



Respiratory Tract Infection among Children below 5 Years of Age- A Retrospective Study

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Abstract

Background: Respiratory tract infection refers to any of a number of infectious diseases involving the respiratory tract. The present study was conducted to analyze RTI in children below 5 years of age.

Materials & Methods: It included 528 children below 5 years of age. Children having at least one of the following symptoms such cough, runny nose, ear discharge, and sore throat, which might be associated with fever, chest retractions, and fast breathing within the last 2 weeks, were considered.

Results: out of 528 children boys were 280 and girls were 295. The difference was non- significant ($P=1$). Symptoms in children were cold (270), cough (265), sore throat (27), ear discharge (12), associated fever (325), associated fever & fast breathing (8). The difference was significant ($P=0.02$). Most of the children were from urban (340) while 188 were from rural area. The difference was significant ($P=0.01$). 315 children were residing in overcrowding area while 213 were not. The difference was significant ($P=0.021$). 270 children had birth weight <2.5 kg whereas 258 had >2.5 kg. The difference was non- significant ($P=0.5$). In 90 children, mothers were illiterate while in 438 children, mothers were literate. The difference was significant ($P=0.001$).

Conclusion: Children are more prone to develop respiratory tract infection. Symptoms include sore throat, cold, running nose, cough, fever and ear discharge. Mothers are literate in most of the cases.

Keywords: Cough, Sore throat, Respiratory tract infection.

Introduction

Respiratory tract infection (RTI) is the major cause of mortality among children aged less than 5 years, especially in developing countries like India. Lower respiratory tract infections (LRTIs) are the leading cause of under-five morbidity globally. Respiratory tract infection refers to any of a number of infectious diseases involving the respiratory tract. An infection of this type is

normally further classified as an upper respiratory tract infection (URI or URTI) or a lower respiratory tract infection (LRI or LRTI). Lower respiratory infections, such as pneumonia, tend to be far more serious conditions than upper respiratory infections, such as the common cold.¹

Although some disagreement exists on the exact boundary between the upper and lower respiratory tracts, the upper respiratory tract is generally

considered to be the airway above the glottis or vocal cords. This includes the nose, sinuses, pharynx, and larynx. Typical infections of the upper respiratory tract include tonsillitis, pharyngitis, laryngitis, sinusitis, otitis media, certain types of influenza, and the common cold. Symptoms of URIs can include cough, sore throat, runny nose, nasal congestion, headache, low grade fever, facial pressure and sneezing.²

The lower respiratory tract consists of the trachea (wind pipe), bronchial tubes, the bronchioles, and the lungs. Lower respiratory tract infections are generally more serious than upper respiratory infections. LRIs are the leading cause of death among all infectious diseases.^[2] The two most common LRIs are bronchitis and pneumonia.^[3] Influenza affects both the upper and lower respiratory tracts, but more dangerous strains such as the highly pernicious H5N1 tend to bind to receptors deep in the lungs.³

RTI poses a major challenge to the health system in developing countries because of high morbidity and mortality. It is estimated that Bangladesh, India, Indonesia, and Nepal together account for 40% of the global RTI mortality. Interestingly infants living in overcrowded surroundings and suboptimally breast-fed are more likely to suffer RTI-related illnesses.⁴ The present study was

conducted to analyze RTI in children below 5 years of age.

Materials & Methods

The present retrospective study was conducted in the department of Pediatrics. It included 528 children below 5 years of age. Parents were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc was noted on performa. Children having at least one of the following symptoms such cough, runny nose, ear discharge, and sore throat, which might be associated with fever, chest retractions, and fast breathing within the last 2 weeks, were considered. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

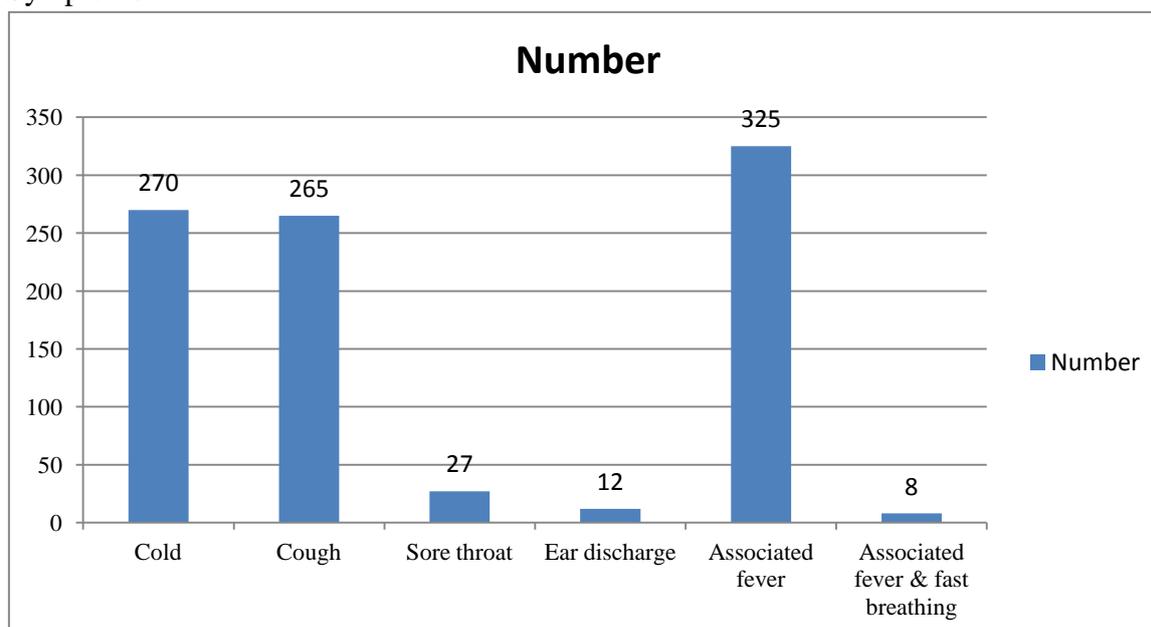
Results

Table I Distribution of subjects

	Total- 528	
Boys	Girls	P value
280	295	1

Table I shows that out of 528 children boys were 280 and girls were 295. The difference was non-significant (P-1).

Graph I Symptoms in children



Graph I shows that symptoms in children were cold (270), cough (265), sore throat (27), ear discharge (12), associated fever (325), associated

fever & fast breathing (8). The difference was significant (P-0.02).

Table II Factors associated with RTI in children

Variable	Number	P value
Place of residence	Urban	340
	Rural	188
Overcrowding	Yes	315
	No	213
Birth weight	<2.5 Kg	270
	>2.5 Kg	258
Mother education	Illiterate	90
	Literate	438

Table II shows most of the children were from urban (340) while 188 were from rural area. The difference was significant (P-0.01). 315 children were residing in overcrowding area while 213 were not. The difference was significant (P-0.021). 270 children had birth weight <2.5 kg whereas 258 had >2.5 kg. The difference was non-significant (P-0.5). In 90 children, mothers were illiterate while in 438 children, mothers were literate. The difference was significant (P-0.001).

Discussion

Children have 2-9 viral respiratory illnesses per year. In 2013 18.8 billion cases of upper respiratory infections were reported. As of 2014, upper respiratory infections caused about 3,000 deaths down from 4,000 in 1990. In the United States, RTIs are the most common infectious illness in the general population. RTIs are the leading reasons for people missing work and school.⁵

In India, RTI accounts for 30-50% of visits to health facilities and 20-40% of hospital admissions. In urban slum areas, RTI constitutes over two-thirds of all childhood illnesses. Despite these statistics, majority of the reported evidences underestimate the actual burden of RTI in the community. Hence, continued understanding of RTI prevalence and associated risk factors is essential. However, estimating the morbidity burden has inherent challenges due to lack of uniformity in study definitions, spectral nature of illness and misclassification errors.⁶

In present study, out of 528 children boys were 280 and girls were 295. We found that symptoms in children were cold, cough, sore throat, ear discharge, associated fever, associated fever & fast breathing. This is in agreement with Dhimal et al.⁷

We assessed factors such as mother literacy, area of residence, weight of child during birth etc. We found that 340 children were from urban while 188 were from rural area. Significantly higher number of children was residing in overcrowding area. This is similar to Vashishtha et al.⁸ 270 children had birth weight <2.5 kg whereas 258 had >2.5 kg. In 83% of cases, mothers were literate. This is in agreement with Rahman et al.⁹ In terms of pathophysiology, rhino virus infection resembles the immune response. The viruses do not cause damage to the cells of the upper respiratory tract but rather cause changes in the tight junctions of epithelial cells. This allows the virus to gain access to tissues under the epithelial cells and initiate the innate and adaptive immune responses.

Up to 15% of acute pharyngitis cases may be caused by bacteria, most commonly *Streptococcus pyogenes*, a group A streptococcus in streptococcal pharyngitis ("strep throat"). Other bacterial causes are *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Corynebacterium diphtheriae*, *Bordetella pertussis*, and *Bacillus anthracis*.¹⁰

Conclusion

Children are more prone to develop respiratory tract infection. Symptoms include sore throat, cold, running nose, cough, fever and ear discharge. Mothers are literate in most of the cases.

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