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"A Review Of Haridra Churna On Bronchitis"

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ABSTRACT:
Bronchitis is a respiratory disease in which the mucous membrane in the lungs and the bronchial passages become inflamed and as the irritated membrane swells and grows thicker, it narrows or shuts off the tiny airways in the lungs, resulting in cough spells which may be accompanied by phlegm and breathlessness.

The pooled prevalence of chronic bronchitis across the twelve centers surveyed by INSEARCH was found 3.49% (4.07% in rural and 2.50% in urban areas), and is also known to be the most common respiratory disorder resulting from various infections, irritants or pollutants.

Haridra is a known kaphaghana, possessing given properties as per Ayurveda, i.e Kushthaghna, Pramehahar, Krimighna, Raktadoshanashak, Shothahar, Apachihar, Kamala, Medhya, lekhana, Vranaropan, Panduhar, Pinasahar, Aruchihar, Twakdoshahar, Varnya, Balya, Kandughna and Vishaghna And according to modern are anticancer activity, anti-inflammatory activity, antihepatotoxic activity, anti-oxidant activity, antidepressant activity, inhibition of aggregation of human blood platelets, topoisomerase i and ii enzyme inhibition activity, antifungal activity and mosquitocidal activity, neuroprotective activity, hypoglycemic activity, hypolipidaemic activity, antifungal activity, wound healing activity, anti allergic and anti histamine activity and complexion promoting activity and thereby this study was done to study its properties and mechanism of action in bronchitis.

Keywords: Ayurveda, Bronchitis, Haridra churna.

INTRODUCTION:

The main objective of ayurveda is to maintain the health of a healthy individual and to cure illness of a diseased individual.

As bronchitis is the most common form seen in respiratory disorders affecting all age group, it is very important to find a cure for same which deals with all requirements for the treatment of this disease. One or more respiratory symptoms were present in 805% of individuals. The overall prevalence asthma and CB was respectively 2.05% (adults aged ≥15 years) and 3.49% (adults aged ≥35 years). The national burden of asthma and CB was estimated at respectively 17.23 and 14.84 million. It affects 12 to 16 million people in the United States and is the third leading cause of death and disease burden worldwide. COPD encompasses a spectrum of diseases, with chronic bronchitis (CB) at one end and emphysema at the other, with most individuals having some characteristics of both.

Haridra is commonly famous for its medicinal properties and is put to use to treat various ailments. Haridra is a known kaphaghana, possessing antibacterial, anti inflammatory etc properties and thereby this study was done to study its properties and mechanism of action in bronchitis.

AIM:

To study the role of haridra churna in bronchitis.

OBJECTIVES:

- Study of bronchitis.
- Study of haridra and its properties according to classical and modern texts.

- Study of role of haridra in bronchitis.

MATERIALS AND METHODS:

For this study Ayurvedic and Modern text would be used to evaluate the concept. The text from Brihattrayee i.e. Charaka Samhita, Sushruta Samhita , Ashtang Sangraha, and Ashtang Hridaya and their respective commentaries in Sanskrit as well as Hindi have been compiled, and modern medicine references for bronchitis are used along with various related websites.

LITERATURE REVIEW:

Bronchitis is a respiratory disease in which the mucous membrane in the lungs and the bronchial passages become inflamed and as the irritated membrane swells and grows thicker, it narrows or shuts off the tiny airways in the lungs, resulting in cough spells which may be accompanied by phlegm and breathlessness.

A study conducted by the Indian Study on Epidemiology of Asthma, Respiratory Symptoms and Chronic Bronchitis (INSEARCH) found that the rate of men being affected by COPD is around 60% higher compared to women. Smoking, including passive smoking and persistent exposure to pollutants increases the risk of becoming a victim to the disease. The national figures related to the disease are alarming too. A study by an advisory panel headed by Dr GC Khilnani from AIIMS, which also included Dr VK Vijayan from the Vallabhai Patel Chest Institute and Dr NS Murthy from MS Ramaiah Medical College in Bangalore, revealed that 67.70 lakh men and 41.79 lakh women suffer from acute chronic bronchitis.

"COPD is the most prevalent disease at present. If it is not diagnosed at an early stage, it can lead to respiratory disability and death in extreme cases," said Dr Sanjeev Mehta, governor of American Council of Chest Physicians in India and chest physician at Lilavati hospital. He also warned that late detection can leverage the cost of treatment – higher than diabetes and other heart diseases. A patient experiences breathlessness after activities like walking or climbing the stairs. A CT scan and pulmonary function test are useful tools for diagnosing lung fibrosis", said Dr. Pradeep Parikh, a surgeon with Breach Candy hospital.

With unexpected rains earlier this week and dropping mercury levels, several Mumbaikars, especially men, are being treated for COPD. Medical experts predict the number of people suffering from COPD will shoot up by 50% annually in the coming years", as quoted by DNA a Mumbai based Newspaper. The pooled prevalence of chronic bronchitis across the twelve centers surveyed by INSEARCH was found 3.49% (4.07% in rural and 2.50% in urban areas). However, female gender and medium or high socioeconomic status was associated with reduced odds of chronic bronchitis.

Causes

Acute bronchitis is normally caused by lung infections of which a major portion i.e. 90% is contributed by virals and repeated attacks of which weaken and irritate bronchial airway over time resulting in chronic bronchitis. Commonly associated with advancing age, smoking, household environmental tobacco smoke exposure, asthma in first degree relative, use of unclean cooking fuels which increases odds of asthma and CB and industrial pollution is another culprit.

Chronic bronchitis is found in higher-than-normal rates among grain handlers, metal molders and the other population in continuous contact with dust and fumes. But the major cause is heavy, long term cigarette smoking, which irritates the bronchial tubes causing them to produce excess mucous. The symptoms are worsened by high concentration of sulfur dioxide and other pollutants.

Symptoms

The hallmark symptoms of chronic bronchitis are:

- Chronic cough
- Mucus production
- Shortness of breath.

Pathophysiology

Cells that line the airways in the lungs normally produce mucus as part of the body's defense mechanism against bacteria, viruses, and other foreign particles. The mucus traps these particles, and tiny hair-like projections in the airways (called cilia) sweep the dirty mucus up and out of the lungs. Mucous metaplasia, a process in which mucus is overproduced in response to inflammatory signals, is the pathologic foundation for CB. In chronic bronchitis, more mucus than normal is constantly produced. This causes a build-up of excess mucus that the cilia are unable to clear from the lungs alongwith distal airway occlusion and ineffective cough, secondary to respiratory muscle weakness and reduced peak expiratory flow. Exacerbating this is the fact that the cilia become dysfunctional and are less efficient at expelling mucus from the lungs. The build-up of mucus narrows the airways and provides havens for bacteria to thrive leading to more frequent and serious lung infections, and even more mucus production.

It has numerous clinical consequences including an accelerated decline in lung functions, greater risk of development of airflow obstruction in smokers, a predisposition to lower respiratory tract infection, higher exacerbation frequency and worse overall mortality. Also, it's now become apparent that in classic COPD spectrum with emphysema on one of the ends and CB on other most patients lie in between. It is known that many patients with severe emphysema can develop CB and small airway pathology hs been linked to worse clinical outcomes, such as increased mortality and lesser improvement in lung function after lung volume reduction surgery.

Treatment requirements

- Reduce overproduction of mucus;
- Decrease mucus hypersecretion by controlling inflammation;
- Facilitate the elimination of mucus by increasing ciliary transport, reducing mucus tenacity and increasing shear stress to augment mucus detachment.

Haridra

Haridra is a commonly found household item in most Indian houses and is largely known for its medicinal use. It has greatly been studied by the acharyas and its properties have been discussed in most samhitas and nighantus.

Haridra is known to be katu and tikta rasatmaka, ruksha guna, sheeta and ushna veeryatmaka depending upon the form being used and is katuvipaki.

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It has been described in many nighantus as

Sr.No	*Nighantu*	Properties
1	*Dhanvantari Nighantu*	*Vishaghna,Kushthaghna,Kandughna,Pramehahar, Vrana,Varnya,Balya,Krimighna,Pinasahar,Aruchihar*
2	*Bhavaprakash Nighantu*	*Kaphanashan,Pittanashan,Varnya,Twakdoshahar,Pramehanashan,Raktadoshanashak,Shothahar,Panduhar,Vranaropan*
3	*Madanpala*	*Kaphanashan,Pittanashan,Varnya,Twakdoshahar,Pramehanashan,Raktadoshanashak,Shothahar,Panduhar,Vranaropan*

4	*Raja Nighantu*	*Kaphanashan,Pittanashan,Varnya,Twakdoshahar,Pramehanashan,Raktadoshanashak,Shothahar,Panduhar,Vranaropan Vishaghna,Kushthaghna,Kandughna,Pramehahar, Vrana,Varnya,Balya,Krimighna,Pinasahar,Aruchihar*
6	*Kaiyadev Nighantu*	*Kaphanashan,Pittanashan,Varnya,Twakdoshahar,Pramehanashan,Raktadoshanashak,Shothahar,Panduhar,Vranaropan And Apachihar*

Haridra owing to its tikta rasa, ushna veerya and ruksha guna acts as kaphaghana and therefore it is used in churna form with madha and is effective in treatment for pratishyaya (rhinitis), kasa (cough) and shwas (breathlessness) etc.

Mechanism of haridra in breaking pathophysiology of Bronchitis

Foreign particle, Bacteria's or viruses gain access to airway

↓

Inflammation to airway

↓

Mucous secreted by cells lining the airway increases to trap the foreign bodies

[Mucous metaplasia]

↓

Continuous mucous production because of constant irritation

[Increased mucous production] ← **Lekhan karma : Tikta ras, Katu vipaka, ruksha and ushna guna**

↓

Built up of excess mucous that normal cilia present in airway are not able to clear out

Ineffective cough "expectoration"

[Chronic cough] ← **Kleda shoshan : Tikta ras, Katu vipaka, ruksha and ushna guna**

↓

Distal airway occlusion

↓

Respiratory muscle weakness and thus reduced peak expiratory flow

[Shortness of breath]

↓

Breathlessness

↓

Chronic bronchitis

Thus as evident from above flow chart it can be said that by Tikta ras, Katu vipaka, ruksha and ushna guna the haridra does the lekhan karma i.e it acts as mucolytic and in eliminatrion of the excess of mucous that is

produced and also by Tikta ras, Katu vipaka, ruksha and ushna guna the haridra performs kleda shoshan karma and dushta drava shoshsan hereby it justifies it's anti inflammatory and anti allergic property

In modern science also the haridra is appreciated for the above properties and they are termed as anti-Inflammatory activity, anti allergic and anti histamine activity, anti bacterial and anti oxidant properties of haridra (Curcuma longa).

Anti-Inflammatory Activity

Inflammation is known to play a major role in the development of most diseases including pulmonary diseases, cardiovascular disease, neurological diseases, autoimmune diseases, arthritis, diabetes and cancer. The essential oil, containing ar-termerone, as a major component is known to possess anti-inflammatory activity. Ar-termerone is anti-mutagenic in nature and anti-platelet activator. It potentiates antioxidant activity of curcuminoids.

A large number of studies on curcumin (principle chemical substance found in haridra) have been conducted. These included studies on the antioxidant, anti-inflammatory, antiviral, and antifungal properties of curcuminoids. Studies on the toxicity and anti-inflammatory properties of curcumin have included *in vitro*, animal, and human studies. A phase 1 human trial with 25 subjects using up to 8000 mg of curcumin per day for 3 months found no toxicity from curcumin. Five other human trials using 1125-2500 mg of curcumin per day have also found it to be safe. These human studies have found some evidence of anti-inflammatory activity of curcumin. The laboratory studies have identified a number of different molecules involved in inflammation that are inhibited by curcumin including phospholipase, lipooxygenase, cyclooxygenase 2, leukotrienes, thromboxane, prostaglandins, nitric oxide, collagenase, elastase, hyaluronidase, monocyte chemoattractant protein-1 (MCP-1), interferon-inducible protein, tumor necrosis factor (TNF), and interleukin-12 (IL-12).

Anti allergic and anti oxidant activity

The anti-allergic and anti-oxidative activities of curcumin-related compounds (glycosides etc) have been investigated to study the underlying active mechanisms and structural features of curcumin in presenting these activities. Curcumin and tetrahydrocurcumin (THC) cause a marked decrease in histamine release as observed in a study. Glycosides of curcumin, *bis*-demethoxycurcumin and THC also inhibited the release of histamine, though less potently than curcumin did. The anti-oxidative activities were assessed by measurement of cell-free or cellular radical scavenging. All compounds but diglycosides or *bis*-demethoxycurcumin analogs distinctly exerted anti-oxidative effects. The relationship between both of these activities revealed that all compounds with potent radical scavenging activities caused a definite decrease in histamine release, but some compounds with non-potent radical scavenging activities also inhibited the histamine release.

CONCLUSION:

- From the above discussion, it is clear that haridra by tikta rasa, ushna veerya and ruksha guna acts as kaphaghana.
- It has kaphanashan, shothahar, krimighana, lekhan and balya properties which are key requirements in treatment of bronchitis, because of mucous overproduction, inflammation, chances of infection, breathlessness and weak respiratory muscle (due to chronicity of the disease).

REFERENCES:

1. Shri. Sudrashan.Sastri; Madhav Nidana of Madhavkara Vidyotini teeka, Reprint edition 2004, Varanasi: Chaukhamba Sanskrit santhan, (Vol II); 153.

2. Dr. Kashinath Pandey, Charaka Samhita vidyotini teeka, Reprint 7th edition 2005,

Varanasi: Chaukhamba Sanskrit santhan, (Vol I); 587.

3. Harsh Mohan textbook of pathology, Published by Jaypee brother's Publications, New Delhi. 4th edition-2002.

4. N SJL. Dravyaguna Vigyan. In. Varanasi: Chaukhamba Orientalia; 2005. p. 513-514.

5. Sharma PV, editor. Dhanvantari Nighantu. In. Varanasi: Chaukhambha Orientalia; 1982. p. 25-26.

6. Chunekar KC. Bhavaprakasha Nighantu of Shree Bhavamishra. In Pandey GS, editor.. Varanasi: Chaukhamba Bharti Academy; 2010. p. 111-112.

7. Nrupamadanpal. Madanpal Nighantu. 1st ed. Upadhayaya R, editor. Mumbai: Khemaraj Shrikrishnadas Prakashana; 1990.

8. Narhari P. Rajanighantu. 1st ed. Tripathi i, editor. Varanasi: Krishnadas Academy; 1982.

9. Kaiyadeva. Kaiyadeva Nighantu(Pathyapathyavibodhakah). 1st ed. Sharma PV, Sharma GP, editors. Delhi: Chaukhambha Orientalia; 1979.

10. Zankhana M Buch, Jayashree Joshi, Ashok Amonkar, Ashok B Vaidya, Interventional role of Haridra (*Curcuma longa* Linn) in cancer, Clinical cancer investigation journal, Year : 2012, Volume: 1, Issue : 2, Page : 45-50.

11. Victor Kim and Gerard J. Criner "Chronic Bronchitis and Chronic Obstructive Pulmonary Disease", American Journal of Respiratory and Critical Care Medicine, Vol. 187, No. 3 (2013), pp. 228-237.

12. Kharat Ravindra Sahebrao1, Lad Meenal Deepak, REVIEW OF PHARMACOLOGICAL ACTIVITIES OF *HARIDRA* (*CURCUMA LONGA L.*), World Journal of Pharmaceutical Research, Volume 3, Issue 6, 412-423. Review Article ISSN 2277 – 7105

13. Jindal SK, Aggarwal AN, Gupta D, Agarwal R, Kumar R, Kaur T, Chaudhry K, Shah B, Indian study on epidemiology of asthma, respiratory symptoms and chronic bronchitis in adults (INSEARCH), Int J Tuberc Lung Dis. 2012 Sep;16(9):1270-7.