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A REVIEW ON RESPIRATORY DISEASES IN CHILDREN

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ABSTRACT

Ayurveda is the science of life, which covers each and every aspect of life. Childhood is the very important phase of life therefore *Ayurveda* has placed *Kaumarbhritya* under the *Ashtang Ayurveda*. Childhood disorders can occur due to genetic factors or adaptation of modern life style in children such as feeding habits, avoidance of regular exercise, excessive intake of junk food items, spicy foods, *Veerya virudha* foods (dietetic incompatibility), etc. The respiratory tract infections are one of the common causes behind the children's visit to the doctor. The recurrent respiratory tract infections affect a large number of children. Childhood Asthma (*Swasa roga*) is the one of the most common serious chronic disease in infants and children representing the obstructed air pathway. Cough (*Kasa*) is among one of the main symptom of respiratory diseases. During childhood *Kapha Dosha* is found to be predominant, thus most of the pediatric diseases occur due to vitiation of *Kapha Dosha*. Common cold is also caused due to vitiated *Kapha Dosha*. The various respiratory diseases in childhood are multifactorial caused by both genetic predisposition, immature immune system and multiple environmental exposures.

Keywords : Ayurveda, Swasa, Kasa, Common cold, Kapha Dosha, Childhood, Respiratory tract infection.

Introduction

Respiratory tract infections are one of the most common pediatric problems associated with significant number of

mortality in children. Some studies have shown that mortality rate rises during winter season.^[1] Respiratory diseases are categorized into upper respiratory tract (URT) infections and lower respiratory tract infections. Some of the upper and lower respiratory tract infections are mentioned in the **figure 1**.

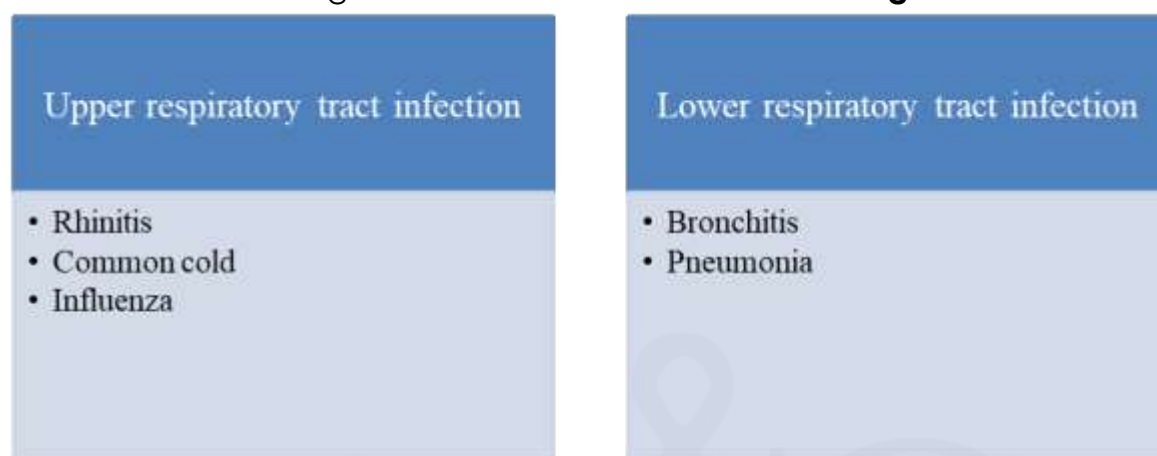


Figure 1 – Various respiratory tract infections

Ayurvedic scholars have placed the respiratory tract infections under the category of *Pratishyaya*. Ten to fifteen percent of children suffer from many episodes of upper respiratory tract infections annually. ^[2] The recurrent respiratory infections occur due to weak immune system or increased environmental exposure.^[3]

Prevalence of bronchial asthma among 11- to 16-year school-going children is 13.1% in urban areas of India.^[4] Approximately 6% of children in India suffer from Asthma (*Swasa Roga*). According to an Indian study, prevalence of allergic rhinitis was 11.3% in children aged 6–7 years and 24.4% in children aged 13–14 years.^[5] According to report prepared by American Thoracic Society

(ATS), around seventy percent of children were reported to cough usually with cold and without cold, prevalence of cough is found to be fifty-five percent in children aged 14–17.^[6]

Cough

One of the main symptoms of respiratory diseases is *Kasa* (cough). According to National centre for health statistics, 62 million cases of common cold and cough occurs each year. There are many Ayurvedic texts in which *Kasa* is described in a detailed way and its *Samaprapiti* can be correlated with the mechanism of cough reflex.

Common cold is often linked with the *Kapha Dosha* and *Ama* (toxins) resulting into nasal congestion, low appetite, malaise, fever, headache, etc.^[7]

According to *Ayurvedic* scholars, it is advised to take warm water to eliminate the *Ama* and balance the *Agni*. According to *Charak Samhita*, *Kasa* may be *Suska* (dry cough) or with *Kapha* (mucus) which causes difficulty in the movement of *Vayu* (air) in the *Kantha Pradesh* (larynx). *Kasa* is of five types *Vatik Kasa*, *Paitik*, *Kaphaja*, *Ksayaja*, *Ksataja Kasa*. The main features of all varieties of *Kasa* are pain in the face and neck, itching in the throat, obstruction during eating, etc.^[8]

During childhood, *Kapha Dosha* is found to be predominant, thus most of the pediatric diseases occur due to vitiation of *Kapha Dosha*. Malnourished children have impaired cellular immunity and are thus more prone towards opportunistic infection..

Bronchial asthma (Swasa Roga)

Asthma is a major non-communicable disease (NCD), affecting both children and adults. Asthma affected an estimated 262 million people in 2019 and caused 461000 deaths.^[9] Asthma is the most common chronic disease among children. In India, the prevalence of bronchial asthma in 5-11 years old is found to be between 10-15 percent.

The etiological and risk factors of bronchial asthma in children depends upon host factors and environmental factors. Host factors comprises of genetic predisposition, immunodeficiency, airway hyper responsiveness, etc. Environmental factors include various allergens such as smoke, air pollution, respiratory infections, etc. During childhood growth phase, the development of immune system and lung occurs. When a child suffers from frequent viral infections

it affects the immune system and lung development thus resulting in higher prevalence of asthma.^[10]

Ayurveda considers *Swasa Roga* (Asthma) as the disease of *Vata Kaphaja* origin. It arises from the *Amasaya* and manifest through the *Pranavaha Srotas* (Respiratory channels). *Tamaka Swasa* is a condition of obstructed flow of *Vayu* caused by vitiation of *Kapha* in the respiratory pathways. *Swasa Roga* is a chronic lung disease resulting into obstructed air pathway causing the hindrance in the free flow of inhaled air through the lungs. This occurs due to inflamed and constricted *Pranavaha Srotas* (air channels) filled with mucous.

Congenital malformations, upper airway obstructions, poorly formed *Pranavaha Srotas* are the main *Viprakishta Nidana* of the *Swasa Roga*. The child may present *Pranavaha Sroto Dushti Lakshanas* due to vitiated *Pranavaha Srotas*.^[11] *Pranavaha Sroto Dushti Lakshanas* include abnormal respirations that are shallow (*Alpalam*), too long (*Atisrushtam*), too restricted (*Athi badham*), aggravated (*Kupitham*), frequent (*Abheeshnam*) or associated with pain and sound (*Sasabda Soola Uchwasantham*). If the symptoms are present since birth, child adjusts according to them but the condition may precipitate due to some triggering factors referred as *Sannikrishta nidanas*.

Bronchial asthma occurs because of obstruction in the lung alveoli by mucus and sputum. Some symptoms of *Swasa Roga* are

- Prolonged breathing
- Unconsciousness

- Feeble voice
- Deep inspiration and prolonged expiration
- Upward rolling of eye balls. Difficulty in breathing
- Cutting type of chest pain
- Continuous cough with discharge

Allergic rhinitis

It is a major chronic disease commonly seen among children. Due to its high prevalence in children it affects the quality of life, development, growth and school performance. According to the International study of Asthma and Allergies in Childhood (ISAAC) the prevalence of allergic rhinitis in children of age group 6-7 years is approximately eight percent and in age group of 13-14 years old children its around fourteen percent.^[12] Some studies have reported that out of six persons in India, one suffers from allergic rhinitis.^[13] It is a chronic inflammatory disorder of the nasal mucosa induced by IgE after getting exposed by allergen. It is characterized by various symptoms such as sneezing, nasal congestion, rhinorrhea, accompanied by conjunctival irritation, impaired smell etc.^[14] There are many allergens responsible for causing allergic rhinitis such as house dust mite, grass pollen, tree pollen, cockroaches, pets, rodents and smoke. Allergic rhinitis suffering patients are classified into intermittent rhinitis and persistent rhinitis. When patient suffer from allergic reaction for four days per week it is considered as intermittent rhinitis. On the other hand, if the patient experiences symptoms for more than four days per week or more than four weeks at a time it is termed as persistent rhinitis. Severe rhinitis can lead to disturbance in daily activities

and sports; impairment of school performance, sleep disturbance, etc.^[15]

Pediatric Pneumonia

Worldwide pneumonia is a leading cause of morbidity and mortality in children of age less than 5 years.^[16] In neonates, bacterial pathogens present in the birth canal (group B streptococci, *Klebsiella*, *Escherichia coli*) are the main causative organisms of pneumonia.^[17] *Streptococcus pneumoniae* and viruses are the main cause of pneumonia in older infants between 30 days and 2 years old. In children 2 to 5 years old, respiratory viruses, *S. pneumoniae* and *H. influenzae* type B are also the most common. *Mycoplasma pneumoniae* frequently occurs in children of age group 5 to 13 years.^[18] In the developing countries, more than sixty percent of deaths in younger children under the age of 2 are due to pneumonia. Pneumonia is a disease caused by invasion of the lower respiratory tract by pathogens. This invasion produces inflammation, injury to the respiratory epithelium and alveoli; impairing oxygenation. In most of the children complaints of pneumonia are nonspecific which may include cough, fever, hypoxia on room air, tachypnea and difficulty in breathing. In some young children abdominal pain is also seen.^[19]

Conclusion

The dimensions of health always change with time. The children undergo frequent episodes of respiratory tract infections due to the anatomical, physiological developing phase and immature immune responses. Respiratory system is considered as the most vulnerable to infections due to

the exposure of children. Respiratory Tract Infections (RTI) are responsible for around fifty percent of pediatric visits to the doctor worldwide. Due to the improper *Ahara*, *Vihara*, adaptation of modern life style by parents, improper feeding habits etc. are deteriorating the immune system of the children on a large scale. Ayurvedic scholars have mentioned many drugs that are beneficial for the respiratory system and are immune-modulators as well.

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