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Herbal Remedies for Asthma –A Review

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Abstract

Aim: To conduct a review about the herbal remedies which are available and that can reduce the severity of asthma.
Objective: To determine the availability of ayurvedic herbs and their effectiveness in treating asthma and their safety profile.
Background: Asthma – a chronic condition that causes inflammation and narrowing of bronchial tubes. If people with asthma are exposed to a substance to which they are sensitive or a situation that changes their regular breathing patterns , the symptoms can become more severe .Asthma symptoms affect 19 million adults and 7 million children . Although there is no cure for asthma, effective treatments are available. Prevention of symptoms is the best strategy.A person with athma should know what situation trigger an attack and avoid them whenever possible.
Conclusion: As a conclusion of this review we can say that there are many advantages for herbal medicine that can cure asthma.The studies have showed and prooved many herbs or traditional methods like CAM(complementary and alternative medicines have showed significant increase in effect of treating the asthma. Therefore it is necessary for all Clinicians to be aware of high prevalence of herbal and ayurvedic interventions available for asthmatics other than using contemporary methods which include the use of steroids and bronchodilators that will give adverse side effects.

Key words: ayurvedic herbs ,traditional Indian herbs, Anti-asthma Herbal Medicine Intervention (ASHMI),asthma.

INTRODUCTION

Asthma is a common chronic airway disorder characterized by period of air flow obstruction known as asthma attack(1).It is defined by history of respiratory symptoms, including wheezing, shortness of breath ,chest tightness, and coughing which vary over time and intensity which are accompanied by variable expiratory airflow limitation(2).Airway hyper reactivity (AHR) to a variety of stimuli is a characteristic feature of asthma. In atopic subject , exposure to relevant antigen trigger an intermediate early phase response (EPR)often followed by a late phase response(LPR).EPR is stimulated by mast cell degranulation and release of mediation such as histamine. LPR is associated with infiltration of eosinophils. Other cells like neutrophils, T cells and macrophages are also recruited during LPR.(3) Many patients with asthma use complementary and alternative medicine (CAM) to treat their condition and utilization of CAM is increasingly widespread in United States(4).For example ephedrine was developed from traditional Chinese remedy “ma huang” and tea leaves are the herbal origin of theophylline, caffeine related to theophylline has been used to centuries to treat asthma.(5)

Conventional treatment for allergic asthma include steroids, leukotriene antagonists, bronchodilators and most recent anti Ig E antibody. All these drugs are still with certain shortcoming such as side effects ,effectiveness and cost.It has become more important to develop novel therapeutic approaches for the treatment of allergic asthma. Complementary medical approaches such as Chinese herbal medication and accupunture have been suggested to play a role in immune regulation of disease(6).

Asthma affects people of all ages and the most common trigger is continuous exposure to allergens. Allergic asthma is characterized by increased mucus production, reversible airway obstruction, infiltration of eosinophils and nonspecific airway hyper responsiveness. The development of asthma is mediated by the over-expression of Th2-mediated or Th1-mediated cytokines, including interleukin (IL)-4, IL-5, IL-9 and IL-13. Current therapies have failed to control the symptoms of asthma completely and even intensive treatment found to be ineffective. Consequently, effort should be made to identify new remedies, preferably of natural origin, for mitigating this disorder (7).Our study focuses to bring out the herbal remedies existing for asthma patients.Conventional treatments like that of steroids , bronchodilators and anti-Ig E antibodies have certain shortcoming side effects and cost effectiveness is less .Therefore complementary methods such as Chinese,Japanese and Indian herbal medication and accupunture have been very much improved .But our study focuses only on Indian herbal treatments and ayurvedic herbs that are available for treating asthmatics

TRADITIONAL INDIAN HERBAL (AYURVEDIC) MEDICINE

Picrorrhiza kurroa (P kurroa) is a small herb with tuberous roots that is used in Ayurvedic medicine for the treatment of various conditions including lung diseases such as asthma and bronchitis.

In a randomised, crossover, double blind trial Doshi et al (8) used P kurroa to treat 72 patients aged 14–60 years suffering from bronchial asthma over a 14 week period.The main outcome parameters were lung function tests including FEV1 and daily diary symptom scores. There was no significant change in any of the parameters measured.(8)

S xanthocarpum and S trilobatum as a powder of the whole dried plant or decoction are widely used to treat respiratory disorders by practitioners of the Sidda system of medicine in Southern India.

Sixty adult patients with bronchial asthma were randomised in a four-arm study(9). Lung function tests were performed before and two hours after drug administration. FEV1 was significantly increased above baseline levels in all groups ($p<0.01$). S xanthocarpum and S trilobatum increased FEV1 by 65% and 67%,respectively,at two hours but this effect was less than with conventional drugs.(9)

Boswellia serrata: The gum resin of B serrata is known in the Indian Ayurvedic system of medicine as Salai guggal and contains boswellic acids which have been shown to inhibit leukotriene biosynthesis(10).

In a six week, double blind, randomised clinical trial of 80 adult patients with bronchial asthma Gupta and co-workers compared the effect of B serrata gum resin with placebo (lactose)(11). The authors reported a significant increase in FEV1 in the B serrata group compared with placebo ($p<0.0001$).

Tylophora indica (T indica) is a plant indigenous to India and reputed to be able to provide relief to patients with bronchial asthma. ***Five randomised clinical trials*** have been published on the use of T indica in the treatment of asthmatic symptoms.(12-16) .

ANTI-ASTHMA HERBAL MEDICINE INTERVENTION (ASHMI).

Plant based medicine

A number of plant-based medicines have shown promising results in clinical studies of asthma such as Anti-asthma Herbal Medicine Intervention (ASHMI). ASHMI is a combination of 3 extracts;

Ling Zhi from ***Ganoderma lucidem***, Ku Shen from ***Sophora flavescentis*** and Gan Cao from ***Glycyrhhiza uralensis,*** which has shown potential for the treatment of asthma in both *in vitro* and *in vivo.*

Aleurites moluccana

Another plant-based medicine used for the treatment of asthma is ***Aleurites moluccana***, a native tree of Indonesia and India which has been used in traditional remedies not only for the treatment of asthma but for pain, fever and headaches .(17)

More recently, the anti-nociceptive effects of *A. molluccana* and its mechanical anti-hypersensitivity properties have been investigated. *A. mollucanna* has also been found to possess antiviral and antimicrobial properties demonstrating how the presence of multiple active compounds in plant extracts can have several benefits to patients. Due to this historical link between *A. mullucanna* and anti-nociceptive and anti-inflammatory therapies, *A. mullucanna* extracts have been used to produce analgesic and anti-inflammatory phytomedicines .The major focus of this work was on the wound healing effects of *A. mollucanna* extracts, although the use of this plant in traditional remedies for asthma suggests that there is a possibility for the active compounds of *A. mullucanna* to be adapted to produce a phytomedicine for asthma and its related symptoms.(17)

Nigella sativa

A plant native to South East Asia is known for its relaxant effect on smooth muscle tissue .In addition, Boskabady and colleagues have demonstrated that extracts and oils from *N. sativa* have inhibitory effects on histamine (H1) receptors ,stimulatory effects on β-adrenergic receptors and anti-tussive effects.(17)

Christopher et al study showed significant difference in measure of FEV, for Mai- Men-Dong – Tang,Boswellia and TJ-96-Saiboku -to, in PEFR for Boswellia and Pycngenol (French Maritime pine bark extract) in children, and FVC for Boswellia.

1.8 -cineol (eucalyptol) reported a significant reduction in oral steroid dose and a significant difference in number of patients tolerating a 5 mg reduction in steroids. Improvement in symptom or symptom scores against placebo were demonstrated in studies of 1.8 cineol (eucalyptol),ginger (dyspnea,wheeze and chest tightness), pulmoflex (patients experiencing a deterioration)pycnogenol in children but not in adults and Liu- Wi-Di – Huang – Wan and Shen- Ling – Bai – Shu- San .There were higher rates of >50% improvement in placebo sign scores for Tylophora indica compared with placebo after one week and 12 weeks reported by one study(18).

Triterpenoids and polysaccharide portion for treatment of allergic disease.

M-L Chen et al have identified both triterpenoids and polysaccharide portion for treatment of allergic disease.The results showed that **triterpenoids portions of Ganoderma tsugae** exerted anti-inflammatory activity and polysaccharide portion had immune

stimulatory effect instead.This study by M-L Chen also identified ethanol extract of **Perila Fructescenes** which also exerted anti inflammatory activity and alleviated allergic airway inflammation.(19)

Tianjiu therapy in Sanfu days

L.Zhu et al studied the effect of Tianjiu therapy in snafu days for treatment of asthmatic children. Tianjiu Therapy in Sanfu Days is a classic prevention treatment for asthma (21). Sanfu Days means the three hottest days in a year which are calculated by ancient calendar. Both Positive-qi in human body and nature are in a most exuberant status in Sanfu Days, so Sanfu Days is a good time for cold-insufficiency patients to tonic Positive-qi. As a result, patients can have a strong body-resistance to against exogenous pathogen because they have already accumulative enough Positive-qi inside. Tianjiu Therapy means applying herbs patches on special acupoints in order to stimulate skin to form blisters, hyperemia, and even suppuration. Sanfu Tianjiu Therapy for asthma aims to improve the body immunity which in turn can get a purpose of preventing and reducing respiratory viral or bacterial infection, reducing airway inflammation injury, and reducing airway hyperresponsiveness which in turn reduces the times of asthma attacks (20).The results suggested that Tianjiu therapy could decrease the asthma attack .However the symptoms of allergic asthma did not show significant improvement after treatment .Therefore more studies are required for application of Tianjiu therapy for application of Tianjiu therapy for the treatment of allergic asthma in future.(21)

CONCLUSION

As a conclusion of this review we can say that there are many advantages for herbal medicine that can cure asthma.The studies have showed and prooved many herbs or traditional methods like CAM(complementary and alternative medicines have showed significant increase in effect of treating the asthma. Therefore it is necessary for all Clinicians to be aware of high prevalence of herbal and ayurvedic interventions available for asthmatics other than using contemporary methods which include the use of steroids and bronchodilators that will give adverse side effects.

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