

Pattern and Outcome of Admissions to Neonatal Unit of Tertiary Care Hospital Nawabshah

1. Ali Akbar Siyal 2. Ali Raza Brohi 3. Arbab Ali Junejo

1. Assoc. Prof. of Pediatric Medicine, PUMHS Women, Nawabshah 2. Assoc. Prof. of Pediatric Surgery, PUMHS Women, Nawabshah 3. Assoc. Prof. of Pediatric Medicine, PUMHS Women, Nawabshah

ABSTRACT

Objectives: To determine the number, disease pattern and outcome of admitted patients in neonatal unit of tertiary care hospital Nawabshah.

Study Design: Retrospective, Descriptive study.

Place and Duration of Study: This study was conducted at NICU pediatrics ward People's Medical College Hospital, People's University of Medical & Health Sciences for women, Nawabshah, Sindh from 1st January 2010 to 31st December 2010.

Materials and Methods: Data was retrieved from file record regarding sex, gestational age (term and preterm), reason for admission and outcome (discharge, expired).

Result: 2584 neonates were admitted during study period, among them 1776 (68.73 %) were males and 808 (31.27%) were females, majority of patient 1657(64.12%) were admitted during first 24 hours with the clinical diagnosis of birth asphyxia, 489 (15.85%) having neonatal sepsis, 312 (10.67%) because of prematurity, 117 (8.63%) admissions were due to neonatal jaundice and 19 (0.73%) having various conditions like hydrocephalus associated with meningomyelocele, prune belly syndrome, down syndrome, Icthyosis, HDN and TORCH infection.

Conclusion: Birth asphyxia, Pre-maturity, neonatal infection, neonatal jaundice were the main causes of neonatal admissions. Regular antenatal visits and timely referral to tertiary care hospitals will hopefully result in better outcome.

Key Words: Pattern, Admissions, Neonates, Outcome

INTRODUCTION

Neonatal period (0 to 28 days of life) is the most sensitive period of life because of various problems / diseases which a neonate faces. According to "state of the world's newborn Pakistan" around 270000 neonatal deaths occur annually in this country and neonatal mortality rate is 42/1000 live births in year 2009¹. Globally about 3 million newborns are dying within first week of life².

Majority of newborn babies do not develop any serious problem or difficulties and require only minimal care, which can be provided by the mother if properly guided by a health worker/care provider.

In most of the cases neonatal morbidity in our country is preventable.³ Pre-maturity accounts for majority of high risk newborns as they face a large number of problems.⁴ The prognosis of these premature babies depends upon their underlying condition & its severity, management and their outcome. For this purpose neonatal audit is carried out in Pakistan from time to time in order to create an awareness regarding the pre-term babies and other neonatal problems which they are facing & their management in a proper way.⁵⁻⁷ To decrease the neonatal morbidity and mortality such audits are very much needed to be done, especially in developing countries like Pakistan, so as to minimize the high infant and neonatal mortality and eventually decreasing under 5 mortality rate (MDG 4).

In our country about 70-80% of the births take place at home and that also contributes to poor newborn problem based care⁸. In Pakistan the rate of low birth weight babies contribute to 25% of all births^{9,22,23} and that also contributes to over all morbidity and mortality. So this study is also done to look at the disease pattern and common causes of neonatal admissions so that we can take preventive measures to improve the outcome of neonates.

MATERIALS AND METHODS

This retrospective descriptive study was conducted at NICU Paediatric ward PMCH Nawabshah, the data included sex, gestational age (term and preterm), and outcome (expired, discharged) was recorded from the files of all admitted patients in NICU during our study period. The patients who left against medical advice (LAMA) were not included.

Diagnosis was mainly clinical or based on WHO definition for pre-maturity (live born neonates delivered before 37 weeks from 1st day of last menstrual period (LMP) & low birth weight (LBW) with birth weight of less than 2.5kg. Neonatal Jaundice (NNJ) was diagnosed by clinically as well as by assessing serum bilirubin level. Sepsis & meningitis were diagnosed on clinical grounds along with positive blood Culture & CSF examination. Birth asphyxia was mainly clinical diagnosis on the basis of sarnet-staging. HDN (hemorrhagic disease of

newborn) was diagnosed on clinical ground along with an increase in prothomobin time.

RESULTS

During our study period, total 2584 neonates were admitted, among them 1776 (68.73 %) were males and 808 (31.27%) were females (fig 1), majority of patients 1657 (64.12%) were admitted during first 72 hours of life with the clinical diagnosis of birth asphyxia, out of these patients with birth asphyxia 1052(40.71%) were received within first 24 hours of life.

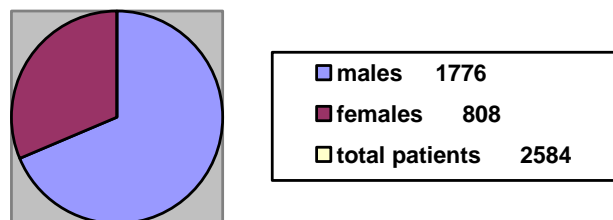


Figure No. 1: Ratio of Males: Female Patients

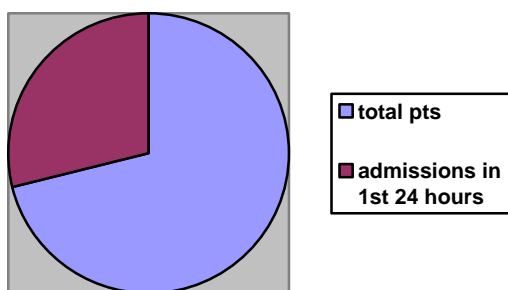


Figure No. 2: Total Admissions in NICU: Admissions in First 24 Hour of Life

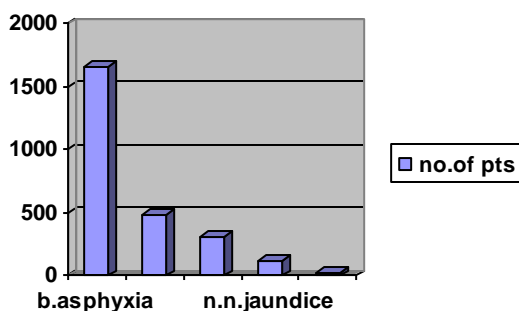


Figure No.3 Number of Patients Admitted in NICU

Second major reason for admission was neonatal sepsis in which 489 (18.9%) neonates were admitted, third major cause of admission in which 312 (12.07%) newborns were admitted was prematurity, fourth major cause for which 117 (4.53%) neonates

seek admission was neonatal jaundice and 19 (0.735%) were admitted because of various conditions like hydrocephalus associated with meningomyelocele, prune belly syndrome, down syndrome, Ichthyosis and TORCH infection.

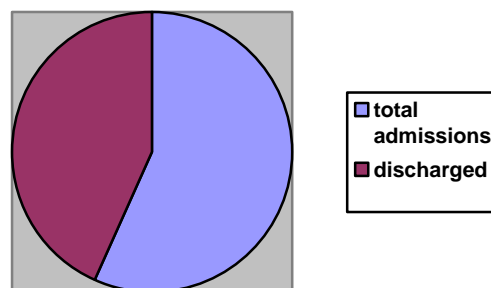


Figure No. 4: Total Admissions: Discharged Patients

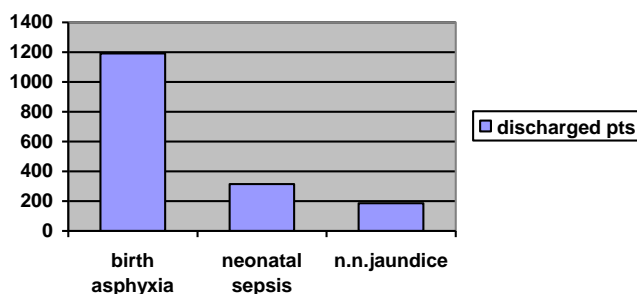


Figure No. 5: Number Of Discharged Patients

Out of 2584 admitted patients, 1982 (76.7%) discharged (FIG.03), among these patients 1191 (60.1%) were admitted with diagnosis of birth asphyxia, 314 (15.85%) patients of neonatal sepsis were discharged, 186(9.38%) preterm babies were discharged, 5.05 % babies with neonatal jaundice were discharged.

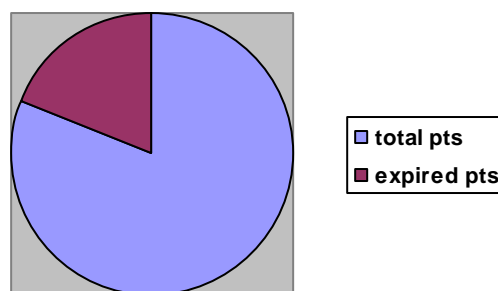


Figure No. 6: Number of Patients Admitted: Expired Patients

Of these admitted patients 602(23.29%) expired during admission (FIG. 05), and amongst these the

top cause was found to be birth asphyxia, in which 466 (18.03%) neonates expired, second major cause of mortality was sepsis in which 175(6.77%) and third cause preterms with various complications, caused 126 (4.87%) and rest of 36(1.39%) patients expired due to various reasons like kernicterus, complication of meningomyelocele and various other causes.

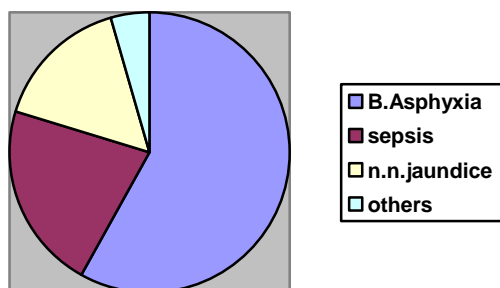


Figure No. 7: Patern of Discharged Patients

DISCUSSION

Of 2584 patients admitted in neonatal unit during our study period, 41.71% of patients were admitted during the 1st 24 hours of life. The other studies conducted at different cities of the country shows that 33.61% were admitted during first 24 hours at Karachi¹⁰ 44.47% from Larkana⁷ and 75% from Lahore.¹¹ These figures shows that most of the neonatal problem occur during the 1st 24 hours of life. Birth asphyxia in particular as 41.7% in our study, It was reported 18.85 from Karachi,¹⁰ 40.66% from Lahore,¹² 31% from Rawalpindi¹³. Birth asphyxia is one of the common causes of morbidity and mortality in neonates and the incidence is 2-9 per 1,000 live births¹⁴. There is a male predominance in our study also consistent with other studies conducted at different institutions of various cities of Pakistan. In our study the second major cause of seeking admission in nursery was neonatal infection, that caused 489 (18.92%) and as we know Neonatal infection is one of the main causes of neonatal morbidity and mortality in developing countries^{15,16,21}, it was found to be 45.21% from Karachi¹⁰. The number of preterm neonates admitted reported was 312(12.07%) as compared to 26.50% in Khyber^{16,23}, while 117(4.5%) babies were admitted because of neonatal jaundice, Neonatal jaundice was responsible for the 20%¹⁴ 13.15% from Karachi,¹⁰ 8.33% from Lahore¹³ and 3.5% from Larkana.¹⁵ It was reported high (30.71%) from Bangladesh^{15,19} the discharge %age in our study was 76.7%, in Khyber 71.54% neonates were discharged home satisfactorily after receiving the necessary treatment¹⁴, 48.53% were discharged with satisfactory condition¹⁰ in study from Karachi. The mortality rate was 23.29% at our setup,

while it was 14.87% at Peshawar^{14,18}. It was reported 25.85% from Karachi¹⁰ 34% from Lahore^{13,16} and 38% from Larkana⁷. The commonest cause of mortality was birth Asphyxia, worst being HIE stage III, in which 18.03% of patients expired, followed by neonatal sepsis, prematurity and others which contributed to 6.77%, 4.87% and 1.39% respectively.

CONCLUSION

Birth asphyxia, Pre-maturity, neonatal infection, neonatal jaundice were the main causes of neonatal admissions in our study. This could be reduced by proper antenatal visits and timely referral to tertiary care hospital and provision of neonatal intensive care facilities are necessary for better outcome.

REFERENCES

1. Save the children. Report of the state of world's newborn Pakistan. Saving newborn lives 2001.
2. WHO. Perinatal Mortality. Listing available information. Geneva Switzerland: WHO 1996.
3. Bhutta ZA. Priorities in newborn care and development of clinical neonatology in Pakistan: where to now? J Coll Physician Surg Pak 1997; 7:231-4.
4. William W. Current paediatric diagnosis and treatment. 16th ed, 2003.p.1-63 (2a).
5. Roghani MT, Mohammad T. Neonatal disease profile in NWFP. An analysis of four years admissions. Pak Paediatr J 1983;7:17-22.
6. Haneef SM, Tabssum S, Qureshi Z, Ilahi S. Pattern of neonatal disease. Pak Paediatr J 1985;9:42-50.
7. Abbasi KA. Neonatal disease profile in Larkana before and after establishment of neonatal ward. J Pak Med Assoc 1995;45:235-6.
8. National institute of population studies, Pakistan Demographic and Health Survey 1990-1991, PDH Survey Islamabad.
9. Bhutta ZA. Is the child father of men? The fetal origin hypothesis and its relevance to Pakistan. J Coll Physician Surg Pak 2000;10:43-6.
10. Parkash J, Das N. Pattern of admission to neonatal unit. J Coll Physician Surg Pak 2005;15:341-44.
11. Chishti AZ, Iqbal MA, Anjum A, Maqbool S. Risk factor analysis of birth asphyxia at the children's hospital, Lahore. Pak Padiatr J 2002;26:47-53.
12. Ejaz I, Khan HI, Baloch GR. Neonatal mortality reports from a tertiary hospital in Lahore/causes and outcome. Pak Paediatr J 2001;25:35-8.
13. Tariq P, Kundi Z. Determinants of neonatal mortality. J Pak Med Assoc 1999;49:56-60.
14. Jamal M, Khan N. Neonatal morbidity and mortality in high risk pregnancies. J Coll Physician Surg Pak 2002;12:657-61.
15. Nahar J, Zabeen B, Akhter S, Azad K, Nahar N. Neonatal Morbidity and Mortality Pattern in the Special Care Baby Unit of BIRDEM 2007;1:107-8.

16. Seyal T, Husnain F, Anwar A. Audit of Neonatal Morbidity and Mortality at Neonatal Unit of Sir Gangaram Hospital Lahore. *Annals of King Edward Medical University* 2011;17:217-19.
 17. Rahman S, Hameed A, Roghani MT, Ullah Z. Multi-drug resistant neonatal sepsis in Peshawar. *Arch-Dis Child Fetal Neonatal Ed* 2002;87:52-4.
 18. Rahim F, Jan A, Mohummad J, Iqbal H. Pattern and outcome of admissions to neonatal unit of Khyber Teaching Hospital, Peshawar. *Pak J Med Sci* 2007; 23(2) 249-53.
 19. Islam MN. Situation of neonatal health in Bangladesh orion 2000;6: Available at website [http://www.orion-group.net /orion /20](http://www.orion-group.net/orion/20) Medical Journal Vol.6.
 20. Singh BS, Clark RH, Powers RJ, Spitzer AR. Meconium aspiration syndrome remains a significant problem in the NICU: outcomes and treatment patterns in term neonates admitted for intensive care during a ten-year period. *J Perinatol* 2009;29:497-503.
 21. Mallick AK. One Year Experience Of Neonatal Mortality And Morbidity In A State Level Neonatal Intensive Care Unit And Its Comparison With National Neonatal-Perinatal Database *J Indian Med Assoc* 2010;108(11):738.
 22. David C, Simpson A, Xiang Y, Hellmann J, Tomlinson C. Trends in Cause-Specific Mortality at a Canadian Outborn NICU, *Pediatrics* 126;2010:1538-44.
 23. Sajjad R, Tariq M, Khalid M. An analytical study of prevalence, birth weight and gestational age specific mortality of AGA and SGA low birth weight babies in Khyber teaching hospital. *Pak Paed J* 2009;33(3): 174-78.
- Address for Corresponding Author:**
Dr. Ali Akbar Siyal
Associate Professor of Pediatric Medicine,
PUMHS Women, Nawabshah