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REVIEW STUDY

MANAGEMENT OF RESPIRATORY DISORDERS IN CHILDREN: AYURVEDA PURVIEW

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ABSTRACT:

Respiratory disorders are the most common disease entity for which child has been brought to pediatric clinic. This corresponds to 70% of pediatric visit in outpatient wards while pneumonia contributes for maximum hospitalization worldwide. Increasing air food & water pollution with disturbed immunity due to irregular food and life style adds to the increasing prevalence in recent days. Respiratory complaints of the child may range from simple running nose, cough to severe forms of chest findings like retraction as occur in case of Chronic pulmonary disorders.

Ayurveda explains dominance of the Kapha dosha in child hood period along with immaturity of the body tissues. So there will be many anatomical and physiological deficits in the growing kid including the biochemical and immunological aspects. So susceptibility of the child to respiratory complaints has been understood.

When Ayurvedic pediatrician faces patient with Respiratory complaints a single monotonous approach may not be fruitful always. Mild, moderate, severe, presentations of the respiratory disorders require a unique approach depending on the condition of the patient. Acute patient with dyspnea requires sudden reversal of broncho spasm while a recurrent problem may requires the purification therapy. At time he needs to consider Dosha, Dhatu and srotus while treatment. Immune system and methods to enhance its functional and structural entity should be always kept in mind. Method of Virudha abhi samskriti may be an effective treatment in Allergic disorders. While Pranayama may be helpful in constrictive or restrictive disorders of lung.

So details of different approaches in treatment of childhood respiratory disorders will be dealt in full paper which can help a Ayurvedic pediatrician to have guide line treatment and ensure the health of child.

Key words - Viruddha Abhi samskriti, Pranayama srotus, Ojus, Lung function test, constrictive and restrictive lung disorders, Morphine preparations, Bromohexine.

Introduction

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Childhood is very crucial period where child pick up the growth and development with respect to physical physiological emotional & social aspects.

Bala as we know is less tolerable has incompletely developed tissues & organ system. With delicate body, unable to express the feeling and predominance of the Sleshma dhatu makes more vulnerable to many disorders. This anatomical and physiological handicappeness of the child is the major cause for the common respiratory disorders of the childhood.

Anatomically the growth of respiratory system of the child will prolonged up to late childhood. The shape of the chest , Narrow lumen of the bronchi , development of the epithelial cells , shape of the diaphragm and position of the ribs and pressure changes inside the thorax vary to great extent when compared to the adults . Similarly the functional aspects of the Respiratory system like functioning of the oral mucosa , integrity of the epithelial cells , functional capacity of the lung, different volumes and capacities of lung also varies with adults . This point as to be kept in mind when we are treating a child with respiratory problem.

On other hands the respiratory tract is the main route of the entry for maximum number infection rightly maximum number of protective reflexes like Coughing, Sneezing Hiccough, Sramashwsa etc guard respiratory system from external hazards. They prevents the entry of the pathogen inside as the cellar immunity and local immunity of the

respiratory tract not up to the mark in growing children.. Infection once cross the upper respiratory tract may descend down rapidly leading to rapid development of symptoms. So it is Immunity of the child which should be always kept in mind while treating child with Respiratory disease.

Consideration of Living style and the environment in which child is exposed play very important role in the treatment. Child exposed to environmental pollution in terms of air, water, sound and the intake of the tinned food or stored food added with chemicals essences which trigger allergic reaction. Family environment with hygiene level should be also enquired as it may cause some of the infectious disorders like Tuberculosis, atopic dermatitis.etc. Congenital anomalies pertaining Respiratory system or cardiovascular system should be kept in mind. When fever of unknown origin with chronic cough, loss of appetite, weight loss child should be investigated for tuberculosis, inborn errors of metabolism. Worm infestations, tonsillitis dental caries DNS. Pressure exerted by the neighboring structures, pathologies of the palate should be also kept in mind.. The prenatal and the neonatal assaults that child faced leading to delay in the developmental and immunological

variations also considered during the treatment.

COMPREHENSIVE DISCRPTION

Respiratory system perform the most complicated functions like extraction of atmospheric oxygen needed for the oxidation of the metabolic substrates and remove the waste products in the form of carbon dioxide. There is close integrity between the Respiratory Circulatory and central nervous system. These systems all together not only assures the efficacy of the gas exchange but also the ability to adopt various demands of the life .Alteration in the functions of circulatory system as counter part of respiration may give rise to certain symptoms like Vivarnatha (cyanosis) Increased respiratory rate , clubbing etc. Similarly the change in the function of the central nervous system activity may bring about some the conditions related with change in rhythm rate of respirations evident. Similarly the fluid system of the body play a very important role and its dysfunction leads to as effusion ,edema Dyspnea.

One of the most common causes of the respiratory disorders in children is mechanical dysfunction of the Respiratory system. This may be detected by the subjective increase in the effort the child id putting during the breathing or there may be limitation of the respiratory

system to accommodate the required amount of gaseous exchange such as fever , exercise etc. So presence of the respiratory distress or the exercise intolerance indicates the Mechanical problems related.

Work and energy caused during the breathing one important point which should be noted. This entirely depends on the strength of the muscles & volume and pressure relationships. Increased work leads to more energy cost and presented as shortness of the breath.

The total respiratory work is divided in two components. One is the work of during breathing produces the reversible rearrangements of the alveolar gas liquid inter face &tissue molecular structure as the lungs, chest walls are starched during the inspiration. They lead to constrictive or restrictive disorders of the lung. Croup and Bronchiolitis will going to increase the rate breathings as pressure looses are directly proportional to viscosity, length of the pipe , rate of the air flow and inversely promotional to the radius of the airway. New born and the smaller kids will have smaller airways so severity is more in above told conditions. Airway obstruction is also related to the airway caliber and lung volume. Both these are directly related to the elasticity of the muscles and intra mural pressure .Elasticity which in turn related with healthy status of

muscles with maturity and depends on tone of the muscles. Transmural pressure is the positive or the negative pressure created during the respiration which in turn related to movements of the ribs and intercostals muscles and the diaphragm.

When the Respiratory work load increase the course of the illness initiates two types of the response. Most immediate is to increase the output of the Respiratory muscles at the cost of increased energy expenditure, and the second is to improve the efficiency of the respiration by changing the pattern of respiration.

Approach for treatment of respiratory disorders can be followed as follows

Preventive approach

Child should be advised to avoid the common causative factors like Athi Vyayama , Athi sheetha sevana , exposure to cold atmosphere and the allergens, different types of the gases like sulphur dioxide, Ahita Ahara sevana & Vihara sevana & pathya Ahara. Advised to reject the synthetic and the artificial food and homemade food should be encouraged. The food materials with possible food allergy and hypersensitivity like Milk and fish and sea products are carefully advised. The factors which causes the changes like respiratory acidosis excess carbon dioxide like Rooksha asana, (dry food) Upavasa and the Pramithashan are avoided. Excess intake of fat is avoided

due to risk developing the hyperventilation due to production of the Ketone bodies etc. Withholding the autonomic reflexes of respiratory system (withholding the natural urges) like the cough reflex sneezing & hiccup which are also the protective reflexes etc for prolonged period makes the child more vulnerable to recurrent respiratory tract infection.

Systemic Approach (Srotus and samprapthi)

As respiration is a process that involves the Circulatory , Central nervous system and Fluid system of the body . Child should be carefully examined for the involving of symptoms of these system also. Presence of the distress on lying down condition, presence of Cyanosis is indicative of involvement of the Hridaya or the Rasavaha srotus. Similarly regular changes in the Rate and Rhythm of the Respiration like prolonged inspiration , short expiration , interruption of the respiration Apnea etc indicate towards the involvement of central nervous system and accordingly treated. As there is involvement of the Udakavha srotus in the pathogenesis of the Shwasa the symptoms like dryness of the mouth due to over breathing, leading dry cough & mucosal damage should also considered during treatment.

Pathological approach

.In case of infective disorders there will be inflammation of the mucosa with edema and destruction of the mucus membrane. When it reaches the lower respiratory tract there will be involvement of the parenchyma with vascular changes. This will be seen commonly in case of Pneumonia, Bronchioetasis, and Bacterial infections of the Respiratory tract.

Respiratory infection due to virus infection starts from the upper respiratory tract and most commonly there is involvement of the nose and the Para nasal sinus will be associated with post nasal dripping leading to mucosal irritation . Cough will indicates initiation of Lower respiratory tract infection whereas loss of voice indicates Laryngitis while throat irritation indicates the Phaynygitis. Some time there will be cholinergic stimulation leading to Bronchial constriction or Bronchospam which is the main cause of severity of the disease. So treatment will be planned according to pathology. Because of the release of mediators of inflammation there will be stimulation of the H1 receptor and the mast cell which will go to release the Histamine causing the constriction of the bronchus.

Acute or the Chronic Respiratory diseases cause the loss of the epithelial cells leading change in configuration of

the lining & change in the quality of secretions. Recurrent respiratory infections may cause the desquamation of the layer.

There are other set of disorders called as Obstructive and Restrictive disorders where there will be pathology related to flow rate and the lung volume like the Bronchial asthma .

There are certain disorders with accumulation of the fluid or the gas inside the lung.

Doshic approach

The two main doshas involved i.e Vata and Kapha, so treatment is always aimed to pacify these two dosha.

In case of disease due to Vata usually the pathology is limited irritation of the mucus membrane there will be dry cough and scanty sputum and difficulty for expectoration of sputum. Simple Vatahara treatment will be useful. Drugs like Yastimadhu having Madura Rasa does the Vata pacification and also increase the sputum production by making it easy for expectoration.

Providing the soothing effect to the respiratory tract also prevent irritation and cough can be prevented. Drugs having the soothing effect like Methika , Lavanga are more useful in this conditions.

. When same is due to allergic and irritant disorders of the Respiratory tract above prescription can be added with Laghu Sutha shekara rasa or Haridra khanda

When it severe there may be dry cough associated with bleeding and other constitutional symptoms indicates the involvement of all three Doshas which require the use of Rasayana drugs along with Vatahara drugs. Gritha or the Tail preparations specific to Respiratory disorders like Pipplaydi, or the Kantakari also helpful when pathology is chronic.

. In case of involvement of the Pitha there will be productive cough with foul smelling sputum with various colors. It is commonly associated with fever and the treatment should be aimed to correct the Pitha . To correct the quality of secretions as these condition toxins liberated leading to mucosal damage. There is also evidence of Infection. All the drugs which are having the strong aromatic smell will acts as anti infective along with smoothening effect. Drugs like Karpoora , Lavanga and the Shati can be tried in this situations. Combination of Sudarshana Ganavati or Amritha Satwa along with routine protocol is useful and as they are all Pitha Samudhbhava vyadhis . Drug to correct the Agni like Agnitundi vati is quite useful. Presence of Kupeelu also helps to maintain the tone of the Bronchial muscles.

In case of Kapha involvement there will be whitish copious sputum with less discomfort to the child the Kaphahra treatment with Mucolytic and Expectorants

are useful. Drugs having the Katu, Thiktha and Lavana Rasa are useful in splitting thick sputum, like the Vasa , Vacha and the Kantakari.

As a chronic Respiratory diseases are always having tendency to get convert to Cor -pulmonale due to Chronicity & irregular treatment , same should be inferred by the involvement of all the three doshas and deeper dhatus .Presence Odema , Raktha steevana after the course of dry cough , different types of striders like Paravatha eva kujana , . Tenderness in the chest area (dhukha sparsha) suggest underlying inflammation of lung parenchyma . While shifting of the apex beat which can occur in lung collapse or hydrothorax etc condition (sthanathmanyathe chuutham).By considering severity of the condition treatment should be given with help of Rasayana drugs .

Immunological approach

There are number of defense mechanism in the Respiratory system as this system is maximally exposed to infection as well as contamination unlike other systems. Constant exposure to polluted, environmental allergens, irritants and Pathogens challenges the immunity of the Respiratory system. The autonomic reflexes like cough ,hiccough ,Cilia and muco cilliary cells , mucosal secretions, are the part of defense system of the

Respiratory tract. Mechanical defenses of the respiratory system which includes the humidification warming of the inspired air and absorption of the toxic and the noxious air by the vascular system of the upper respiratory tract. Alveolar and the interstitial macrophages are the part of cellular and chemical defense of the lung. As the immune system and immune response in the growing child has not reached its peak resulting in viral infections which are very common. Childhood recurrent respiratory infection may leads to Hyper reactive air way disease which in turn may end up in Bronchial Asthma .

So always while treating the case of the Respiratory tract role of the Immunity in prevention such feature attacks should be kept in mind accordingly medicines are prescribed. So some drugs which increase the immunity like he Amritha , Ashwagabdha , Bhumyamalaki Vacha and Abraka satwa are the choice .Kapikacchu choorna may able also useful as it increase the Ojus by Vajeekara property.

These defense mechanisms are impaired by Ethanol ingestion, Starvation Corticosteroids , Ozone , increased oxygen concentration etc. Anti bacterial killing capacity of the macrophages may be decreased in Acidosis , Recurrent viral infection, organic dust . Damage to the Respiratory epithelium is one of the

common complication in the repeated viral infections.

Symptomatic approach

Cough is one of most disturbing symptom of the respiratory disorders which may be dry when it does irritants allergens due to stimulation or irritation of mucosa without production of the sputum or the scanty sputum and trying to clear the throat. Cough may be productive when it is due to hyper secretion of mucous due to infection or the inflammation .hence the mechanism of production of the cough is either due to irritation of the mucosa , over production of the secretions . We can give drugs to increase the secretion in case of dry cough or we can go for antitussive treatment by suppression of the cough center.

Dyspnea is another symptom which can occur due to Bronhospasm, or mucosal edema or the collection of the sputum due to thick secretion. This may also occur due to pulmonary edema or exercise intolerance, and associated anemia . This also the striking feature in Cor-pulmanale likes conditions.

Recurrent allergy of the upper respiratory tract on exposure to mild cold, intake of cold beverages, cold air is one of the common problems to be treated in clinical practice. This may occur due to allergic Rhinitis or allergic bronchitis or due to

hyper reactive airway disease. This will occur due to stimulation of Mast cells producing the Histamine on exposure to Allergy. Wheezing is one more common problem in children with respiratory disorders. In all the conditions there will be Bronchospasm All the cause which leads to Bronchospasm which needs to be reversed by drugs which cause effective Broncho dilatation The recurrent respiratory infections also make the baby more prone to Tonsillitis like conditions.

Viral infections are usually associated with fever which can be effectively treated with Sudarshana Ghanvati. More discomfort to the child will be caused by nasal blockage which will be treated by Lavana Rasayuktha drugs.

As there will be recurrent infection of the respiratory mucosa leading to desquamation of the mucosal cells the normal development of the respiratory mucosa the Vitamin A and the zinc and copper is essential. This should be supplemented from time to time.

Panchakarma approach

Pancha karma treatment is well indicated in the Respiratory disorders. Samshodana can be employed in children with slight modification. Especially in the chronic Respiratory problem which occur recurrently and accounts for school missing can be treated with Pancha karma

It helps to remove the vitiated doshas toxins which are responsible for the recurrence. Virechana can be given in chronic respiratory disorder with restrictive pathology like the Bronchial asthma. Child using the inhalation can kept in oral medication after a course of Virechana. Pippaladya Gritha , Kantakari Gritha , Pacha Tikthaka Gugulu Gritha is best suited for sneha pana while mild Swedana daily by Nadi sweda will helps in the vilayana of Kapha and Clarence of the Srotus. Even the allergic diseases of the respiratory tract can be best treated by Virechana . In case of productive cough Vamana or the Sadhyo Vamana may be useful to give instant relief. Child with acute dyspnea with wheezing along with emaciation can be treated with Pancha karma therapy successfully .Decreased recurrences, tolerance to causative factors , increased enthusiasms and exercise tolerance are clinically noticed after the Pancha karma procedures.

Rasayana and Vajikarana chikistha

As the immunity as to be maintained keep away the respiratory infections implementation of Rasayan and the Vajeekarana chikisha can be employed. As Rsayana& Vajikarana drugs will increase all the dhatus and also shukra dhatu. Essence of the Shukra dhatu is Ojus which

is responsible for the immunity of the body

Virudha abhi samskriti

From the time of the fertilization of the ovum till the growth of the person there is continuous growth and the differentiation of the tissues. just like the Visha which is present in the snake doesn't kill the same similarly the vitiated dosha at time of zygote formation will not effects the fetus .In the meantime any dosha , Virudha Ahara any other peculiar condition to which the body is exposed at the time of the growth(from fertilization - maturity) makes the body tissues modified and there is development of resistance to that condition and gradually the immune system gets activated by producing the antibodies . As we know that allergic disorders are so common in respiratory tract we can practice this Virudha abhisamskriti in respiratory disorders . In this method since beginning the child has introduced with a substance which is known antigenic property in small dose daily. By this method body immune system is gets activated against the allergic substances sand antibodies against the allergy will develop in the body thus preventing or decreasing the severity of such disorders . Honey which contain pollens a known Allergic substance or which is mixture & essence of many

many Rasas.This can be routinely used to desensitize the body against the allergic substances.. Ass's milk is another alternative

Role of Pranayama .

Pranayama is very much useful respiratory disorders especially problems related to treat and volume of the lung like restrictive disorders or disorders of compliance problem. As we know Pranayama controls the inspiration and expiration with regular breathing exercise. Breadth holding capacities can increase the Total lung capacity and Residual lung capacity . It also helps the patient morally with stabilization of rate and rhythm of the respiration. Daily practice of kumbhaka ,Rechaka etc procedure shown significant results.

Symptomatic approach

This type of approach is quite useful in Respiratory tract disorders as there is urgent need to provide the relief to the patient,

1. When there is obstruction to Respiratory tract by means of thick sputum drugs which splits the sputum like Vasa which contain the Mucolytics like Bromohexane is the choice. Vacha , Maricha And the Shunti are the other alternatives .
2. . When there is difficulties for expectoration of the sputum can

be best treated by the Yastimadhu, which will increase the quantity of sputum split it and removes it.(Kaphacheedaka) .

3. Atropine containing drugs like Dhatura, and ephedrine containing drugs like Soma can be used to reverse the Bronchospasm.

CONCLUSION

Respiratory complaints in childhood practice are very common and equally challenging to Ayurvedic physician. So thorough clinical examination ,and perfect analysis of pathogenesis in the given patient with selection of one specific approach explained above may yield the fruitful result .Thus it provide a safe, cost effective, natural and permanent cure to child and provide an alternative way of treatment for this most common burning problem which is recognized as contribution of Ayurveda to this world.

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