

## Original Research

### Evaluation of clinical outcome of cases of Acute respiratory infections in children below 5 years age

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#### ABSTRACT:

**Background:** Acute respiratory infections (ARI) are a leading cause of morbidity and mortality in under-five children worldwide. The present study was conducted to evaluate clinical outcome of cases of Acute respiratory infections in children below 5 years age.

**Materials & Methods:** The present study was conducted on 168 patients of both genders. All were informed regarding the study and written consent was obtained. Symptoms such as nasal stuffiness, throat irritation, low-grade fever, anorexia and myalgia were recorded.

**Results:** Acute respiratory infections affected most commonly age group of 2-4 years comprising 52 boys and 44 girls followed by 4-6 years who had 20 boys and 32 girls and age group 6-8 years had 12 boys and 8 girls. Nasal stuffiness was seen in 144 patients, throat irritation in 136, low-grade fever in 160, anorexia in 68 and myalgia in 54. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that most common symptoms in patients were nasal stuffiness and throat irritation. Commonly involved age group was 2-4 years. There is an urgent need to improve diagnostics, therapeutics and vaccines as well as to improve macro and micronutrient intake for the health needs of children of the world particularly in developing countries.

**Key words:** Acute respiratory infections, Children, Nasal stuffiness

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#### INTRODUCTION

The respiratory tract is a widely branched system of ducts, which start from the nostrils (from the mouth in the case of mouth breathing) and include: the nasal cavities, the pharynx and larynx up to the lower edge of the cricoid cartilage (upper airways), the trachea and the various orders of bronchi to the terminal bronchioles (lower airways).<sup>1</sup> Going through these ducts, the inhaled air is changed and conveyed to the alveolar structures, home of the respiratory exchange with the blood.<sup>2</sup>

Acute respiratory infections (ARIs) are classified as upper respiratory tract infections (URIs) or lower respiratory tract infections (LRIs). The upper respiratory tract consists of the airways from the nostrils to the vocal cords in the larynx, including the paranasal sinuses and the middle ear. The lower respiratory tract covers the continuation of the

airways from the trachea and bronchi to the bronchioles and the alveoli. ARIs are not confined to the respiratory tract and have systemic effects because of possible extension of infection or microbial toxins, inflammation, and reduced lung function. Diphtheria, pertussis (whooping cough), and measles are vaccine-preventable diseases that may have a respiratory tract component but also affect other systems.

Acute respiratory infections (ARIs) contribute to major disease associated mortality and morbidity among children under 5 years. About 6.6 million children less than 5 years of age die every year in the world; 95% of them in low-income countries and one third of the total deaths is due to ARI.<sup>3</sup>

The existing evidences on ARI are focused on the burden of illness around urban slums and hence lack representative

and reliable data resulting in under estimation of ARI prevalence.<sup>4</sup> Shift in the infectious disease etiology from gram positive to gram negative organisms is not well-recognized by health care providers who often under utilize novel rapid diagnostic methods and/or irrationally use antibiotics leading to increased burden of ARI. There are many socio-cultural, demographic and environmental risk factors that predispose children less than 5 years to acquire Respiratory Tract Infections (RTIs).<sup>5</sup> The present study was conducted to evaluate clinical outcome of cases of Acute respiratory infections in children below 5 years age.

**MATERIALS & METHODS**

The present study was conducted in the department of Pediatrics of Hind Institute of Medical Sciences Ataria, Sitapur U.P., India. It comprised of 168 patients of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

General data such as name, age, gender etc. was recorded. Symptoms such as nasal stuffiness, throat irritation, low-grade fever, anorexia and myalgia were recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Age group (Years)	Boys	Girls
2-4	52	44
4-6	20	32
6-8	12	8

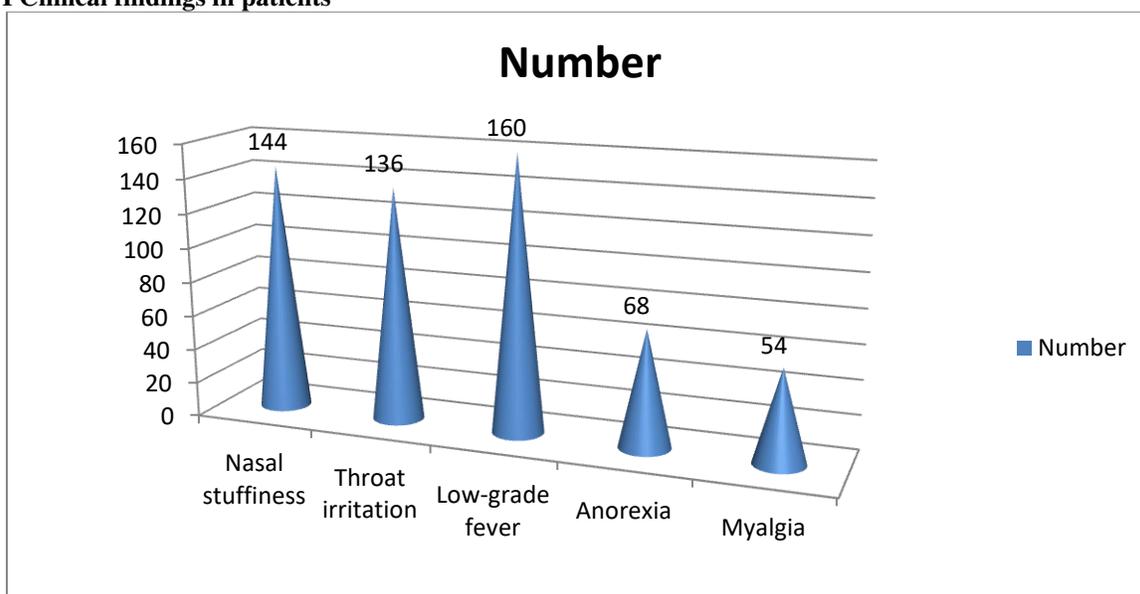
Table I shows that age group 2-4 years comprised of 52 boys and 44 girls, 4-6 years had 20 boys and 32 girls and age group 6-8 years had 12 boys and 8 girls.

**Table II Clinical findings in children**

Findings	Number	P value
Nasal stuffiness	144	0.01
Throat irritation	136	
Low-grade fever	160	
Anorexia	68	
Myalgia	54	

Table II shows that nasal stuffiness was seen in 144 patients, throat irritation in 136, low-grade fever in 160, anorexia in 68 and myalgia in 54. The difference was significant (P< 0.05).

**Graph I Clinical findings in patients**



## DISCUSSION

Acute respiratory infections (ARI) result in the death of an estimated 4 to 5 million children each year in developing countries. Most of these deaths are among children with pneumonia. Respiratory tract infection etiology is complex and diverse. The existing evidences on ARI are focused on the burden of illness around urban slums and hence lack representative and reliable data resulting in under estimation of ARI prevalence. Shift in the infectious disease etiology from gram positive to gram negative organisms is not well-recognized by health care providers who often under utilize novel rapid diagnostic methods and/or irrationally use antibiotics leading to increased burden of ARI.<sup>6</sup> Although a few studies have claimed efficacy and impact of vaccines (Hemophilus influenza (Hib), pneumococcal vaccines) in reducing the respiratory infections, ignorance and other competing priorities are major hurdles against implementing the newer vaccines in control of ARI. Within these circumstances, this review is focused toward the sensitization on disease burden, etiology, and state of newer vaccines against ARI in India.<sup>7</sup> One of the most common questions that parents ask when consulting healthcare services is “how long will my child’s symptoms last?”<sup>8</sup> Accurate information about the expected course of respiratory tract infections in children is essential for both clinicians and parents, as it sets expectations and lets them know when the illness is deviating from the expected. This directly informs parents’ decisions to seek medical attention, whether to re-consult, and when to use delayed prescriptions of antibiotics, as well as clinicians’ decisions on when to prescribe antibiotics or consider other treatments.<sup>9</sup> The present study was conducted to assess cases of ARI in children.

Present study showed that Acute respiratory infections affected most commonly age group of 2-4 years comprising 52 boys and 44 girls followed by 4-6 years who had 20 boys and 32 girls and age group 6-8 years had 12 boys and 8 girls. Jain et al<sup>10</sup> found that bacterial pathogens were identified in a minority of cases, with viruses, particularly respiratory syncytial virus (RSV) in the younger subjects and rhinovirus in older children, being identified in the majority. More than one virus or a virus and bacteria were identified in 15–30%, depending on age. Inevitably it is tempting to ascribe a causal relationship when a “respiratory pathogen” is identified in the airways of subjects with an acute illness. It has long been known that potential bacterial pathogens such as Streptococcus pneumoniae, Moraxella catarrhalis and Haemophilus influenzae species are commonly identified in the nose and nasopharynx of apparently asymptomatic subjects.

We found that common symptoms in patients were Nasal stuffiness was seen in 144 patients, throat irritation in 136, low-grade fever in 160, anorexia in 68 and myalgia in 54. The difference was significant ( $P < 0.05$ ).

Tazinya et al aimed at determining the proportion of acute respiratory infections and the associated risk factors in children under 5 years. They found that age, gender, immunization status, breastfeeding, nutritional status, fathers’ education, parents’ age, school attendance and overcrowding were not significantly associated with ARI. They concluded that 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.<sup>11</sup>

It is important to note that ARI include spectrum of severity within it as a result majority of the milder infections may go undetected. Thus incidence of respiratory infections can be relied only from community-based longitudinal cohorts rather than hospital-based studies. Majority of studies regarding etiology of ARI were conducted 2 decades back and studies on etiology at present are lacking.<sup>11</sup> Without representative community-based studies on etiology of ARI, it is difficult to recognize the intensity of this problem. Although some hospital-based studies have shown the emergence of different set of pathogen contributing to significant burden of ARI. Also, the reemergence of already controlled diseases such as pertussis has necessitated revision in National Immunization Schedule. Even some of the developed countries have suggest booster dose of acellular pertussis at the age of 10-12 years.<sup>12</sup>

Selvaraj et al suggested that Incidence of respiratory infections cannot be reduced without an overall increase in social and economic development. But enormous evidences have shown various measures to reduce this disease mortality. Every reduction in death due to ARI would give an incremental benefit toward achieving the Millennium Development Goal (MDG 4). Final step toward control of ARI would be commitment to implement these proven and evidence-based interventions.<sup>13</sup>

## CONCLUSION

Authors found that most common symptoms in patients were nasal stuffiness and throat irritation. Commonly involved age group was 2-4 years. There is an urgent need to improve diagnostics, therapeutics and vaccines as well as to improve macro and micronutrient intake for the health needs of children of the world particularly in developing countries.

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