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ORIGINAL RESEARCH

Assessment of risk factors of acute respiratory tract infection in children less than 5 years of age

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ABSTRACT

Background: Acute respiratory infections (ARIs) are a major cause of morbidity and mortality worldwide. The present study was conducted to assess acute respiratory tract infection in children less than 5 years of age.

Materials & Methods: 105 children aged less than 5 years of age of both genders diagnosed with acute respiratory tract infection were enrolled. Type of ARTi was recorded. Risk factors such as mother age, nutrition, breast feeding, family size, immunization, residence, use of biofuel etc. were recorded.

Results: Out of 105 children, boys were 65 and girls were 40. Type of ARTi was rhinitis in 25, pharyngitis in 30, tonsillitis in 40 and bronchopneumonia in 10 patients. The difference was non- significant (P> 0.05). Birth weight was normal in 20, low weight in 55 and overweight in 30. Mother age was <20 years in 65 and >20 years in 40. Mother education was none in 22, primary in 54 and secondary and above in 29. Smoking was seen in 45 and no in 60. Immunization was adequate in 35 and inadequate in 70. Residence was urban in 48 and rural in 57. Nutrition was adequate in 32 and inadequate in 73. Breast-feeding was seen in 42. Biofuel used was wood in 74 and kerosene in 31. Family size was small in 54 and large in 51. The difference was significant (P< 0.05).

Conclusion: Common risk factors foun ARTi in children were low weight, young mother age, low mother education, smoking, inadequate immunization, inadequate nutrition, inadequate breast-feeding and use of wood biofuel.

Key words: Acute respiratory infections, childen, smoking

INTRODUCTION

Acute respiratory infections (ARIs) are a major cause of morbidity and mortality worldwide. Each year, about 1.3 million children under 5 years die from acute respiratory infections worldwide.[1] ARI constitute one third of the deaths in under five in low income countries. The World Health Organization (WHO) estimates that respiratory infections account for 6% of the total global burden of disease; this is a higher percentage compared with the burden of diarrheal disease, cancer, human immunodeficiency virus (HIV) infection, ischemic heart disease or malaria.[2]

The percentage of deaths due to all causes for ARI is between 2 times and 6 times higher in less developed countries than in developed countries.[3] ARI constitute one-third of the deaths in under-five in developing countries. They contributed 67 million disability adjusted life years in the year 2000. They also account for 30-40% of the attendance to children out patient and 20-30% of hospital admissions. It has been shown that they consume significant health sector resources and long-term empiric treatment of ARIs contributes to the world-wide antibiotics resistance.[4]

The overall reported incidence of ARIs is 6-8 episodes during the first 5 years of life.[5] The prevalence of ARIs are determined individually or collectively by a number of factors, which include age, sex, nutritional status, breastfeeding (type and duration), socio-economic status, overcrowding, indoor pollution, passive smoking, etc.[6] The present study was conducted to assess acute respiratory tract infection in children less than 5 years of age.

MATERIALS & METHODS

The present study comprised of 105 children aged less than 5 years of age of both genders. All were diagnosed with acute respiratory tract infection. Parents were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Type of ARTi was recorded. Risk factors such as mother age, nutrition, breast feeding, family size, immunization, residence, use of biofuel etc. were recorded. Results were tabulated and assessed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 105		
Gender	**Boys**	**Girls**
Number	65	45

Table I shows that out of 105 children, boys were 65 and girls were 40.

Table II Type of ARTi

Type	Number	P value
Rhinitis	25	0.17
Pharyngitis	30	
Tonsillitis	40	
Bronchopneumonia	10	

Table II shows that type of ARTi was rhinitis in 25, pharyngitis in 30, tonsillitis in 40 and bronchopneumonia in 10 patients. The difference was non- significant (P> 0.05).

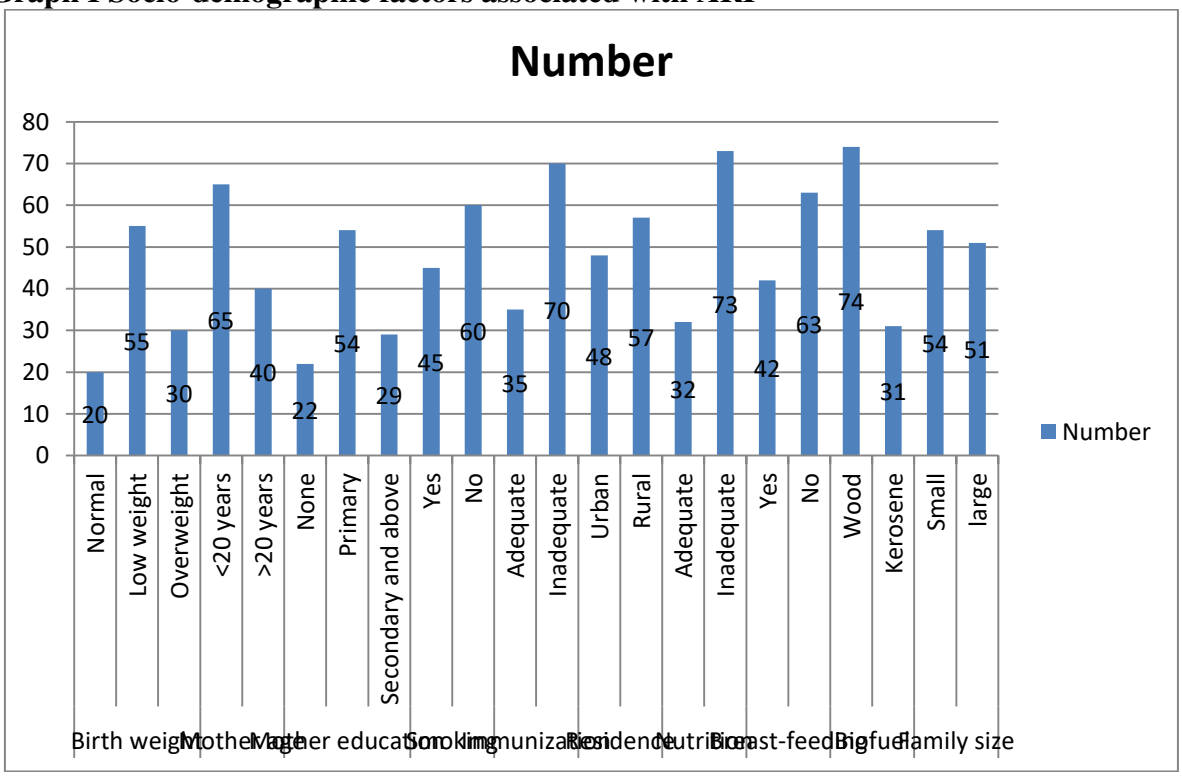
Table III Socio-demographic factors associated with ARI

Parameters	Variables	Number	P value
Birth weight	Normal	20	0.04
	Low weight	55	
	Overweight	30	
Mother age	<20 years	65	0.05
	>20 years	40	
Mother education	None	22	0.02
	Primary	54	
	Secondary and above	29	
Smoking	Yes	45	0.05

	No	60	
Immunization	Adequate	35	0.02
	Inadequate	70	
Residence	Urban	48	0.91
	Rural	57	
Nutrition	Adequate	32	0.02
	Inadequate	73	
Breast-feeding	Yes	42	0.03
	No	63	
Biofuel	Wood	74	0.01
	Kerosene	31	
Family size	Small	54	0.94
	large	51	

Table III, graph I shows that birth weight was normal in 20, low weight in 55 and overweight in 30. Mother age was <20 years in 65 and >20 years in 40. Mother education was none in 22, primary in 54 and secondary and above in 29. Smoking was seen in 45 and no in 60. Immunization was adequate in 35 and inadequate in 70. Residence was urban in 48 and rural in 57. Nutrition was adequate in 32 and inadequate in 73. Breast-feeding was seen in 42. Biofuelused was wood in 74 and kerosene in 31. Family size was small in 54 and large in 51,. The difference was significant (P< 0.05).

Graph I Socio-demographic factors associated with ARI



DISCUSSION

Acute respiratory infections (ARIs) are one of the leading causes of childhood morbidity and mortality worldwide, contributing to a third of the under-five deaths in lower income countries.[7,8] Acute respiratory infections include both upper and lower respiratory tract infections, with the common cold and influenza being the most common ARIs.[9] Symptoms of ARI consist of short, rapid breathing, or difficulty breathing that is chest related. Pneumonia

is a presentation of ARI and is solely responsible for 15% of global childhood deaths across the world.[10] The present study was conducted to assess acute respiratory tract infection in children less than 5 years of age.

We found that out of 105 children, boys were 65 and girls were 40. Ujunwa et al[11] in their study a total of 436 patients were enrolled. The mean age of the population was 18.75 months and there were 31.6% (138/436) cases of pneumonia 6.9% (30/436) cases of bronchiolitis and 61.5% (268/436) cases of acute upper respiratory tract infections. Children less than 20 months accounted for 60.9% (84/138 cases) of pneumonia, 86.7% (26/30 cases) of bronchiolitis, and 64.5% (173/268 cases) of acute upper respiratory tract infections. Pneumonia was noted in about 75.7% (56/74) of inadequately nourished children compared to 22.6% (82/362) in adequately nourished children. Other risk factors identified in the study include inadequate breast feeding, poor immunization statues, attendance to daycare centers, large family size, poor parental educational statues, parental smoking, living in the urban area and use of biofuels.

We observed that type of ARTi was rhinitis in 25, pharyngitis in 30, tonsillitis in 40 and bronchopneumonia in 10 patients. Tazinya et al[12] found that the proportion of ARIs was 54.7% (280/512), while that of pneumonia was 22.3% (112/512). Risk factors associated with ARI were: HIV infection, poor maternal education, exposure to wood, passive smoking and contact with someone who has cough. Age, gender, immunization status, breastfeeding, nutritional status, fathers' education, parents' age, school attendance and overcrowding were not significantly associated with ARI. The proportion of ARI is high and is associated with HIV infection, poor maternal education, exposure to wood smoke, passive cigarette smoking, and contact with persons having a cough. Control programs should focus on diagnosis, treatment and prevention of ARIs

We found that birth weight was normal in 20, low weight in 55 and overweight in 30. Mother age was <20 years in 65 and >20 years in 40. Mother education was none in 22, primary in 54 and secondary and above in 29. Smoking was seen in 45 and no in 60. Immunization was adequate in 35 and inadequate in 70. Residence was urban in 48 and rural in 57. Nutrition was adequate in 32 and inadequate in 73. Breast-feeding was seen in 42. Biofuel used was wood in 74 and kerosene in 31. Family size was small in 54 and large in 51. Zhong et al[13] determined the risk factors for lower respiratory tract infection (LRTI) in children caused by tracheobronchial foreign body aspiration (TFBA). A total of 351 patients were retrospectively reviewed; all patients were diagnosed with TFBA. Age (7 days) (P=.001) were risk factors for LRTI on univariate analysis. Multivariate analysis showed age (7 days) (HR=1.751; 95% CI=1.329–3.554; P=.004) were independent risk factors for LRTI. Furthermore, children with LRTI also had longer lengths of hospital stays and antibiotic use than did children without LRTI

The limitation of the study is small sample size.

CONCLUSION

Authors found that common risk factors foun ARTi in children were low weight, young mother age, low mother education, smoking, inadequate immunization, inadequate nutrition, inadequate breast-feeding and use of wood biofuel.

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