ORIGINAL ARTICLE

AN AUDIT OF MORBIDITY AND MORTALITY OF HOSPITALISED NEONATES IN NEONATAL CARE UNIT OF A TERTIARY CARE HOSPITAL IN ABBOTTABAD

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Background: Perinatal as well as neonatal mortality record in our country is one of the highest in the world. Home deliveries, lack of adequate facilities, poverty and lack of education are some of the important known causes. The present study was planned to determine neonatal mortality in Hazara**. Methods:** Hospital records of neonatal admissions at Ayub Teaching Hospital (ATH) Abbottabad from 1st January 2007–31st December 2007 were analysed retrospectively. Percent neonatal mortality was calculated from the record, along with the causes of neonatal mortality. **Results:** A total of 1705 neonates were admitted in the study period at the department of neonatology Ayub Teaching Hospital Abbottabad. Out of 1,705 neonates 947 (56%) were males while 857 (44%) were females with a male to female ratio of 1.24:1. Majority, 1,411 out of 1,705 (83%), of the neonates was admitted during the 1st week of their life, mean age 6 days. Asphyxia, sepsis and prematurity were the three most common causes of neonatal admissions contributing 27%, 26% and 24% respectively. Overall mortality was 11%. **Conclusion:** Neonatal mortality is an important contributing factor to infant mortality in Hazara Division. Majority of patients was admitted in the first week of life which indicates that good antenatal and natal care can reduce the mortality and morbidity of our neonates. Improvement in the prenatal, natal and nursery care as a whole can reduce the neonatal mortality in preterm as well as full term neonates.

Keywords: Neonatal Mortality, Morbidity, Asphyxia

INTRODUCTION

Perinatal mortality rate (50–60/1,000) and neonatal mortality rate (50/1,000) of our country is one of the highest in the world.[1] The causes include home deliveries, poor maternal health, low socioeconomic status, high fertility rate and high incidence of low birth weight. It is well recognized that perinatal mortality is indicator of maternal and new born health care in a society[2], while there are few reliable national figures of perinatal mortality; several recent studies reveal a worst state of affairs[3]. Fikree and grey[4] described a perinatal mortality rate of 56/1,000 birth among 8 lower socioeconomic areas of Karachi, with early neonatal mortality rate of 32% of all infants deaths and 65% of all neonatal mortality. Due to advancement in neonatal intensive care services in developed countries, survival of new born babies has significantly increased[5–6] on the contrary in developing countries. Many newborns die not only due to lake of specialised care but also due to improper management during Perinatal period. Many of these deaths can be prevented. The review of hospitalised data of sick new born infant indicate that infections, asphyxia, jaundice, meconium aspiration and malformation account for 60–80% of all new born admissions to these paediatric facilities in Pakistan.[7] This data also provides a hope that except malformation, most cases of neonatal mortality in Pakistan are preventable. Of these infectious disorders, early onset neonatal sepsis or nosocomial bacterial infections are of paramount importance and are related to lake of asepsis in labour as well as lack of attention to exclusive breast feeding.[8–9] Unfortunately the morbidity of neonatal infection is compounded by co-existing Asphyxia, hypothermia and delayed referral.[10] An important factor contributing to the high rates of neonatal morbidity is the paucity of trained staff in the community such as trained midwives and Traditional Birth Attendants (TBA) as well as in health facilities.[3]

MATERIAL AND METHODS

This retrospective study was conducted at the neonatal unit, Department of paediatrics ATH from 1st January 2007–31st December 2007 over a period of one year. A total of 1,705 babies admitted during the study period. These babies were either delivered at ATH or referred to ATH from other District hospitals like the District Headquarter Hospitals (DHQ) Haripur, Mansehra and Battagram. Hospital record of all the neonates hospitalized during the study period was analysed. In addition to the recognition data, cause of hospitalisation, name of the referring doctor/hospital and outcome of admission were recorded in a structured Performa. Percentages and frequencies were computed for the numerical data by descriptive statistics using SPSS-11.

RESULTS

Results of the study are shown in Tables-1–7. A total of 1,705 neonates were admitted in the study period at the Department of Neonatology Ayub Teaching Hospital,

Abbottabad. Out of 1,705 neonates 947 (56%) were males while 857 (44%) were females with a male to female ratio of 1.24:1. Majority, 1,411 out of 1,705 (83%), of the neonates was admitted during the 1st week of their life, mean age 6 days (Table-1). Asphyxia, sepsis and prematurity were the three most common cause s of neonatal admissions contributing 27%, 26% and 24% respectively (Table-3). Month-wise distribution of neonatal admissions is shown in Table-4. The neonates were hospitalised throughout the year, but admissions were relatively more during the months of February–October and December (Table-4) regarding neonatal mortality, 118 out of 1,705 neonates died during the study period, with a mortality rate of 11%. Most of the deaths (61%) occurred during fist week of life (Table-5). Sepsis, prematurity and asphyxia were found to be the most common causes of neonatal mortality comprising 40%, 32% and 21% each (Table-6) Males outnumbered females (110 vs 78) with male to female ratio of 1.25:1(Table-7).

Table-1: Age distribution of neonatal admission

Age in days	No. of Admissions	Percentage
1–7	1411	83%
8–14	110	6%
15–21	94	6%
22–30	90	5%
Mean age 6 days		

Table-2: Gender distribution of neonatal admissions

Gender	No. of Admissions	Percentage
Male	947	56%
Female	758	45%

Table-3: Frequency distribution of causes of neonatal admission

Cause	No. of Cases	Percentage
Asphyxia	465	27
Sepsis	443	25
Prematurity	401	24
Jaundice	292	17
Acute gastroenteritis	41	3
Tetanus	27	2
Hemorrhagic disease of newborn	26	1.5
Others	10	0.5

Table-4: Month-wise distribution of neonatal admissions

Cause	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Asphyxia	31	30	29	36	34	50	45	48	40	42	34	46	465
Sepsis	35	28	28	27	38	40	50	35	28	35	24	75	443
Prematurity	15	31	29	30	37	41	40	31	35	36	12	60	401
Jaundice	15	18	28	30	35	35	30	37	18	34	12	-	292
AGE	-	-	-	4	4	10	6	7	2	4	4	-	41
Tetanus	2	2	1	2	3	3	3	2	3	2	-	4	27
HDN	4	2	1	1	3	3	2	1	4	2	-	3	26
Others	1	-	-	1	-	2	-	1	3	-	-	2	10
Total	**103**	**111**	**116**	**131**	**154**	**184**	**176**	**162**	**133**	**155**	**90**	**190**	**1705**

HDN=Hemorrhagic disease of newborn, AGE=Acute Gastroenteritis

Table-5: Age distribution of neonatal mortality

Age in days	No. of deaths	Percentage
1–7	115	61
8–14	40	21
15–21	24	13
22–30	9	5

Table-6: Frequency of causes of neonatal mortality

Cause	Admissions	Deaths	%
Asphyxia	465	40	21
Sepsis	443	75	40
Prematurity	401	60	32
Jaundice	292	-	-
Acute gastroenteritis,	41	-	-
Tetanus	27	10	5
Acute gastroenteritis,	26	-	-
Others	10	3	2

Table-7: Gender distribution of neonatal mortality

Gender	No. of deaths	Percentage
Male	110	59
Female	78	41
Total	188	11

Table-8: Facilities for neonatal care in Hazara division

Facility	Number	Rate/10,000
Nursery beds	25	2
Incubators	12	1
Oxygen analyzers	Nil	–
Cardiac monitors	Nil	–
Infusion pumps	3	2.4
Ventilators	4	2.5
Neonatal nurses	10	1

DISCUSSION

Ayub Teaching Hospital is the largest teaching hospital located in District Abbottabad of Hazara Division with nursery providing level-2 care. About 5–8 babies are admitted in Neonatal Intensive Care Unit (NICU) daily. It is important to mention here that neonates from all over Hazara Division are referred to ATH, because neonatal care facilities at the peripheral hospitals are not adequate.

Perinatal and neonatal mortality in our country have remained constant over last two decades.[11] Birth Asphyxia, Sepsis, LBW/Prematurity and neonatal tetanus are responsible of majority of neonatal admissions and mortality in our country. This is not surprising as most deliveries take place at home and are conducted by untrained birth attendants.[12]

Infections, birth Asphyxia and low birth weight/prematurity have been identified as the major causes of neonatal mortality in our nursery. Sepsis was the leading cause of neonatal mortality at Lahore, where 43% deaths were caused by neonatal sepsis while 28% neonates succumbed to birth asphyxia.[13] In the present study asphyxia caused comparatively lesser number of neonatal deaths (21%) while the number of deaths due

to sepsis was very close to the figures reported earlier (40%).[13–15,17]

In Urban Karachi asphyxia was responsible for 14% and sepsis for 22% deaths while prematurity was found to be the leading cause (26%).[14] Our findings for neonatal mortality due to the same causes are different from these figures. One reason could be comparatively better neonatal care facilities at Karachi.

Studies conducted at NWFP, Karachi and Baluchistan revealed an overall neonatal mortality of 60%, with infection responsible for 21%, prematurity for 14% and asphyxia for 11 %.[15] Our findings are similar to these figures regarding overall mortality but different as regards the individual causes of neonatal mortality. Population studies and health service and demographic data (PDHS) reported overall neonatal mortality of 57% of infant mortality, which is slightly lower than our figures (60%).[17]

Neonatal care facilities available at different Hospitals of Hazara Division are presented in Table-8 which reveals that these facilities are much lower than the figures reported from Karachi.[3]

Several recommendations are available to improve primary health care of mother and new born.[8] The performance of hospitals in urban areas of Country has also been far from satisfactory where nearly 1/3 of deliveries take place. Most of these have inadequate facilities in terms of both equipment and trained staff.[18] This leads to increasing number of preventable neonatal/perinatal deaths. To improve neonatal care and to decrease neonatal mortality, we not only need training and expansion of medical staff attending new born infants both during delivery and thereafter, but a lot have to done in rural as well as in urban settings. This measure may include improving educational status of women, economic improvement, training of TBAs in recognition of high risk births and basic resuscitation.[19]

CONCLUSION

Neonatal mortality is an important contributing factor to infant mortality in Hazara Division. Majority of the patients was admitted in the first week of life which indicates that good antenatal and natal care can reduce the mortality and morbidity of our neonates. LBW and preterm care and improving the nursery care as a whole can reduce the neonatal mortality in preterm as well as full term neonates.

RECOMMENDATIONS

The results of the present study have highlighted the problem of neonatal mortality up to some extent. More studies in this regard are required to further highlight this important health problem. But more important than this is to improve the existing health facilities and build more facilities, especially in the peripheral areas.

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