al. Pattern and outcome of admissions to neonatal unit of Khyber Teaching Hospital, Peshawar. Pak J Med Sci 2007; 23 (2):249-253.
9. Gauchan E, Basnet S, Koirala DP, Rao KS; Clinical profile and outcome of babies admitted to Neonatal Intensive Care Unit (NICU). Journal of Institute of Medicine, 2011; 33(Issue2): 1-5.
10. Syed R. Ali, Shakeel Ahmed, Heeramani Lohana. Disease Patterns and Outcomes of Neonatal Admissions at a Secondary Care Hospital in Pakistan. Sultan Qaboos University Med J, August 2013; 13: 424-428.
11. Choi Y, El Arifeen S, Mannan I, Rahman SM, Bari S, Darmstadt GL, et al. Can mothers recognize neonatal illness correctly? Comparison of maternal report and assessment by community health workers in rural Bangladesh. Trop Med Int Health 2010; 15:743–53.

12. Ahlfors CE. Pre exchange transfusion administration of albumin: an overlooked adjunct in the treatment of severe neonatal jaundice? Indian Pediatr 2010; 47:231–2.
13. Sarici SU. Incidence and etiology of neonatal hyperbilirubinemia. J Trop Pediatr 2010; 56:128–9.
14. Tikmani SS, Warraich HJ, Abassi F, Rizvi A, Darmstadt GL, Zaidi AK. Incidence of neonatal hyperbilirubinemia: a population-based prospective study in Pakistan. Trop Med Int Health 2010; 15:502–7.