Morbidity among Infants in South India: A Longitudinal Study

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ABSTRACT

To study the incidence and types of morbidity in the first year of life in a birth cohort, a longitudinal study. This study was undertaken in northern part of Karnataka state in India. Birth cohort consisted of all the children born during first six months of the study period. They were assessed at the time of enrollment and monthly follow up was done till they attained one yr of age. Out of the 194 newborns, 46.4% were boys and 53.6% were girls. 24.8% of newborns were of low birth weight and 5.1% were preterm. Four (2.1%) had congenital anomalies and 2.5% developed birth asphyxia. Diarrhea (10.8%) and skin diseases (8.2%) were the commonest morbidities in the neonatal period. The incidence of morbidity was 3.28 per infant per yr. It was more among boys and in the second half of infancy. Commonest morbidities during infancy were respiratory tract infection (62.4%), diarrhea 42.8% and skin diseases (21.6%). Incidence of disease in infancy highlights the need to improve and plan health programmes.

Key words: Infants; Incidence; Morbidity

Infants constitute 2.92 percent of the population of India. As 30% of them are underweight (below 2.5kg) and 1/3rd of them premature (less than 37 weeks), they are even more prone to develop various health problems like infections. The vulnerable status of infants and additional problems in countries like India warrant special attention to infant health. Studies showing incidence of disease in them and pattern of infections can provide valuable data regarding the trend of disease, impact of health programmes as well as form a basis for further planning and implementation efforts. The present study was thus planned to find out the incidence and morbidity pattern among infants in one of the Primary Health Centre (PHC) areas of North Karnataka.

MATERIAL AND METHODS

This longitudinal study was carried out in Santibastwad, Machhe and Peeranwadi villages of PHC Kinaye in Belgaum District of Karnataka State from November 2004 to April 2006. All children born between November 2004 and April 2005 formed the birth cohort, that was followed up for one yr. During the initial phase, the investigator visited houses of mothers within 10 days of childbirth and collected baseline data on a pretested proforma. Thereafter, monthly follow up visits were done to enquire about their morbidities, followed by a detailed clinical examination. Document verification was done in case the child had illness in between the visits.

All newborns of mothers, who were permanent residents of the study area and who were available for follow-up for one yr and singleton pregnancies were included, where as babies born to mothers who had come to parental house for delivery were excluded. Data analysis was calculated in rates and proportions using SPSS 10.0 Socioeconomic status was calculated using Modified B G Prasad’s classification of 2004.

RESULTS

A total of 194 babies were born in the study area during the initial six months of enrollment period. Socio-demographic characteristics of the mothers showed that 174 (89.7%) belonged to Class IV and V socioeconomic group. Out of 194 babies, 104(53.6%) were girls and 90(46.4%) were boys. A total of 48(24.8%) newborns were of low birth weight, 10 (5.1%) were preterm and 1 (0.5%) was postterm.
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Morbidity disorders

Neonatal period

Congenital anomalies (Congenital talipes equina varus, Down's syndrome with congenital megacolon, Hypertelorism, Imperforate anus) were seen in 4 (2.1%), of which two had history of consanguinity. 5 (2.5%) developed birth asphyxia soon after delivery. During the neonatal period, 21 (10.8%) babies developed diarrhea, 16 (8.2%) developed skin diseases, 15 (7.7%) developed anemia and 12 (6.2%) developed respiratory tract infections (RTI).

Infancy

The incidence of morbidity during the entire period of infancy in the present study was 3.28 episodes per infant per yr and it was higher among boys. These findings are comparable with the study done in semi-urban area of Delhi, where the incidence of morbidity was found to be 3.1 per infant per yr and it was also more in boys. Higher morbidity rate among males babies is explained by the known fact that they are biologically weaker than female babies. The commonest morbidity seen in the present study was RTI followed by diarrhea. Studies conducted in Malawi and Alexandria show similar finding in terms of the commonest morbidities but among their infants, diarrhea was more common. Alexandria study also found skin and eye infection to be the next most common ailments. This variation with the present study may be due to the difference in study settings and varying local environments. In the present study, the incidence of morbidity was lower in first six months (1.51 per infant per 6 months) compared to second six months (1.77 per infant per 6 months). This is an expected outcome as in early part of infancy children’s exposure to outside infection is likely to be less. Latter part of infancy has multiple risk factors like unhygienic feeding practices, waning of maternal immunity, higher chances of exposure outside home etc. Similar finding has been reported by Datta Banik et al where morbidity incidence in first 6 months was 1.06 as compared to 1.12 in latter part.

High rates of infection, morbidity among infants and even among neonates in the present study indicate a poor health status of the community. This could be attributed to the fact that most of them belonged to low socioeconomic background and were brought up in conditions of improper & inadequate feeding practices and poor sanitation. Since most of the morbidities were due to respiratory and diarrheal diseases, implementation of Integrated Management of Newborn and Childhood Illness (IMNCI) at grass root level by health workers and anganwadi workers needs to be emphasized.

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Contributions: NJ; Study design, data collection and manuscript preparation, SHS; Interpretation and revising it critically for important intellectual content, VAN; Conception, design of the study and manuscript editing, NSM; Conception, design of the study and technical assistance, MDM; Study design and statistical analysis.

DISCUSSION

Neonatal period

There were 4 (2.1%) newborns with congenital anomalies of which 2 had consanguineous parents. This is similar to the findings of two other studies conducted in South India where congenital malformations were significantly higher among offsprings born to consanguineous mothers. Birth asphyxia was seen in 5 (2.5%) newborns in our study. In a community based study in North India, the prevalence of birth asphyxia was found to be 2.0%. A total of 67 (34.5%) babies suffered from morbidities during the neonatal period which is much lower than that of the morbidity of 49% found in a study conducted in Bangladesh. This differences could be because Bangladesh is a less developed country than ours. Their study also identified fever and respiratory difficulty as the commonest morbidity amongst their neonates in contrast to our findings.

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REFERENCES