

Pattern of Neonatal Mortality in Neonatal Unit of Allied Hospital Faisalabad Pakistan

Zahid Mahmood Anjum, Muhammad Shamoan

ABSTRACT

Objective: To document number and pattern of neonatal mortality at neonatal Unit. **Study Design:** Descriptive Study. **Place and Duration of Study:** The study was conducted in the neonatal Unit of Allied Hospital Faisalabad from 1st January 2008 to 31st December 2008. **Patients and Methods:** The data of all admitted patients during the study period were reviewed and analyzed for age, sex, weight, cause of

Results: A total of 3082 patients were admitted. Among them 58% were male and 42% were female. Most of the patients were admitted in 1st 24 hours of life. Major causes of death were birth asphyxia 38%, neonatal infections 29% and prematurity 27%. **Conclusion:** Birth asphyxia, neonatal infections and prematurity are leading causes of neonatal mortality. **Key words:** Neonatal Mortality, Birth asphyxia, Sepsis, prematurity.

INTRODUCTION

Neonatal period (0-28 days) is most vulnerable period of life. About 4 millions newborns under 4 weeks old die each year, accounting for 37% of all under five mortality.¹ Nearly 75% die in the first week of life and 40% in the first 24 hours after birth. Newborn in developing countries are eight times more likely to die than newborns in developed countries.² Ninety-nine percent deaths occur in developing countries.³

Pakistan has population of about 160 million. The current neonatal mortality rate varies from 45-50 per thousand live births. In most instances neonatal deaths result from poor maternal care during pregnancy, poor hygiene during delivery, unskilled management of complications, harmful traditional practices, inadequate newborn care and lack of access to emergency care. The prognosis of neonates depends upon under lying condition, its severity and management. Neonatal mortality is on increase day by day. Since causes of neonatal deaths vary by country and with availability of health care,⁴ understanding neonatal mortality in relation to these factors is crucial. Causes of death in neonatal period in Pakistan are poorly measured, though major components are believed to be birth asphyxia,

neonatal infections, and complications of prematurity. For this purpose neonatal mortality audit is carried out to document number and pattern of neonatal deaths.

PATIENTS AND METHODS

This study was carried out in neonatal unit of Allied Hospital Faisalabad Pakistan. Allied Hospital is a tertiary care hospital. Our neonatal unit admits all kinds of patients except those requiring mechanical ventilation. We analyzed the admission and discharge data of year Jan 2008 Dec 2008.

The following were obtained from the record, i.e. i. Age ii. Sex iii. Weight

iv. Diagnosis and Outcome of Admission

The following terminologies were used:

a. Diagnosis: diagnosis was based on either main indication of admission or final diagnosis. e.g. A patient who was admitted as low birth weight and developed Jaundice only Low Birth Weight diagnosis was given to him.

b. Low Birth Weight was labeled as newborn having birth weight less than 2.5 Kg.

c. A patient was labeled as premature if he was born live and before 37 weeks of completed gestation.

d. Birth asphyxia was diagnosed on history, clinical examination, Chest X-ray and Blood gas analysis where available and after sarnat's Staging.

e. Neonatal sepsis was diagnosed on basis of clinical features, lab parameters and blood culture where available.

RESULTS

During the study period total admissions in neonatal unit were 3082. Out of these complete data was available for 2817 patients only. There were 1632(58%) male and 1181 (42%) were female. The number of babies admitted within 1st 24 hours of life was 1237(44%) (Table-1) eighty four (3%) babies were below 1 Kg. There were 1744(62%) low birth weight babies (Table-2).

Major indications of admission were birth asphyxia 844(30%), Neonatal sepsis 703(30%) and prematurity along with Jaundice, pneumonia, meningitis, congenital heart disease, diarrhea and hemorrhagic disease of newborn (Table-4).

Diseases contributing to neonatal mortality were birth asphyxia (38%) neonatal infections (29%) and prematurity (27%) (Table-5).

Table 1:
Age on Admission

Age	Number	%age
< 6 hrs	675	24%
7-24 hrs	562	20%
1-3 days	844	30%
4-7 Days	337	12%
8-14 Days	168	6%
15-28 Days	225	8%

Table 2:
Weight on Admission

Weight (Kg)	Number	%age
<0.9	118	4.2%
1-1.4	136	5.8%
1.5-1.9	284	10.1%
2-2.4	703	25%
2.5-34	982	34.9%
>3	562	20%

Table 3:
Causes of Neonatal Admissions

Disease	Number	%age
Birth Asphyxia	844	30%
Neonatal Sepsis	703	25%
Prematurity	422	15%
Jaundice	343	12.2%
Pneumonia	180	6.4%
Meningitis	84	3%
Me-conium Aspiration Syndrome	59	2.1%
Congenital Heart disease	33	1.2%
Dysmorphic Child	19	0.7%
Diarrhea	47	1.7%
Hemorrhagic disease of newborn	53	1.9%
Miscellaneous	22	0.8%

Table 4:
Out Come of Major Neonatal Diseases

Disease	Total Number	Discharged	LAMA	Expired
Birth Asphyxia	844	546(66.3%)	32(3.7%)	268(32%)
Neonatal Sepsis	703	479(68%)	14(2%)	210(30%)
Prematurity	422	219 (48.5%)	10 (2.5%)	193 (46%)
Jaundice	343	331(95.6%)	3(1%)	9(3.4%)
Pneumonia	180	163(9%)	3(2%)	14(8%)
Meconium aspiration	59	37(63%)	6(10%)	16(27%)
Diarrhea	47	41(85%)	2(5%)	4(10%)

Table 5:
Contribution of Major Diseases In Mortality (N=704)

Diagnosis	No.	%age
Birth Asphyxia	268	38%
Neonatal Sepsis	210	29%
Prematurity	193	27.9%
Jaundice	9	1.2%
Pneumonia	14	1.9%
Me-conium Aspiration	16	2.2%
Diarrhea	4	0.5%

DISCUSSION

The study shows that about 44% patients were admitted during the 1st 24 hours of life. The other studies conducted at different cities of country show that 35% were admitted during first 24 hours at Peshawar,⁴ 44.47% from Larkana⁵ and 75% from Lahore⁶ and 37.61% from Karachi⁷. These figures show that most of the neonatal problems occur during the first 24 hours of life. There is male predominance in our study which is consistent with other studies reported from other cities of Pakistan.

Neonatal mortality is 27% in our study. It was reported 25.85% from Karachi⁷, 14.87% from Peshawar⁴, 34% from Lahore⁶ and 38% from Larkana⁵. This high neonatal mortality could be attributed to critical condition of the patient at time of admission and lack of subspecialty care.⁸

The commonest causes of deaths in our study are birth asphyxia 30%, Neonatal sepsis 25% and prematurity and its complications 15%. Prematurity was major cause of death followed by sepsis and birth asphyxia reported from Peshawar.⁴

Neonatal infection was the major cause of death reported from Karachi⁷ followed by birth asphyxia and prematurity with similar figures reported from India⁹. The highest neonatal deaths due to birth asphyxia in our study may be due to lack of appropriate obstetric and neonatal care. Birth asphyxia is one of the common causes of morbidity and mortality in neonates and incidence is 2-9 per 1,000 live births¹⁰. Mortality from birth asphyxia in one of study reported from Lahore is 40%.¹¹ Antenatal monitoring of high risk pregnancy, timely referral and resuscitation at all levels is mandatory to reduce high case fatality and morbidity related to birth asphyxia.

CONCLUSION

Birth asphyxia, infection and prematurity were the major causes of neonatal deaths in our study. This could be reduced by focusing the mother health during pregnancy, birth attendance by skilled personnel, immediate care of newborn and creating awareness among health personnel and with in community.

REFERENCES

1. World Health Organization (WHO). The Lancet neonatal Survival Series. Geneva, Switzerland: WHO; 2005.

2. World Health Organization (WHO). Neonatal and perinatal mortality: country, regional and global estimates. Geneva, Switzerland: WHO; 2006.
3. United Nations Children's Fund (UNICEF). Newborn Health. Available at: http://www.unicef.org/health/index_newbornhealth.html. Accessed December 11,2007.
4. Rahim Fazur, Jan Amin, Mohammad Jan, and Iqbal Hamid. Pattern and outcome of admissions to neonatal unit of Khyber Teaching Hospital, Peshawar. Pak J Med Sci April 2007;23:249-253.
5. Abbasi KA. Neonatal disease profile in Larkana before and after establishment of neonatal ward. J Pak Med Assoc 1995;45:235-6.
6. 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.
7. Parkash J, Das N. Pattern of admission to neonatal unit. J Coll Physician Surg Pak 2005;15:341-44.
8. Tariq P, Kundi Z. Determinants of neonatal mortality. J Pak Med Assoc 1999;49:56-60.
9. Thora S, Awadhiya S, Chansoriya M, Kaul KK. Perinatal and infant mortality in urban slums under IUCD scheme. Indian Paediatr 1996;33:19-23.
10. Shah GS, Singh R, Das BK. Outcome of newborn with birth asphyxia. J Nepal Med Assoc 2005;44(158):44-6.
11. Chisty AL, Iqbal A, Anjum A, Maqbool S. Spectrum of multiorgan systemic involvement in birth asphyxia. Pak J Pathol 2001;12(3) 81-7.

AUTHORS

- **Dr. Zahid Mahmood Anjum**
MBBS, FCPS
Senior Registrar
- **Dr. Muhammad Shamoon**
MBBS, MCPS, FCPS
Assistant Professor