ORIGINAL ARTICLE

Pattern of Neonatal Admissions in a Tertiary Care Hospital

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ABSTRACT

Objective: To document the number, disease pattern and outcome of patients admitted to a tertiary care neonatal unit.

Design: Descriptive study.

Place and duration of study: The study was conducted in the Neonatal Unit of Services Hospital Lahore from 1st January 2006 to 31st December 2006.

Patients and methods: The data of all the admitted neonates was analyzed for age and weight at the time of admission, sex, duration of stay, cause of admission and outcome.

Results: A total of 1554 neonates were included during study period. Among them 62.1% were males, 45.3% were admitted within 6 hours of their life, and 44.21% were discharged within 72 hours of their admission. The low birth weight accounted for 40.54% of the total admissions. Birth asphyxia was the major cause of admission (24.3%), followed by jaundice (17.9%), prematurity (16.5%), sepsis (16%), meconium aspiration syndrome (6%), infant of diabetic mother (2.7%), pneumonia (2.5%), meningitis (1.3%). Other causes of admission were hyaline membrane disease (2.2%), diarrhea (1.9%), metabolic convulsions (1.3%), hemorrhagic disease of newborn (0.3%). More than two third of patients (75.03%) were discharged in a satisfactory condition, 20.98% died and 3.99% left against medical advice (LAMA).

Conclusion: Birth asphyxia, Jaundice, prematurity and sepsis were the major causes of neonatal admissions.

Key word: Neonates, low birth weight, prematurity

INTRODUCTION

Neonatal period is the most vulnerable period of life due to different diseases. Most causes of neonatal morbidity are preventable[1]. The survival of newborns depends upon the care they receive[2]. Advances in neonatal management have made considerable improvement in survival of newborns but in developing countries neonatal morbidity and mortality both are still very high[3]. Nearly half of the infantile deaths occur within neonatal period[4]. Neonatal disease pattern is a sensitive indicator of the availability, utilization and effectiveness of mother and child health services in the community. Since community based data are difficult and expensive to collect in face of lacking resources, hospital based data therefore will reflect changes in community as a whole. For this reason neonatal audit regarding disease is carried out in Pakistan from time to time[5].

The most common causes of neonatal period are infections, followed by asphyxia and prematurity[6]. The neonatal disease pattern changes between different places and from time to time even at the same place[7]. Thus for the better neonatal status we keep on reporting various causes of mortality and morbidity in neonatal age group from time to time.

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This may help to identify different disease pattern and associated mortality which will help health professionals in better understanding and subsequent management.

PATIENTS AND METHODS

This study was conducted at neonatology unit services hospital Lahore from 1st of January 2006 to 31st December 2006. All patients who were admitted in one year were selected for this study. The information collected from them included age, gender, weight, duration of stay in neonatal unit, main indication of admission, final diagnosis, and out come (that is discharged, shifted to other units, LAMA or death in first 28 days). Following terminologies were used in defining the data.

Diagnosis: Evidence based final diagnosis was considered. However complications like appearance of jaundice in a patient of sepsis though not recorded but did not reflect on the final diagnosis .

Prematurity: Live born neonates delivered before 37 weeks from first day of last menstrual period.

Low birth weight: (LBW) Weight less than 2.5 kilograms[8].

Birth asphyxia: It was mainly diagnosed on the basis of history , physical examination, chest x ray and parameters of sarnat and sarnat staging were

applied . The electroencephlogram the only laboratory parameter[9] could not be applied due to its non availability and cost effectiveness.

Neonatal sepsis : The diagnosis of sepsis was mainly on symptoms and signs supported by different lab parameters, including blood culture. Though yield of blood culture was not very high.

Meningitis . Cerebrospinal fluid examination was the main stay of diagnosis.

Diarrhea : It was recorded on the basis of increased frequency of loose stools or passage of watery stools with dehydration. **Hemorrhagic disease of newborn**: Clinical manifestations suggestive of hemorrhagic disease of newborn were confirmed by laboratory evaluation[10].

Congenital heart disease: Clinical suspicion was confirmed by echocardiography.

RESULTS

During the study period total admissions in the neonatal unit were 1663 . Out of these complete data were available for 1554 patients. There were 954(61.39%) males and 600(38.61%) females. The number of babies admitted within 6 hours of life was 704(45.3%) (Table 1). There were 630 (40.54%) patients who were low birth weight (LBW) (Table 2). Hospital stay was less than a day in 312(20.08%) patients and was between four to seven days in 819(52.70) patients (Table 3). The commonest cause of admissions was birth asphyxia followed by jaundice, prematurity and sepsis in our patients (Table 4). Out of 1554 cases who were included in the study, 1166(75.03%) were discharged, 326(20.98%) died and 62(3.99%) babies left against medical advice (LAMA) (Table 5).

Table I: Age on admission

Age	=n	%age
< 6hours	704	45.3
7-24 hours (Upto 1 day)	202	13.0
25-72 hours (1-3 days)	198	12.7
4-7 (days)	192	12.4
8-14 (days)	160	10.3
15-28 (days)	98	6.3

Table 2 : Weight on admission

Weight (Kg)	=n	%age
<0.75	24	1.54
1-0.75	25	1.61
1.0-1.4	125	8.04
1.5-2.4	456	29.34
2.5-4.0	901	57.97
4.0<	24	1.54

Table 3 : Stay in hospital

Duration	=n	%age
<24 Hours	312	20.08
2-3 Days	375	24.13
4-7 Days	819	52.70
8-14 Days	27	1.74
15-28 Days	13	0.84
>28 Days	8	0.51

Table 4: Causes of admissions

Disease	=n	%age
Birth asphyxia	378	24.3
Jaundice	278	17.9
Prematurity	256	16.5
Sepsis	248	16
Meconiun Aspiration syndrome	94	6
Pneumonia	42	2.7
Infant of diabetic mother	42	2.7
Hyaline Membrane Disease	34	2.2
Diarrhea	30	1.9
Metabolic Convulsions	24	1.5
Meningitis	20	1.3
Dysmorphic Features	16	1.0
Neural Tube Defects	14	0.9
Congenital Heart Disease	14	0.9
Surgical problems	12	0.8
Tetanus	12	0.8
TORCH	10	0.6
Skin problems	6	0.4
Hemorrhagic Disease of Newborn	4	0.3
Others	18	1.2

Table 5: Outcome of Major Neonatal Diseases

Disease	=n	Discharged	LAMA	Deaths
Birth Asphyxia	378	265 (70.11)	25 (6.61)	88 (23.28)
Jaundice	278	254 (91.37)	13 (4.68)	11 (3.96)
Prematurity	256	165 (64.45)	24 (9.37)	67 (26.17)
Sepsis	248	166 (66.93)	11 (4.44)	71 (28.63)

DISCUSSION

This study showed that 45.3% patients were admitted within first six hours of life, while this figure in Larkana[5] was 44.47% and in Karachi[11] was 17.61%. This shows that morbidity is very high in early hours of neonatal life. The males were predominantly affected, consistent with other studies conducted in various hospitals of the country[5].

Low birth weight is one of the principal contributors to neonatal morbidity and mortality worldwide[12]. In our study nearly half (40.54%) of admissions were of LBW babies while it was 55.4% and 36% respectively from Karachi[11] and Larkana[5].

Most of the babies 1506(96%) were discharged within one week of admission.

Birth asphyxia remained the leading cause of neonatal admissions in our set up probably due to poor antenatal services in those areas from where these deliveries took place. As most of deliveries in our country are conducted at home by unskilled staff, that may be a major contributory risk factor for high prevalence of this disease. There were 378(24.3%) cases of birth asphyxia while in Karachi[11]. It was 18.85%. Neonatal jaundice was the second most common reason for admission. It was 17.9% while it was 13.15% in Karachi[11] and 3.5% in Larkana[5]. Arif[13] in 1983 reported that jaundice was the leading cause of neonatal admissions in Pakistan. While looking at our study it is evident that neonatal disease pattern changes with geographical variation and from time to time.

Prematurity was the reason of admission in 16.5% while in Karachi 6.8%[11]. In our set up there were double number of admissions as compared to Karachi. Sepsis was present in 16 % babies while in Karachi it was diagnosed in 45.21%[11] patients. The high incidence of sepsis in our nurseries may be due to deficient aseptic environment during deliveries at home which are usually conducted by traditional birth attendants.

More than two third of babies were discharged with satisfactory improvement. Mortality in our study was 20.98 while it was 25.85% in Karachi[11] and 38% from Larkana[5]. Low mortality may be due to less critical condition at the time of admission and better awareness of parents who sought timely treatment of neonates.

In our study, there were 378 cases of birth asphyxia and there were 23.28% deaths. Regarding prematurity there were 256 admissions and 26.17% deaths and in sepsis out of 248 cases mortality was 28.63%. This is consistent with other studies where birth asphyxia and prematurity were the main contributory reason for higher neonatal mortality[5,11].

CONCLUSION

Birth asphyxia, jaundice, prematurity and sepsis were the major causes of neonatal admissions in our study, therefore, reduction in prematurity, birth asphyxia and sepsis should be emphasized through public awareness and overall preventive strategies at gross root level in order to improve neonatal mortality and morbidity.

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