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Community Medicine

PATTERN OF MORBIDITIES AMONG PRESCHOOL CHILDREN IN NORTH KERALA, INDIA

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ABSTRACT The health status of the children serves as a sensitive indicator of the overall health of any community. The objective of this cross-sectional study was to assess the pattern of morbidities (acute and chronic) among anganwadi preschool children in Kannur district, North Kerala and to identify factors associated with the most prevalent morbidities. The study included 456 preschool children. It was found that the most prevalent morbidities were acute respiratory infection and acute diarrheal disease. The study found that normal nutritional status and exclusive breast feeding till first six months of age had significant effect on lesser occurrence of respiratory infection. In the present study it was found that the mean prevalence of acute respiratory infection (ARI) and acute diarrheal disease (ADD) were 4.08 episodes/child/yr and 1.276 episodes/child/yr respectively. The most frequent chronic illnesses were febrile seizure and asthma.

KEYWORDS : ARI, Children, Kerala, Morbidity

INTRODUCTION:

The health status of the children serves as a sensitive indicator of the overall health of any community.[1] In India, common morbidities among children are acute respiratory infection (ARI), acute diarrhoeal disease (ADD), and malnutrition.[1] Pneumonia and diarrhea remain major killers of young children globally and account for 29% of all deaths of children less than 5 years of. [2] Childhood acute respiratory infection (ARI) is a significant public health problem in India. Mortality due to pneumonia and acute diarrheal disease (ADD) accounts for approximately 25% and 14% of the total deaths in under-five children in India.[3,4] The objective of the present study was to find out the pattern of morbidities (acute and chronic) among preschool children in Kerala, which is one of the states with best health indicators.

METHODS:

This study was part of a cross-sectional study done during July 2013-June 2014 in forty four anganwadi centers of Kannur district to assess the prevalence of underweight among anganwadi preschool children (3-6yrs of age). From all the eleven revenue blocks four anganwadi centers each were selected by multistage random sampling. All preschool children who were present on the day of study and whose mothers gave consent were included in the study. Data was collected by interviewing the mothers of 456 children using a pretested semi-structured questionnaire. Morbidity pattern in the six months preceding the study was obtained. The bodyweight and height of children were measured and compared with WHO growth standards and classified accordingly. Data was entered in EpiData version 3.1 and analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 19 software. Statistical measures like mean with standard deviation, frequencies and proportions and Chi-square test were for data analysis. Ethical clearance was obtained from Institutional ethics committee.

ARI: Inflammation of the respiratory tract anywhere from nose to alveoli-common cold, pharyngitis, otitis media, epiglottitis, laryngitis, laryngotracheitis, bronchitis, bronchiolitis and pneumonia. [5] ADD: Passage of loose, liquid or watery stools more than three times a day. [6] Chronic illness: Symptoms persisting for at least three months or requiring regular treatment for more than three months. [7]

RESULTS

The total number of preschool children (3-6yrs) participated in the study was 456. The mean age of children in the study (in months) was 46.47 ± 7.406. Among the study population, 45.6% were males. It was noted that 5.3% were born as preterms (gestational age less than 37 weeks). The proportion with low birth weight (birth weight less than 2.5kg) was 10.2%. During the first six months of life, 89.8% of children were on exclusive breast feeding.

In the present study it was found that the 95.17% of children had ARI in last six months and the number of episodes varied from one (26.03%) to six (0.69%). The present study also found that 55.7% children had ADD in last six months and episodes varied from one (85.8%) to three (0.3%). It was found that the mean prevalence for ARI and ADD were 4.08 episodes/child/yr and 1.276 episodes/child/yr respectively. Among the study population, 17.3% were underweight and 18.2% were stunted. The present study showed that the occurrence of ARI had significant association with the bodyweight of the child. Those children who were underweight were prone to get more episodes of ARI compared to children having normal weight for age (Table 1). The present study also found that children who were on exclusive breast feeds in the first six months of their life were likely to get lesser number of ARI episodes (Table 1).

The present study did not find any significant association with height of the child and risk for ARI. Though there was increased occurrence of ARI among females, those born as preterms and those born with low birth weight, these associations were not statistically significant. The present study did not find any significant association with episodes of ADD and sex of the child, gestational age at birth, birth weight, feeding in first six months or nutritional status of the child.

Table 1: Factors associated with occurrence of ARI

Variables	Less than or equal to two ARI episodes N (%)	Three or more ARI episodes N (%)	P value
Nutritional status (N =456)			
Normal weight for age	277 (73.5)	100 (26.5)	0.040*
Underweight	49 (62)	30 (38)	
Normal height for age	268 (71.8)	105 (28.2)	0.719
Stunted	58 (69.9)	25 (30.1)	
Feeding in first six months of age (N=456)			
Exclusive breast feeding	285 (73.8)	101 (26.2)	0.009*
Not exclusive breast feeding	41 (58.6)	29 (41.4)	

*Statistically significant by Pearson Chi-square test

Among the study participants, 8% had history of hospitalization in past six months for Fever, Asthma, Pneumonia, ADD, Febrile seizure, Typhoid, Urinary tract infection, Seizure disorder, Osteomyelitis, Mumps, Intussusception and Kerosene poisoning. The most common reasons for hospitalization were fever (38.9%) and asthma (19.4%). Among the 456 children in the study, 22 (5%) were on treatment for

chronic illness. The most frequent chronic illness was febrile seizure (1.5%), followed by asthma (0.9%). Other chronic illness included physical deformity, defective vision, squint, osteomyelitis, seizure disorder, cleft palate, autism, atopic dermatitis, hypothyroidism and ventricular septal defect.

DISCUSSION

The childhood morbidities most prevalent in the study population were ARI and ADD. This pattern is similar to the pattern of childhood morbidity in India. In India, common morbidities among children are ARI, diarrhea, and malnutrition.[1]

In the present study it was found that the mean prevalence for ARI and ADD were 4.08 episodes/child/yr and 1.276 episodes/child/yr respectively. This is high compared to the levels in Kerala (District level household and facility survey-4).[8] In Kerala, the prevalence of ARI and ADD among underfive children was 1.84episodes/child/yr and 0.98 episodes/child/yr respectively.[8] In India, the average number of ARI episodes among children below five years is 5 episodes/child/yr and the number of ADD episodes is 3episodes/child/yr.[6,9]

In the present study, 17.3% were underweight and 18.2% had stunting. According to Family Welfare Statistics in India 2011, 42.5% of children in India were underweight; and in Kerala 22.9% were underweight.[9] The better nutritional status in the study population might be because they are under the umbrella of services from the anganwadi.

The present study showed that the occurrence of ARI had significant association with the body weight of the child (Table 1). Those children who were underweight were prone to get more episodes of ARI compared to children having normal weight for age. This finding is in accordance with previous studies that nutritional status is an important determinant for ARI. Interventions to improve these modifiable risk factors can significantly reduce the ARI burden among children.[10] Breastfeeding also influences respiratory infection outcomes.[11] Exclusive breastfeeding for six months and continued breastfeeding with appropriate complementary feeding reduces the onset and severity of diarrhoea and pneumonia.[2] The present study also found that children who were on exclusive breast feeds in the first six months of their life were likely to get lesser number of ARI episodes (Table 1). Low birth weight (birth weight < 2500 g in term infants) is an established epidemiological risk factor for ARI and diarrhea.[12-14] In the present study, though there was increased occurrence of ARI among females, those born as preterms and those born with low birth weight, these associations were not significant.

The present study found that prevalence of febrile seizure in the population was 1.5% and is the most common chronic illness in the study population. A cross-sectional study by Hackett et al found that the prevalence of febrile seizure in Calicut district, Kerala was 8.5% and that its occurrence was influenced by adverse perinatal events and reccurrence was associated with maternal educational status and concurrent infections.[15]

CONCLUSION: The most prevalent acute morbidities among preschool children were ARI and ADD, and chronic illnesses were febrile seizure and asthma. Morbidity due to respiratory infection can be prevented by improving the nutritional status of the child. Exclusive breast feeding in the first six months of life has long term effects in preventing morbidities due to respiratory infection in preschool years.

Limitations of the study: The results are representative of children attending Anganwadi centers. There are some chance of recall bias regarding number of episodes.

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