



Research Article

TREATMENT OF SEASONAL AND ALLERGIC DISORDERS OF RESPIRATORY TRACT SYSTEM THROUGH AYURVEDIC CLASSICS

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ABSTRACT

Ayurveda, the Indian medical wisdom is not an incomplete knowledge, its approach towards human being is holistic and extensive. It's more a health oriented than disease oriented medical system in the biosphere. The theory of Allergy in *Ayurveda* is concealed under different headings and varied contexts. The articulate and distinguishable descriptions are observed in the contexts of *Pratisyaya*, *Kasa*, *Swasa*, *Uarda/Seeta pitta* and *Kushtha* (certain skin disorders). Scope of this paper is limited to deal with allergic respiratory disorders i.e. *Pratisyaya*, *Kasa* and *Swasa*. These three disorders are those which occupy the major amount of population and the patients of these disorders pay frequent visits to doctors of conventional medicine and get inadequate results. That is the reason why these patients approach Ayurvedic physicians for a safe and effective regimen which can completely reverse their allergic nature and thus relieving acute boats of disease.

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INTRODUCTION

In *Ayurveda*, the genesis of any disease is attributed to imbalance in innate etiological factors, which are being disturbed by external factors like diet, lifestyle and environment. The constitution and Doshas play an important role in causing pathogenesis, but their imbalance is resulted from erroneous *ahara* (diet habits) and *vihara* (life style). These external factors in the form of erroneous diet and life-style disturb the physiological mechanism of human body making it vulnerable to various onslaughts from the nature in the form of infections and allergic reactions. *Ayurveda* strongly opposes a concept that the external factors in the form of microorganisms and allergens are causes of disease. When the soil is unfertile though a seed of good quality does not give a sprout, similarly as long as the homeostasis of human body is well maintained no microbe or allergen can cause the disease. This principle is unique to *Ayurveda* finding fault within, rather than searching for the cause outside the body. The western modern medicine which is armed with sophisticated technology and personnel, despite their endless efforts of identifying innumerable and ever changing causes for various allergic problems, the therapeutic module for allergic disorders are unsatisfactory. If a physician is asked to name one specialty of medicine which affects approximately 25% to 30% of the world population, the only answer would be 'allergy' and rather alarming extension of this answer is that the incidence of allergy is raising worldwide currently.

describe patients with excessive physiologic responses to substances in their environment. This etymological derivation is very close to the concept of *Ayurveda* that inborn state is significant in allergic reactions.[1]

The seasonal and allergic respiratory disorders affect the upper and lower respiratory tracts. This chapter deals with three predominant disorders, i.e. *Pratisyaya* (Allergic rhinitis), *Kasa* (Chronic Bronchitis) and *Tamaka Swasa* (Bronchial Asthma). *Ayurvedic* texts explained these ailments in a more comprehensive way and extensive descriptions are seen regarding therapeutic. This chapter not only to quote the classical explanations but to explain the valuable practical experiences and research inputs in regard to three diseases. *Ayurveda* never believes in lonely drug therapy. Its therapeutic part also consists of diet and life style besides drug. In allergic respiratory disorders this approach is more appropriate. This chapter also highlights the food and life style in cause and therapy of allergies.

Understanding Allergic response at immunity level:-

The allergic response mediated by three steps immunoglobulin class E (IgE): sensitization, early-phase and late-phase. Antigen existing cells expose B lymphocytes to an immunologic message, causing the elaboration of allergic antibody. In genetically susceptible individuals, initial exposure to an allergen causes increased production of IgE antibodies. The antibodies binds and sensitize resident mast cells through specific receptors. Upon subsequent significant contact to the same substance, the receptors are cross linked, leading to degranulation and the discharge of histamine, leukotrienes and other inflammatory and immune mediators.

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Some products of mast cell degranulation (e.g., histamine, leukotrienes and others) work in concert to effect the immediate hypersensitivity reaction, which manifests as sneezing, itching and rhinorrhoea. Additionally, accumulation of blood in the capacitance vessels causes inflammation and obstruction of the nasal airways the late-phase hypersensitivity reaction typically occurs two to twelve hours after allergen contact. Cytokines released by mast cells on activation by allergens, be a factor by attracting and activating other inflammatory cells to the nasal tissues. It seems that once tissue has been through a cycle of allergen exposure and reaction, it may certainly not return to its previous functional baseline. Specifically, chronically exposed and inflamed tissues may constantly be hyper-reactive not only to additional allergen and histamine insult, but also to non-allergic stimuli, like cold air and tobacco smoke. This would explain why more patients with recurrent allergic rhinitis report problems with non-allergic irritants than do patients who have seasonal allergic rhinitis. Currently, upper and lower airways disease is assumed to be a continuum of inflammatory and sometimes infective processes. In patients with allergic rhinitis, the physiologic alterations that result from exposure to allergens do not appear to be limited to the nasal mucosa or even to the upper airways.

Pre-existing allergic rhinitis is frequently present in patients who have acute bacterial rhino sinusitis and chronic rhino sinusitis. Chronically inflamed tissues are more vulnerable to contamination and they block normal drainage from the sinus cavities. Allergic patients touch their face regularly, which, when combined with the above factors, increases the threat of viral upper respiratory infection (URI) and may lead to bacterial infection. About 38% patients with allergic rhinitis also have asthma, and 79% patients with asthma have allergic rhinitis. It is believed that factors that cause inflammation of the upper airways may exert the same effect on the lower airways. Although treating allergic inflammation in the nose make the lower tract less likely to be hyper responsive, it alone does not found sufficient treatment for asthma.

Etiologic Factors for Allergy

Although asthma is a multifactorial complaint, the strongest threat factor in the aetiology of asthma is atopy (allergies, atopic dermatitis and allergic rhinitis). An atopic individual has a significantly more probability of developing asthma and persons with a family history of atopic disease are at highest risk. It is believed that an immunological response to various allergenic stimuli, including pets dander, dust mites, cockroaches, fungi and foods is a major activating factor in asthma symptomatology [2]

Free Radicals theory

There is sufficient evidence that allergic disorders like asthma, rhinitis and atopic dermatitis, are arbitrated by oxidative stress. Extreme exposure to active oxygen and nitrogen species is the assurance of oxidative stress and leads to damage of proteins, lipids, RNA and DNA. Oxidative stress happens not only as a outcome of inflammation but also from environmental exposure to air pollution and smoke. The specific localization of antioxidant enzymes in the lung and the rapid reaction of nitric oxide with reactive oxygen species, such as superoxide, suggest that antioxidant enzymes might also function as cell-signalling mediators or regulators of cell signaling [3]. Therapeutic involvements that decrease contact to

environmental reactive oxygen species or enhance endogenous antioxidant defences might be valuable as adjunctive therapies for allergic respiratory disorders.[4]

Food Allergy

1. Food allergy may manifest as rhinitis, asthma, eczema, urticaria, or gastrointestinal symptoms such as abdominal pain, nausea, vomiting or diarrhea.
2. Skin prick testis useful in detecting the causative food allergens.
3. Common cause of food allergy in India are pulses, meat, egg, sea foods, nuts and dry fruits, coconut, cooking oil and citrus fruits.
4. Allergy to food additives (artificial colours and food preservatives) is also common and it should be avoid.
5. Immunotherapy is not recommended for food allergy. Avoidance of allergens is the presently suggested treatment for food allergies today.

Pratisyaya: In the *samprapti* of *Pratisyaya*, Ayurvedic texts has given due importance to *Vata Dosha*. *Dalhana*, the commentator on *Sushruta Samhita* explained *Pratisyaya* as a condition, in which *Tridosha* and *Rakta* move towards *Vata*, leading to nasal discharge along with other clinical features of *Pratisyaya*.

So *Pratishyaya* is

- ✓ Vata dominant disease
- ✓ The main feature is continuous nasal discharge.
- ✓ Dosha accumulation mostly takes place in *Uttamanga* (Head).

Allergic Rhinitis

1. The commonest allergic condition faced by a medical practitioner is Allergic rhinitis.
2. Allergic Rhinitis might present either alone or in combination with asthma.
3. Classical symptoms of allergic Problem are, running nose and /or blocked nose and sneezing. In dust allergy, early morning sneezing is very common.
4. Patients having severe itching in the nose and to relieve them they rub the nostrils from below to upwards with their palm of hands. This process is called "allergic salute" and it effects in a horizontal, pigmented line on the nose called "Darrier's line".
5. Allergic rhinitis may also existing with dark pigmentation and swelling on the lower eyelids; this is called "allergic shiners" and is produced by venous congestion.[5,6,7]

Causes of Pratisyaya

1. Exposing to cold climate, open air and dust.
2. Excessive talking
3. Sleep habits Reversion
4. Practice of very high or low pillows
5. Intake of water other than native areas
6. Excessive amount of water intake
7. Excessive indulgence in coitus
8. Indigestion
9. Anger
10. Suppression of vomiting and sadness
11. Suppression of natural urges

Clinical manifestation of Pratisyaya

1. Continues sneezing
2. Impaired smelling
3. Nasal discharge (seasonal)
4. Dryness of mouth
5. Pricking pain
6. Toothache, Pain in head & temple area.
7. Crawling feeling around eyes
8. Disruption in speech
9. Slow swelling

Management of Pratisyaya

Dipana & Pachana medicines, Swedana karma, Amlayukta Ushna Aahaar, Paayas – Ardraka Panam (Dalhana), Ikshu Vikara, Snehana karma, Swedana karma, Vamana, Gandusha, Dhoompaan, Laghu-Snigdha –Ushna, Liquid Aahaar, Yusha , Dhoompaan by Mallaka Samputa made up of Saktu mixed with Ghrita.

Conservative treatment includes

Avoid direct exposure with cold air and wind, cover the head with thick and warm cloth. It is necessary that all patients with allergic rhinitis undergo screening pulmonary function tests to exclude latent asthma.

Principles of treatment

- ✓ To pacify *Vata & kapha doshas*
- ✓ *Snehana karma, Swedana karma, Pradhamana & Gandoosha Dharana*
- ✓ Shielding the head from cold air by covering with thick & warm clothes
- ✓ Panchamoolshrita Ksheeram, Agasthya-Haritaki lehyam, Chitrak-Haritaki lehyam, Sarpi- Guda & Shadanga Paniya & Yusham are practically effective in this complaint
- ✓ Pippali, Shigrubeej, Vidanga, Marich for Avapeeda Nasya
- ✓ Vidaryadi gana siddha & Panchalavana siddha Gritam for Nasya karma
- ✓ For oral administration, Marich, Dadhi & Gudamis advised
- ✓ Vyaghradi kashayam, Dasamulakatutrayadi kashayam, Gajihwadi Kashayam
- ✓ Kanchanara guggulu, Vyoshadi gutika
- ✓ Tribhuvankirtiras, Lakshmilivilasras, Nardiya Lakshmilivilasras, Kaphaketuras
- ✓ Rasasindhuram, Sitopaladichurnam, kaphakartariras, Kaphakutharras
- ✓ Consumption of warm water at the time of sleeping

Beneficial Treatment principles includes regulating bowel habit with *Vatanulomak* medicines, Sleeping hours to be maintained 6-8 hours, desensitizing the nostrils with *Nasya Karma* and administration of Rasayana like Chitrak-Haritaki, Agasthya-Haritaki and Chyavanprash for longer time after *Sodhana* with *Vamana* procedures.

KASA: The actual treatment of patients with a chronic cough is very difficult. The persisting cough can be associated with considerable distress and impaired quality of life. Ayurveda has greater advances in the treatment of *Kasa* than conventional medicine.

Caraka describes *Kasa* as

“ShushkoVa Sa KaphoVa Kasaanat Kasa Uchyate” Release of congested Airalone or with *kapha* with the production of unusual sound is termed as *Kasa*. This may be dry (without secretions) or productive (with secretions), *Chakrapani* has explained the word *Kasaas*-**“Kasanaat Iti Yatoktagatimatvaat Tathaa Uraprabhriti Shaatanaat Cha Kasalti Anvartha Samjnyochyate”**. It means that, the process with vigorous expulsion of air along within-drawing and falling effort of chest wall in other words termed as *Kasa*.

Causes of Kasa

1. Exposure to smoke and dust.
2. Vomiting of food & Aamrasa from Amasaya to Respiratory tract
3. Extreme indulgence in physical activity
4. Consumption of foods which induce dry ness (Rukshata)
5. Vomiting of ingested food
6. Suppression of sneezing

Clinical Manifestations of Kasa

Prodromata

- Sensation of husk filled throat and mouth
- Itching in neck
- Difficulty in Swallowing (Dysphagia)

General

- Cough without Expectoration
- Pain in chest, flanks and head
- Continues hoarse voice
- Dryness of mouth, throat and chest
- Horripilation
- Blurry vision

Management of Kasa

The mode of treatment has to be decided on the basis of *Rogi* and *Rogabala*. Though both *Sodhana* and *Samana* therapies are described for *Kasa Roga*. The first line of treatment is that always avoid the causative factors are. Then precise management can be planned allowing to the *Doshic* participation. Internal prescription should be chosen from vast collection of formulations in Ayurvedic texts after considering *Roga-Rogi Bala* and *Samprapti* of the disease. The following are the most effective and successful formulae in clinical practice.

Chyavanaprash, Agasthya Haritaki, Chitrak-Haritaki Leham, Vasakantkari Avlehya, Vyaghri-Haritakilehyam, Dasamula katutraya mkashayam, vidaryadi kashayam, Dasmool Kashayam, Sitopaladichoorna, Talisadichoorna, Vyoshadigutika, lavangadivati, Eladi Gutika, Vidaryadi Ghritam, Dasamularista, Vasa Swarasa with Madhu, Pippalyasava, Rasasindhuram, Sameerapannagaras, Lakshmi vilasras.

Tamaka Shwasa (Bronchial Asthma): It is a long-lasting inflammatory complaint of the respiratory airways, characterized by increased mucus production and airway hyper-responsiveness causing in decreased air flow, and marked by recurrent incidents of coughing, wheezing and shortness of breath. It is a multifactorial ailment progression related with genetic, environmental, allergic, infectious,

emotional, and nutritional components. Since their symptomatology the majority of persons with asthma experience a noteworthy number of missed work or school days. It can produce a severe disturbance in quality of life, often leading to depressive incidents. It also disturbs the lives of caregivers and family members of the affected individual. Asthma patients having increased symptomatology at night, also tend to have disturbed sleep patterns and diminished daytime attention, awareness and memory.

Although asthma is a multifactorial complaint, the strongest risk factor in the aetiology of asthma is atopy (allergies, allergic rhinitis and atopic dermatitis). An atopic person has a significantly greater chance of developing asthma, and persons with a family history of atopic disease are at highest threat. It is established that an immunological reaction to various allergenic stimuli, including dust mites, pet dander, fungi, cockroaches, and foods is a major activating factor in asthma symptomatology. Estimates of the number of individuals with asthma also having allergic rhinitis are as high as 80%. In a study, 79% of individuals with asthma also had chronic rhinosinusitis.[2]

Extrinsic sthma (Atopic Asthma, early onset asthma)

Atopy is due to the genetically determined production of specific IgE antibody, with family history of allergic diseases. It is the chief threatening factor for asthma. Patients with asthma commonly suffer from other atopic diseases, particularly allergic rhinitis and atopic dermatitis (eczema). Some other environmental or genetic factors influence to the development of asthma in atopic individuals. The cellular infiltrate rich in eosinophil is the characteristic feature of asthmatic reaction.[2]

Samanya samprapti of Shwasa:-It is stated that *Vata* located in the *eurah* after troubling the channels carrying the vital breath (*Prana vahasrotas*), gets aggravated and stimulates *Kapha* which leads to the causation of *Shwasa*. Further it is said that if *Vata*, primarily associated with *kapha*, obstructs the channels carrying *Prana* (*Pranavaha* and *Udakavahasrotas*) and circulates all over the body then this obstruction aggravates *Vata* further causing *Shwasa*.

Vishistasamprapti of Tamaka Shwasa:- Regarding the *samprapti* of *Tamaka-Shwasa*, Charakadescribes that the vitiated *Vata dosha* after causing the obstruction in *Pranavahasrotas* spreads within *pratilomagati* and involving the neck & head area, which produces *Pratisyaya* by excitation of *kapha dosha*. This *Kapha* Produces obstruction at the location of the throat region and produces *Ghurghurukam Shabda* when *Vata* passes through the same area. It results an increase in the respiration rate causing disease of *Shwasa*, which includes pain in the chest.

Vagbhata described that the vitiated *Vata* travels unusually in the *Pranavaha*, *Udakavaha* and *Annavaaha Srotases*. The combination of *Vata* and *kapha* spreads upwards in the chest and throat, at that time the natural flow of air is affected which leads to production of *Shwasaroga*. He believed that *Shwasa Rog* originates from the *amashaya*.

Sushruta describes that vitiated *Prana Vayu* combines with *kapha* gets *Urdhvagati* and causes *Shwasa Rog*. In *Tamaka Shwasa Vataiskapha - sanyukta*, may complete two different procedures which ultimately convert in each other.

Vata is in natural state and *kapha* is either vitiated with its own etiological factors like *sheeta*, *guru*, *amaksheera*, *dadhi etc.* or *Vishamashana*, *Vishtambhi Aahaar* etc. can produce *Mandagni* and it produces *ama* and this *ama* produces *malarupakapha*. This vitiated *kapha* in the *Urah Pradesha* causes the obstruction in the normal path of *Vata (Prana)* it further leads to *avarana janya vata prakopa & Pratiloma (Unusual) gati of Vata (kapha Pradhana Samprapti)*.

Vata is vitiated through its own etiological factors like *Apatarpana*, *raja*, *dhooma*, *vegavidharana*etc. and by *dhatukshaya* (due to chronic disorders), vitiated *Vata* results in contraction of *Pranavaha srotas*, which further causes *Pratisyaya* by excitation of *kapha dosha*. Thus, leading to the presentation of *Shwasa Rog (Vatapradhana samprapti)*. [8]

Causes of Tamakaswasa

1. Exposing to open & cold air, smoke and dust.
2. Exposure to cold climate
3. Consumption of cold water
4. Excessive physical activity, coitus and lifting heavy masses more than ones stamina
5. Rukshaahaara, Vishamashana, Amapradosha and atyapatarpana
6. Daurbhalya, Marmaaghata
7. Extreme purification by Vamana and Virechana
8. Subordinate to Atisaara, Jwara, Chhardi, Pratisyaya, Kasa
9. Kshaya, Raktapitta, Udavarta, Visuchika, Alasaka, Panduroga and Visha
10. Consumption of Nishpava, Masha, Pinyaka, Pishta, Shaluki, Vishtambhi, Vidaahi & Guru aahaara Sevana
11. Jalaja, Anupa Mamsasevana
12. Dadhi & Ama Kshira Sevan
13. Abhishyandakara Aahaar & Vihaar
14. Shleshma Prakopaka Aahaara
15. Kanthorasa Pratighata
16. Vibandha

Clinical manifestations of Tamaka Swasa

1. Rhinorrhoea
2. Wheezing sound
3. Extreme incidents of breathlessness
4. Suppression dyspnoea causes blurred vision & tremors
5. Temporary relief by expectoration
6. Exertion in talking
7. Sleep disturbed by intensified dyspnoea on supine posture
8. When patient is in supine posture, movements on flanks increased
9. In sitting posture feels comfortable
10. Likes to eat hot/warm food
11. Periorbital swelling
12. Sweats on fore head
13. Dryness of mouth
14. Increased dyspnoea
15. Slow movements body
16. Breathlessness intensifies by clouds, rain, cold climate, eastern wind & kapha
17. Prakopaka causes.

Allergic Asthma

1. Asthma along with rhinitis forms the prevalent group of patients in an allergy clinic.

2. While wheezing is a significant sign of asthma, all that wheezes is not asthma.
3. Other situations like foreign bodies, left ventricular failure/ pulmonary oedema, Tumours, etc. should be kept in mind. Besides, asthma may present only with cough; don't ever deduct cough
4. Pulmonary function examinations are significant in assessing a patient with bronchial asthma. Simple spirometry and peak flowmetry can be done by an interested General Practitioner in his/her own clinic.[9,10,11]

Management of Tamaka Shwasa

In Ayurvedic management, first line of treatment is the avoidance of causative factors. Thus every patients should follow wholesome regimen. *Charaka* highlighted that strong physique patient with the dominance of *Kapha* should be treated with *Vamana* and *Virechana* therapy.

Major focus of management is to achieve *homoeostasis* of vitiated *Dosha*. To attain this, *Sodhana* and *Samana* treatments are described. Since *Sodhana* is superior than *Samana*, but it cannot be practiced in every patient. Hence to start treatment one should reflect about *Doshic* status as well as physical status of the patients. (*Ch.Chi.17/ 121*) *Charaka* had stated that (*Ch.Chi.17/ 8*) *Shwasa Roga* originates from *Pittasthana* so first of all the *Sthanika Doshic* treatments should be done. Then *Virechana* is recommended for *Pitta Dosha*, but *Virechana drugs* must be accompanying with *Vata* and *Kaphahara* properties. Patients who are strong and predominance of *Kapha* should be treated with *Shodhana Chikitsa* while patients that are weak, *Ruksha* and predominance of *Vata* should be treated with *Samana* therapy. The medicines, food and drinks that control *Vata* and *Kapha* with *Ushna* property and are particularly *Vatanulomaka* should be given in *Shwasaroga*. The main *Doshas* of *Tamaka Shwasa* are *Vata* and *Kapha*. It should be noted that the assessment of the *Dosha* is essential while treating the disease. *Vata* and *Kapha* are conflicting to each other. In the treatment of *Tamaka Shwasa*, it is usual to note that when *Vata* is obstructed by *Kapha*, just by increasing *Vata*, *Kapha* will automatically relieve and *Vata* will be free to move in its progression. When *Vata* is much intensified than *Kapha*, treatment to increase *Kapha* will help to correct *Vata*. The antagonistic property of *Vata* and *Kapha* is a physiological phenomenon, after improvement of this imbalance, the *Shwasaroga* can be relieved. To attain the balance of *Dosha*, the *Doshas*, *Vata* and *Kapha* should be treated at the same time. *Vata Dosha* plays a significant role in the *Samprapti* of *Tamaka Shwasa*; Hence *Vatanulomaka* Treatment is always desirable.

Charaka described that *Brimhana* Treatment is better than *Karshana* treatment in the management of *Tamaka Shwasa*. In *Tamaka Shwasa* vitiated *Kapha* blocks the movement of *Vata* producing *Vatprapropa* & breathlessness. Hence, *Vagbhatta* had described that there must be the use of *Samshamana* Medicines in the form of *Kashaya*, *Avaleha* and *Ghritato* to relieve the *Vatprapropa* cause after *Samshodhana* (AH-chi 4/18). It acts as *Brimhana* or *Sthanbalya* to *Pranvaha Srotasa*.

- Massage with *Sandhava* and oil over chest region and hot fomentation
- Intake of *Snigdhalavanayukta* tail
- *Mriduvatanulomana*

- *Vamana* and *Virechana* karma
- *Agasthya-Haritakilehyam*
- *Dasamoola kashayam* with *Pippali*
- *Sitopaladi choornam*, *Swashkuthara ras* & *sameera panngaras*
- *Kanakasava*, *pippalyarista*, *somasava*
- *Brihat swasa chintamani ras*, *Mahalakshmi vilas ras*

Ayurveda agrees that *Tamakshwasa* is a *Yapyavyadhi*, thus long term treatment procedures with periodical *Shodhana* with maintenance of exacerbations with *shamana* treatment are ideal methodologies. *Vatanulomana* medicines are accepted to play major role in the treatment. *Rasayan* medicines like *Agasthya-Haritaki*, *Dasamoola-Haritaki* etc. must be choice of medicament for long term use. It is relevant to note that caring for adopting regulated daily routine and diet regimen are very essential to overcome the exacerbations.

Research findings on herbs/ massage/yoga in allergic respiratory disorders

Tylophoraasthmatica:-It is found that an Indian plant called *Ajadveshi* (*Tylophoraasthmatica* also known as *Tylophora indica*) is effective in the treatment of asthma. The plant leaves are used in *Ayurvedic* medicine for the management of asthma, bronchitis, and arthritis. It can have an irritant influence on the gastrointestinal mucosa, and in large dosages will act as an emetic. In smaller dosages, however, it acts as an expectorant, anti-inflammatory, and may provide advantage in asthma cases. Alkaloids from this herb have been isolated and recognised as tylophorine and tylophorinine. These alkaloids are thought to be responsible for the plant's therapeutic efficiency. In a rat study, tylophorine inhibited systemic anaphylaxis, adjuvant-induced arthritis, and mast cell degranulation.[12] It is proposed that *Tylophora* might have a direct effect on the adrenal glands, thus increasing endogenous steroid production and anti-inflammatory activity. Consumption of *Tylophora* leaf in asthma patients resulted in decreased nocturnal symptoms, as well as significant improvements in lung function indices compared to placebo in a double-blind, crossover study. These improvements continued for weeks beyond the short-term (7-day) trial period. Similar long lasting results were reported in a study of 110 asthmatics. These patients chewed and swallowed one *Tylophora* leaf per day for six days. At one week, 62 percent of individuals taking *Tylophora* had moderate to complete symptom relief, which lasted for weeks after the trial. A significant percentage of subjects complained of nausea, although there tended to be a positive correlation between nausea and degree of symptomatic improvement. Till date, no nutrient or other botanical has demonstrated a similar long-lasting effect after short-term dosing.[13,14,15]

Boswelliaserrata (sallaki):-The gum resin of *Boswelliaserrata*, also called as *Shallaki*, has been used in *Ayurvedic* treatment for long periods. Leukotrienes are elevated in asthma and are a major component of inflammation and bronchoconstriction. The 4-series leukotrienes (LTB₄, LTC₄, LTD₄, LTE₄) are derived from arachidonic acid in cell membranes via activity of the enzyme 5-lipoxygenase. Constituents of *Boswellia* called boswellic acids have been found to definitely inhibit 5-lipoxygenase. In animal studies, *Boswellia* not only inhibited LTB₄ production, but also prevented leukocyte migration to inflammatory sites. Due to 5-lipoxygenase inhibition, *Boswellia* should be a beneficial

component of asthma therapy. A double-blind, placebo controlled study of *Boswellia* in asthma looked at just this issue. Forty patients were treated for six weeks with a *Boswellia* extract (300 mg three times daily). Symptomatic improvement (dyspnoea, wheezing) was seen in 70 percent of patients, as were objective measurements of lung function (FEV1, FVC, PEF). A reduction of eosinophilia was also noted. Twenty-seven percent of participants in the Placebo group showed improvement. This is a very promising study, showing both subjective and objective improvement in asthma. The new anti-leukotrienes medications block leukotriene receptors, whereas *Boswellia* blocks the formation of leukotrienes. Either way, the end result should be a decrease in leukotriene-induced inflammation and Broncho-constriction. *In vitro* testing revealed *Boswellia* specifically, and in a dose-dependent manner, blocks the synthesis of pro-inflammatory 5-lipoxygenase products, including 5-hydroxyeicosatetraenoic acid (5-HETE) and leukotriene B4 (LTB4), which cause broncho-constriction, chemotaxis, and increased vascular permeability. Other anti-inflammatory plant constituents, such as quercetin, also block this enzyme, but they do so in a more general fashion, as an antioxidant; whereas, *Boswellia* seems to be a specific inhibitor of 5-lipoxygenase. *Boswellia* has also been observed to inhibit human leukocyte elastase (HLE), which may be involved in the pathogenesis of emphysema. HLE also stimulates mucus secretion and thus may play a role in cystic fibrosis, chronic bronchitis, and acute respiratory distress syndrome.[16-20]

Vyaghriharitaki Avaleha - This *Avaleha* is a polyherbal Ayurvedic preparation having major ingredients - *Kantakari* (*Solanum xanthocarpum* Schrad. and Wendl.), *Haritaki* (*Terminalia chebula* Retz.). Studies on *S. xanthocarpum* confirm its traditional use in bronchial asthma. The clinical efficacy of two herbs *S. xanthocarpum* and *Solanum trilobatum* Linn. in a dose of 300 mg tds for 3 days was investigated in mild to moderate bronchial asthma. Their effect was compared with standard bronchodilator drugs, salbutamol (4 mg) and deriphylline (200 mg). *S. xanthocarpum* and *S. trilobatum* produced a progressive improvement in the ventilatory function of asthmatic individuals over 3 days. The scores for ronchi, cough, breathlessness and sputum were decreased by these drug treatments. The improvement in PEF and the reduction in other symptom scores clearly indicate a bronchodilator effect, a decrease of edema and secretions in the airway lumen. The response of these drugs can be considered to be that of deriphylline but less than salbutamol.[21] Immunostimulatory activity of aqueous extract of *S. xanthocarpum* fruits on mice gives strong evidence that the plant is an immunostimulating agent.[22] *Haritaki* (*T. chebula*) has been mentioned as the best *Rasayana* drug. *T. chebula* is having immunomodulatory activity.[23] With the help of various *Samsakara*, *Haritaki* has been revealed to be effective in various diseases with entirely different pathophysiology. This is possible due to the *Sanskaranuvartana* and *Rasayana* property.

The *Rasayana* property is due to its *Doshashamaka*, *Srotoshodhana* and *Vatanulomana* property. This is the key condition for the *Rasayana* effect. [24] With these inherited property (*Prakriti* of *Dravya*) when combined and processed with other drugs (*Samskara*), this *Haritaki* shows the result accordingly.[25]

The contents of *Trikatu* (*Shunthi* [*Zingiberofficinale* Roxb.], *Maricha* [*Piper nigrum* Linn.] and *Pippali* [*Piper longum* Linn.]) and *Chaturjat* (*Tvak* [*Cinnamomumzeylanicum* Blume.], *Ela* [*Elettariacardamomum* Maton.], *Dalchini* [*Cinnamomumtamala* Ness.] and *Nagakeshara* [*Mesuaferrea* Linn.]) are also effective in *Kasa*. But, when these drugs are used as *Prakshepa*, the main purpose remains to be *Dipana*, *Pachana* effect and helps in improving the bioavailability of the drugs with which they are used in. *Madhu* (honey) and *Guda* (jaggery) do also possess *Kaphahara* and *Kasahara* property.[26]

In short, the formulation *Vyaghriharitaki Avaleha* is very effective in chronic bronchitis by acting on the *Samavayihetu* (*Doshas*) and *Asamavayihetu* (*Vishamashana*, *Vegdharana*, *Kshaya* etc.). Its effect on the *Asamavayihetu* is the additional advantage over all the treatment modalities in the conventional medical science.

The manifestation of the disease can be summarized as the end product of three factors - *Doshaprakopa*, *Agnidushti* and *Srotodushti* (*Khavaigunya*). *Agnidushti* can take place as an outcome of *Vishamashana*, *Vegadharana* and *Dhatukshaya*. There is a vicious cycle of *Agnidushti* and *Doshaprakopa*. The *Doshaprakopa* is corrected by the *Doshashamana* property of *Vyaghriharitaki*. The effect of *Vishamashana* is corrected by the *Srotoshodhana* and *Agnivardhana* property of *Vyaghriharitaki Avaleha*. The effect of *Vega-Vidharana* is corrected by *Anulomana* property of *Vyaghriharitaki*. The *Srotodushti* is corrected with the *Srotoshodhana* and *Vishadikarana* property. With its *Brihana* property, *Vyaghriharitaki Avaleha* helps in correcting the *Dhatukshaya*.

Further, *Pranavaha Srotasa* is *Vata-Kapha-Sthana*. Its function is mainly affected by vitiation of *Kapha* and *Vata*. Therefore, the *Avastha* of any respiratory disease can be as either *Vatavritta-Kapha* or *Kaphavritta-Vata* (*Prana*). If it is *Kaphavritta Avastha*, then *Doshashamana* property of *Vyaghriharitaki Avaleha* helps in relieving the symptoms and if it's *Vatavritta Avastha*, then *Vatashamana* and *Vatanulomana* property helps in relieving the symptoms. *Vyaghriharitaki Avaleha*, as a whole, corrects the effect of *Asamavayini* of the disease. Theoretically, it is a drug for *Kshayaja Kasa*, but, at the same time, *Haritaki* with its *Srotoshodhana* and *Tridosha-Hara* property will be effective in all types of *Kasa* (chronic bronchitis). The only difference is that *Doshika* variety of *Kasa* can be better handled in relatively shorter duration with the specific treatment procedures indicated for individual *Doshika* variations. VHA can be helpful in all types of *Kasa* or Chronic bronchitis.[27]

Yoga Breathing: Yoga, which has a strong emphasis on breathing techniques, has been demonstrated to benefit asthma patients. Yoga training programs enrolling a total of 715 patients demonstrated significant improvement in asthma symptoms, medication usage, peak flow rate, and exercise tolerance. It appears the breathing techniques utilized are responsible for the beneficial effects seen in asthma, not the yoga postures alone.

Massage: Asthma patients can also assistance from systematic massage treatment. Massagerelaxes the musculature and diminishes anxiety. A study of children with asthma who received massage every day for 30 days proven increased peak airflow and FEV1 during the course of the study.

Avoidance measures

Avoidance measures for allergic diseases have to be precise, depending upon the causative factors. However, certain preventive measures for the home and place of work of an allergic individual could be generalized.

1. Bedclothes should be of synthetic material like foam. Pillows & mattresses filled with cotton or feathers must be removed.
2. No carpets in the house & work place of the allergic individual. Carpets act as reservoirs of house dust, mites and vacuum cleaning can remove only a small percentage of the dust from carpets. Besides, India is a warm country and carpets are really not required here, especially if they cause or aggravate allergies.
3. There should be no pets in the house of an allergic patient. Regular washing of pets has been attempted with no significant success in reducing symptoms. It for animal danders has not proved to be beneficial so far. Although, removing a pet may cause psychological trauma in some patients, there is really no other treatment which can result in optimal reduction in symptoms.
4. The allergic individual's house and work place should be free from indoor plants. Besides producing pollen, these plants also attract insects and dust which could aggravate or result in allergic reactions.
5. Regular pest control should be done in both, the house and work place of an allergic person. Insects like cockroaches, house flies and mosquitoes are very common causes of allergies in India and must be exterminated.
6. Plastic netting on the doors and windows of the house act as a mechanical barrier in preventing entry of dusts and insects.
7. If there is an allergic person in the house (especially an asthmatic), then other members of the house should cooperate by not smoking. It is virtually impossible to generalize food precaution in allergy and these would definitely depend on what foods are causing allergic reactions in a given individual

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