ORIGINAL ARTICLE

INFANT MORBIDITY LEADING TO INFANT MORTALITY

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ABSTRACT

Background: Infant morbidity and mortality are important measures of a nation's health. The aim of this study was to explore the causes and risk factors affecting infant morbidity and mortality in our set up.

Material & Methods: It was a cross-sectional study, conducted at Pediatrics Unit, DHQ Teaching Hospital, D.I.Khan, from June 3, 2007 to July 5, 2007. Infants under one year of age were included. Those with accidental injury related illnesses were excluded. Study instrument included structured questionnaire. Data was analysed using SPSS version 13.

Results: One hundred and fifty infants were observed during the study period; 51(34%) in neonatal period whereas 99(66%) in post-neonatal period. Hospital based diagnosis showed diarrhea syndrome in 73(48.7%), neonatal sepsis 16(10.7%), birth asphyxia 15(10%), neonatal jaundice 13(8.7%), whooping cough 13(8.7%) and other diseases 15(10%). Seven (4.7%) infants died. The cause of death was birth asphyxia in 4(57.1%), respiratory distress 2(28.6%) and aspiration of vomitus 1(14.2%). Contributing factors were present in 4(57.1%) and included prematurity in 2(28.6%), neonatal jaundice 1(14.2%) and diarrhea syndrome 1(14.2%).

Conclusion: The frequency of infant's death is 4.7% in our set up. Most of these occur in neonatal period and the cause of death in most cases is birth asphyxia with contributing prematurity.

Key words: Infant, Morbidity, Mortality.

INTRODUCTION

Infant morbidity and mortality are important measures of a nation's health because of their association with a variety of factors such as maternal health, quality of medical care, socioeconomic conditions and public health practices. Infant mortality rate (IMR) is expressed as the number of deaths of children under one year of age per 1,000 live births per year.[1] Infant mortality rate in developed countries showed a rapid decline during the last 50 years, while it is still a problem in developing nations.[2]

The different determinants of infant morbidity and mortality include age, sex, plurality, mode of delivery, gestational age, birth weight, parity of mother, vaccination, maternal education, age, birth spacing and socioeconomic conditions. Breast feeding is an important determinant which lowers the rate of infection related morbidities.[3] WHO Expanded Programme on Immunization has reduced infant mortality by controlling vaccine preventable diseases.[4]

The aim of this study was to explore the causes and risk factors affecting infant morbidity that ultimately lead to infant mortality.

MATERIAL & METHODS

It was a cross-sectional study, conducted at Pediatrics Unit, DHQ Teaching Hospital, D.I.Khan, from June 3, 2007 to July 5, 2007. The sampling method was purposive. Infants under one year of age admitted in Children Unit were included. Those with accidental injury related illnesses were excluded. Study instrument included structured questionnaire. An informed consent was obtained from the mother or relative of the infants. Data was analysed using statistical software SPSS version 13.

RESULTS

During the study period 150 infants were observed; 51(34%) in neonatal period and 99(66%) post-neonatal. 109(72.7%) were males while 41(27.3%) females. Eighty-nine (59.3%) were from rural and 61(40.7%) urban areas. Age of mothers was <19 years in 5(3.3%), 19-30 60(40%) and >30 in 86(57.3%). Hospital based diagnosis showed diarrhea syndrome in 73(48.7%), neonatal sepsis 16(10.7%), birth asphyxia 15(10%), neonatal jaundice 13(8.7%), whooping cough 13(8.7%) and other diseases 15(10%). (Figure)
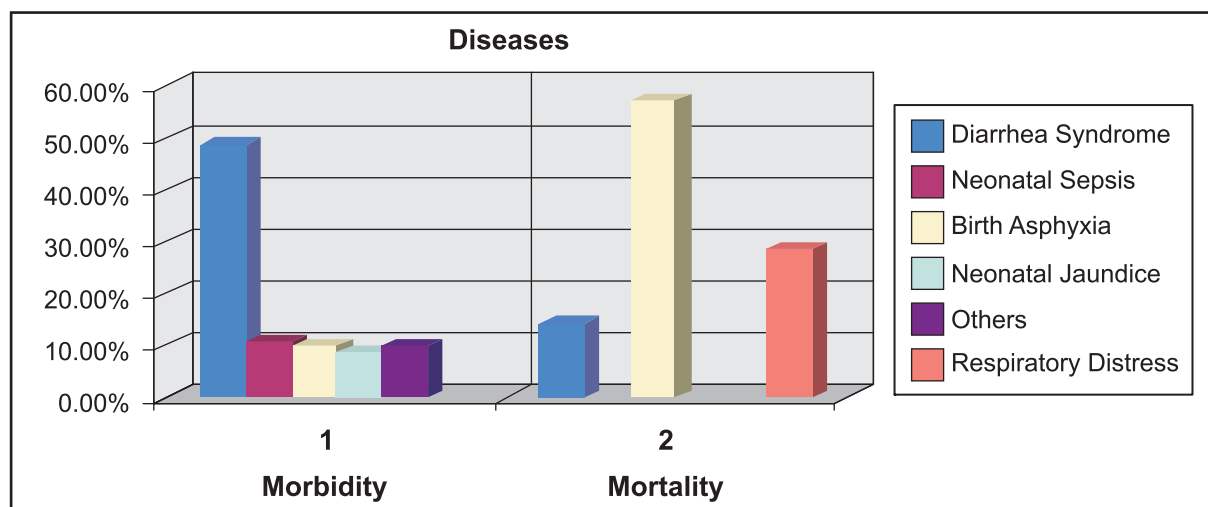
Figure: Showing the causes of morbidity and mortality in infants.

Regarding factors affecting morbidity, 65(43.3%) fathers were literate while 85(56.7%) illiterate; 33(22%) mothers were literate while 117(78%) illiterate. Concerning birth order, 28(18.7%) were in 1st, 22(14.7%) 2nd, 24(16%) 3rd, 27(18%) 4th and 48(32%) in 5th order or above. Birth spacing showed 29(19.3%) as first child. The remaining 76(50.7%) had 1-2 years and 45(30%) more than 2 years. Birth weight of 29(19.3%) infants was <2.5 kg, 43 (28.7%) 2.5-4 kg and no infant above 4 kg. In 78(52%) it was not known. Infants born premature were 16(10.7%), mature 128(85.3%) and post-mature 6(4%). 132(88%) infants received colostrum while 18(12%) did not. 85(56.7%) were fed on breast milk, 25(16.7%) other than breast milk, 37(24.7%) mixed while 2(1.3%) were newborns not yet fed. 81(54%) infants received vaccination while 69(46%) did not. 146(97.3%) infants received treatment before admission while 4(2.7%) did not. Fertility of mothers was upto 3 in 73(48.7%) and >3 in 77(51.3%). Delivery was conducted in hospital in 58(38.7%) and home 92(61.3%). In 59(39.3%) delivery was assisted by trained personnel while 91(60.7%) by untrained. During pregnancy 51(34%) mothers suffered from no disease, 84(56%) anaemia, 18(12%) hypertension, 4(2.7%) diabetes, 1(0.7%) tuberculosis and 28(18.7%) other diseases. Mothers having complications during birth were 37(24.7%) while 113(75.3%) had no complication. Complications included obstructed labor in 13(35.1%), bleeding per vaginum 21(14%), breach position requiring caesarian section 1(0.7%) and caesarian section for other causes 2(1.3%). 63(42%) mothers took drugs during pregnancy while 87(58%) did not. Source of drinking water was from pipe 49(29.8%), hand pump 95(58%), ponds 12(7.3%), canal 5(3%) and well 3(1.8%). Family income in 92(61.3%) was <5000 Pakistani Rupees/month in 92(61.3%) and >5,000 in 58(38.7%).

Seven (4.7%) infants died. The cause of death was birth asphyxia in 4(57.1%), respiratory distress 2(28.6%) and aspiration of vomitus in 1(14.2%). Contributing factors were present in 4(57.1%) while not in 3(42.9%). These included prematurity in 2(28.6%), neonatal jaundice 1(14.2%) and diarrhea syndrome in 1(14.2%).

DISCUSSION

In our study males were at risk for infant morbidity and mortality as compared to females. Mathews et al also showed higher IMR in males.[5] In our study diarrhea syndrome was the most common disease observed in morbidity while birth asphyxia in mortality. This is in contradiction to Fikree et al showing diarrhea syndrome as the leading cause of infant death in Pakistan.[6] According to Machado and Hill birth asphyxia and birth trauma are the major causes of neonatal morbidity and mortality which is in accordance to our study.[7] Kramer showed that prematurity increases the risk for neonatal death due to birth asphyxia.[8]

In our study morbidity increased with increasing birth order, similar to Mathews et al.[5] It may be attributed to diversion of attention to other children and poor socioeconomic conditions. Birth spacing of 1-2 years was shown to increase the risk for infant morbidity. Defo also showed the same results for birth spacing less than 2 years.[9]

Majority of infants received colostrum according to our study. Many studies showed that breast feeding decreased infant morbidity and mortality.[9-13]

In our study almost half of the infants were immunized. Evaline et al showed that under-vac-

cination may be due to high birth order, younger maternal age, less maternal education, poor pre-natal care and lack of an identified primary care provider.[14]

Only 39.3% deliveries were assisted by trained attendants, which is also shown by UNICEF statistics in Pakistan.[15] In our study, during pregnancy most of the mothers were suffering from anaemia. Allen showed iron deficiency anaemia as risk factor for preterm delivery and low birth weight.[16]

In our study family income in more than half the cases was low. Petrini proved household income to be a good indicator of mother and child health.[17]

Birth asphyxia was the major cause of death in our study with prematurity as a contributing factor. Kramer showed prematurity as a risk for birth asphyxia leading to infant mortality.[8] Petrini however showed birth defects as the leading cause of infant mortality.[17]

CONCLUSION

The frequency of infant's death is 4.7% in our set up. Most of these occur in the neonatal period and the commonest cause is birth asphyxia with contributing prematurity. Male sex, rural dwelling, low socio-economic class, mother's age above 30, illiteracy, birth order 5th or above, short birth spacing, fertility more than three, anaemia, obstructed labor, contaminated drinking water, and diarrhea syndrome are the risk factors for morbidity.

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