Original Article

PATTERN AND OUTCOME OF ADMISSIONS TO NEONATAL UNIT OF KHYBER TEACHING HOSPITAL, PESHAWAR

Fazlur Rahim[1], Amin Jan[2], Jan Mohummad[3], Hamid Iqbal[4]

ABSTRACT

Objectives: To determine the number, disease pattern and outcome of admitted patients to neonatal unit. Khyber Teaching Hospital, Peshawar N.W.F.P from 1st Jan, 2005 to 31st Dec, 2005.

Methodology: Data of all the neonatal admissions was recorded and analyzed for age, weight at the time of admission, sex, reason for admission, duration of hospital stay and final outcome of these patients. Their referral source was also determined.

Results: A total of 1694 neonates were admitted during the year 2005. Among them male were 1219(71.96%) and females were 475 (28.04%). Maximum number of patients was admitted during 1st 24 hours of life. Majority 1056 (62.33%) were referred from hospitals & maternity homes along with 458 (27.03%) home deliveries. Low birth weight accounted for 41.20% of total admissions. Neonatal infections were the next commonest cause of neonatal admissions which includes sepsis (26.03%), pneumonia (1.71%) and Meningitis (1.18%), premature babies (26.50%), N.N.J (19.95%), and birth asphyxia (16.52%). Other causes of neonatal admission were congenital heart disease (1.41%), meconium aspiration syndrome (1.18%), I.U.G.R (0.82%) and R.D.S (0.59%). Among total admissions 1212 (71.54%) were sent home after their complete recovery, 252 (14.87%) expired, left against medical advise (L.A.M.A) 120 (7.08%) and discharged on their attendants request 107 (6.31%).

Conclusion: Pre-maturity, neonatal infection, neonatal jaundice and birth asphyxia were the main causes of neonatal admissions. Increased awareness for in time referral to tertiary level hospitals is mandatory by those health workers who conduct deliveries at private hospital / maternity homes as well as those who conduct deliveries at homes.

KEY WORDS: Neonates, admission, Low Birth Weight, Left Against Medical Advice, Expired, Neonatal Jaundice, Intra Uterine Growth Retardation, Respiratory Distress Syndrome.

Pak J Med Sci April 2007 Vol. 23 No. 2 249-253

1. Dr. Fazlur Rahim
2. Dr. Amin Jan
3. Dr. Jan Mohammad
4. Dr. Hamid Iqbal

1-4: Department of Child Health,
Khyber Teaching Hospital,
Peshawar,
N.W.F.P,
Pakistan.

Correspondence

Dr. Fazlur Rahim
House No: D-10,
P.O. Box: &SE
Danish-Abad,
Peshawar,
Pakistan.

E-mail: drfr58@yahoo.com

* Received for Publication: June 19, 2006

* Revision Received: February 6, 2007

* Revision Accepted: February 8, 2007

INTRODUCTION

Neonatology is a branch of pediatrics which is growing now very fast as a sub specialty and in near future it will expand more and more as a result of neonatal screening programs, the availability of resources for diagnosing different metabolic as well as congenital problems. Neonatal period (0 to 28 days of life) is the most hazardous period of life because of various problems / diseases which a neonate faces. A large 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 supervised by a health worker. High-risk mothers are likely to give birth to pre term or low birth weight babies who suffer a large number of problems.[1]

Majority of the causes of neonatal morbidity in our country are preventable.[2] Some of the newborns in developing countries have an impaired growth right during their intrauterine life, reflecting the nutritional status of the mother.[3] Almost half of the infant deaths in our country occur within first 28 days of life.[4] Pre-maturity accounts for majority of high risk newborns as they face a large number of problems.[5]

The prognosis of these neonates 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 face & their management in an effective way.[6-8]

Neonatal morbidity & mortality is on increase day by day due to the lack of the available resources in developing countries. This can be reduced by proper & timely intervention.[9] For better neonatal care and prevention of the preventable causes of neonatal morbidity & mortality, we should be continuously reporting the audit of neonatal admission to our neonatal units all over the country. The purpose behind such types of audits in neonatal units should be for the identification of various deficiencies in the management of these neonates and also to assist the health workers specially those at the community level for the better understanding and effective management of various neonatal problems in Pakistan.

PATIENTS AND METHODS

This study was conducted at the neonatal unit of Khyber Teaching Hospital N.W.F.P. Peshawar from 1st Jan 2005 to 31st Dec 2005. This neonatal unit admits all patients except those requiring mechanical ventilation. Those neonates with surgical problems and neonates with tetanus are not admitted because separate units are available for such patients.

The data of all the neonatal admissions were analyzed and the following were documented. (1) Age & sex (2) Weight on admission (3) Place of delivery (4) Cause of admission (diagnosis) (5) Duration of hospital stay (6) Final outcome of these babies.

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.[10] Neonatal Jaundice (NNJ) was diagnosed by assessing of serum bilirubin level along with G6PD estimation in case of male babies.

Sepsis & meningitis were diagnosed on clinical grounds along with positive blood culture & CSF examination. Congenital heart disease was diagnosed on the basis of ECG changes Chest X-Ray & confirmed by echocardiography. Birth asphyxia was mainly clinical diagnosis on the basis of sarnat-staging. HDN (hemorrhagic disease of newborn) was diagnosed on clinical ground along with an increase in prothomobin time.

RESULTS

Total number of admitted neonates during the study period was 1694. Among them 1219 (71.96%) were males and 475 (28.04%) female patients. Majority of newborn were admitted during the 1st 24 hours of life (35%). Most of the referred patients 1056 (62.33%) were from hospitals / maternity homes of this province along with some of the referrals from Jalalabad (Afghanistan). The 2nd largest number of patients 458 (27.03%) were homes deliveries. Among 1056 neonates patients referred from K.T.H Labour room / OT were 383 (22.60%). Regarding the birth weight of these babies, three (03) patients were below one Kg (0.17%) extremely low birth weight and VLBW were 79 (4.66%) LBW were 698 (41.20%).

Infections and pre-maturity were the main cause of admission to neonatal unit, 28.92% and 26.50% respectively. Among the infections sepsis was (26.03%), pneumonia (1.71%) and meningitis (1.18%). NNJ was the 3rd commonest cause of admission (19.95%) followed by birth asphyxia (16.52%). Among 1694 patients 1212 (71.54%) were sent home when fully recovered. Among the rest of the patients, 252 (14.87%) expired, LAMA accounted for 120

(7.08%), 107 (6.31%) babies were discharged on their attendants request and 03 (0.17%) neonates were referred to Paeds Surgical unit.

Those among the expired patients 252 (14.87%), the following were the major causes of deaths. 97 (21.60%) were pre-mature babies. Among them 60 were premature babies without sepsis (15.95%), 30 premature babies with sepsis (47.6%) and 7 premature babies with Respiratory Distress Syndrome (70%). Other major causes of expiry are 64 (14.51%) with sepsis and 59 (21.07%) with birth asphyxia. For details see Table-I.

DISCUSSION

This study shows that about 35% 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 Karachi,[10] 44.47% from Larkana[8] and 75% from Lahore.[11] These figures shows that most of the neonatal problem occur during the 1st 24 hours of life. There is a male predominance in our study also consistent with other studies conducted at different institutions of various cities of Pakistan. Low birth weight continues to be the major public health problems observed in many developing countries.[7,8,11,12] Low birth weight was 41.20% in our study, 39% from Lahore,[11] 36% from Larkana.[8] From India,[10] Bangladesh[14] and Ethiopia,[15] the neonatal LBW percentage was 20%, 13.25% and 11.02%. Lack of nutritional education and lack of early antenatal care with maternal short stature were the main factors for LBW babies in Ethiopia.[15] Majority of the women are illiterate and malnourished, this contribute to increase number of deliveries with LBW.[10] Neonatal infection is one of the main causes of neonatal morbidity

Table-I: The data of admissions to the neonatal unit of Khyber Teaching Hospital, Peshawar (Pakistan) for the one year period from 1st January to 31 December 2005.

		No	*% of Admissions*	*Mortality %*
Sex	Males	1219	71.96	13.86
	Females	475	28.04	17.47
Birth Weight	<1kg	03	0.17	100
	1-1.5kg	79	4.66	70.88
	1.6-2.5kg	698	41.20	14.00
	2.6-3.5	715	42.20	12.58
	3.6-4.5	175	10.33	2.85
	4.5-5.5	26	1.53	0.00
Place of Delivery	Home	458	27.00	18.55
	Private clinic	180	10.62	13.33
	Hospitals	1056	62.33	13.54
Diagnoses	Prematurity without sepsis	376	21.19	15.95
	Prematurity with sepsis	63	3.71	47.6
	Prematurity with RDS	10	0.59	70.0
	Sepsis in fullterm babies	441	26.03	14.51
	Birth asphyxia	280	16.52	21.0
	Neonatal jaundice	338	19.95	3.55
	Congenital heart disease	24	1.41	29.16
	Pneumonia	29	1.71	17.24
	Meningitis	20	1.18	30.00
	Meconium aspiration syndrome	20	1.18	10.00
	Infant of diabetic mother	13	0.76	0
	Intrauterine growth retardation	14	0.82	0
	Haemorrhagic disease of newborn	06	0.35	0
	Miscellaneous disorders	60	3.54	0

and mortality in developing countries.[16] In our study infection as a whole accounted for 28.72% as compared to 45.21% reported from Karachi.[10] Majority of these neonatal infections are due to home delivered babies conducted by traditional birth attendants under un-hygienic conditions. Neonatal septicemia was the main cause of infection in our study 26.03% responsible for increase morbidity and mortality, same figures are reported from another study.[17] Most of the predisposing factors were due to poor obstetric care and un-sterile delivery practices. Neonatal jaundice and birth asphyxia are the next common causes of neonatal admissions in our study i-e 20% and 16.52% respectively.

Neonatal jaundice was responsible for the 20% of neonatal admission to our unit as compared to 13.15% from Karachi,[10] 8.33% from Lahore[18] and 3.5% from Larkana.[18] It was reported high (30.71%) from Bangladesh.[14] In 1983 jaundice was reported as 25%, was the leading cause of neonatal admission in Pakistan.[19] This change in percentage of neonatal admissions to jaundice could be due to the changing pattern of neonatal disease with geographical variation from time to time.[8] Birth asphyxia in our study was 16.52%. It was reported 18.85 from Karachi,[10] 40.66% from Lahore,[18] 31% from Rawalpindi.[20] Birth asphyxia is one of the common causes of morbidity and mortality in neonates and the incidence is 2-9 per 1,000 live births.[22] Mortality from birth asphyxia in one of the study reported from Lahore is 40%. Antenatal monitoring of high risk pregnancies, timely referral and resuscitation at the time of birth at all levels is mandatory to reduce high case fatality & morbidity related to birth asphyxia.[23] In our study 71.54% neonates were discharged home satisfactorily after receiving the necessary treatment. This percentage could be due to an increased awareness among health workers and provision of all the possible management in spite of our limited resources. 6.31% of patients were sent home on request of their attendants while 7.08% got LAMA (left against medical advice). The small percentage of these patients in our study DOW, LAMA shows an increased awareness among parents in order to avail the opportunity of hospital stay for the better management of their babies.

Neonatal mortality was 14.87% in our study. It was reported 25.85% from Karachi[10] 34% from Lahore[9] and 38 % from Larkana.[8] The neonatal mortality could be attributed to their critical condition at the time of admission.[20] The commonest causes of deaths in our study were pre-maturity (21.60%), sepsis (14.51%) and birth asphyxia (21.0%). Infection was the major cause of neonatal death (46.44 %) reported from Karachi[10] followed by birth asphyxia and pre-maturity with a similar figure reported from India.[21] The highest neonatal death due to pre-maturity in our study reflects the increase in work load on our neonatal unit along with less number of trained nursing staff for the best possible care required for these pre-mature babies. Another factor for contributing high mortality due to pre-maturity could be due to inadequate antenatal checkup. Majority of the newborn were referred to our unit by different hospitals / maternity homes and private clinics with a total number of 1236 (72.96%) while home delivered babies were 458 (27.03%).

CONCLUSION

Infection, LBW, NNJ and birth asphyxia were the major causes of neonatal admission in our study. This could be reduced by proper antenatal checkup of the pregnant women, timely intervention, proper and in time referral to tertiary care centers for deliveries of all high risk pregnancies. This could also be reduced by conducting sterile and safe deliveries at homes. Another important thing is to create an awareness among all the health workers dealing with the pregnant women for timely referral of high risk pregnancies. Increased number of deaths due to infection and pre-mature / LBW babies could be prevented by adopting the strategy of proper hand washing, minimal handling but, close observation for all these neonates in neonatal unit.

ACKNOWLEDGMENT

We are thankful to Mr. Gohar Said for typing and helping the manuscript.

REFERENCES

1. Parthasarathy A. Text book of Paediatrics, 2nd Edition 2002;42-73.
2. 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.
3. Yinger NV, Ransom EI. Why invest in newborn health? Policy perception on newborn health 2003. Save the children, Washington DC.2003.
4. Chaudhry IJ, Chaudhry NA, Hussain R, Munir M, Tayyab M. Neonatal septicemia. Pak Postgrad Med J 2003;14:18-22.
5. William W. Current paediatric diagnosis and treatment. Sixteen Edition, 2003;1-63 (2a).
6. Roghani MT, Mohummad T. Neonatal disease profile in NWFP. An analysis of four years admissions. Pak Paediatr J 1983;7:17-22.
7. Haneef SM, Tabssum S, Qureshi Z, llahi S. Pattern of neonatal disease, Pak Paediatr J 1985;9:42-50.
8. Abbasi KA. Neonatal disease profile in Larkana before and after establishment of neonatal ward. J Pak Med Assoc 1995;45:235-6.
9. Jamal M, Khan N. Neonatal morbidity and mortality in high risk pregnancies. J Coll Physician Surg Pak 2002;12:657-61.
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. Wu Z, Viisainen K, Wans Y, Hemminki F. Perinatal mortality in rural China: retrospective cohort study. BMJ 2003;327:1319-20.
13. Butt TA, Kazir MY, Bhatti MT, Khan HI, Ahmad TM. Evaluation of risk factor and supportive investigation in the diagnosis of neonatal sepsis. Ann KE Med Coll 2003;8:292-4.
14. Islam MN. Situation of neonatal health in Bangladesh orion 2000;6: Available at website http://www.orion-group.net /orion /20 Medical Journal Vol.6.
15. Gebremariam A. Factors predisposing to low birth weight in Jimmu Hospital South Western Ethiopia. East Afr Med J 2005;82(11):554-8.
16. Rahman S, Hameed A, Roghani MT, Ullah Z. Multidrug resistant neonatal sepsis in Peshawar. Arch-Dis Child Fetal Neonatal Ed 2002;87:F52-4.
17. Ojukwu JU, Abonvi LE, Ugwn J, Orji Ik. Neonatal septicemia in high risk babies in south-Eastern Nigeria. J Perinat Med 2006;34(2):166-72.
18. 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.
19. Arif MA, Jaundice in newborn. Pak Paediatr J 1983;7:37-43.
20. Tariq P, Kundi Z. Determinants of neonatal mortality. J Pak Med Assoc 1999;49:56-60.
21. Thora S, Awadhiya S, Chansoriya M, Kaul KK. Perinatal and infant mortality in urban slums under IUCD scheme. Indian Paediatr 1996;33:19-23.
22. Shah GS, Singh R, Das BK. Outcome of newborn with birth asphyxia. J Nepal Med Assoc 2005;44(158):44-6.
23. Chishty AL, Iqbal A, Anjum A, Maqbool S. Spectrum of multiorgan systemic involvement in birth asphyxia. Pak J Pathol 2001;12(3):81-7.