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A review: Bronchial asthma in pediatric age group and its homoeopathic management

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Abstract
In India and around the globe, asthma is one of the most prevalent chronic childhood disorders and a major public health concern. It is most common in children aged 6-7, next in children aged 12- 13, and finally in children aged 14-16. The frequency was considerably higher among individuals with a family history of asthma, smoking habits, and where there was lack of smoke outlet in the house. By using identical homoeopathic treatments, it has shown higher overall results as compared to conventional treatment for bronchial asthma in treating acute episodes as well as intensity and frequency of recurrences. There are many medications which are documented in Homoeopathic literature that are based on disease pathology. This review article addresses different Homoeopathic remedies for bronchial asthma.

Keywords: Bronchial asthma, children, homoeopathy

Introduction
Asthma is a condition that has been around since the ancient Egyptians. However, it affects the global population in both developed and developing countries. Hippocrates identified it as a respiratory ailment from 450 BC and named it after the Greek word for "panting [1]."
Both children and adults are affected by this worldwide illness. Since ancient times, several explanations about the causal elements have been proposed In the onset and development of the disease, factors from the physical, psychological, and environmental domains all play a role. The environmental pollution generated by industrialization in India's metropolitan regions and large cities has resulted in a significant increase in childhood bronchial asthma. It was originally considered one of the "holy seven" psychosomatic illnesses [1].
Conventional therapeutic approaches such as the use of chloroform liniment, epinephrine, corticosteroids, and other medications, as well as preventive measures such as personal hygiene and air pollution reduction, have temporarily decreased the disease's impact in children. However, they did not guarantee permanent cure or long-term relief [6].
Homoeopathy can minimize the morbidity and death rate related to Asthma by having a better grasp of the physical, mental, and emotional elements of a patient and considering these variables particularly for an individual. Furthermore, when compared to conventional therapies in controlling both acute and chronic episodes of pediatric asthma, homoeopathy has been found to be successful through the use of identical constitutional remedies.

Bronchial asthma
Bronchial asthma is a chronic inflammatory condition induced by an overstimulated immune system, such as aeroallergens in the environment. This condition is described as bronchial hyperreactivity, reversible airway obstruction, and increased mucus production. In recent decades, bronchial asthma has risen to become the most common paediatric ailment. The most prevalent causes of asthmatic aggravation in children are allergy provocation such as exposure to house dust mites or pollen. Adult asthma, on the other hand, is mostly the result of internal causes.
Around 35% of preschoolers have asthma symptoms. Despite the fact that two-thirds of these children outgrow their symptoms by the time they reach adulthood, 16.67 percent of urban Indian children have asthma, according to studies childhood asthma is far less frequent in rural India [7].

Bronchial asthma is a clinical disease characterised by paroxysmal wheezing and dyspnea produced by increased resistance to airflow through the constricted bronchi. The alterations in the bronchial wall that diminish the size of the lumen are not well understood and may differ from case to case. However, clinical observations of asthma patients show that bronchial constriction varies in severity and is potentially reversible [11].

The two processes most likely to be concerned are

- Abnormally sustained contraction at the Bronchial musculature (bronchospasm)
- Oedematous swelling of bronchial mucosa.

Childhood Asthma

Asthma is one of the numerous chronic disorders that affect children. It is a chronic inflammatory condition of the lung airways that produces frequent airflow limitation. This persistent inflammation causes airway twitching, also known as 'airway hyperresponsiveness' in medical terminology. This happens with typical triggering factors that are not triggering for other people [13].

Epidemiology

Asthma is a frequent chronic condition that accounts for the majority of emergency room visits, hospitalizations, lost school days, and other occurrences [13]. Approximately 80% of all asthmatic patients indicate that the ailment began before the age of six. However, only a limited percentage of individuals experience chronic asthma in later childhood.

Risk factors for chronic asthma in childhood

1. Family history of asthma, risky if in 1st blood relatives(parents).
2. Allergy:

a. Allergic rhinitis
b. Food allergy
c. Inhalant allergen sensitization
d. Atopic dermatitis (Eczema)

3. Severe lower respiratory tract infection- pneumonia, bronchiolitis.
4. Low birthweight.
5. Tobacco smoke exposure
6. Wheezing apart from colds.
7. Formula feeds.
8. Male gender.

Etiology

In sensitized hosts, exposure to household allergens can cause hypersensitivity to various airway irritants, aggravate existing airway inflammation, and prolong asthma symptoms. Determining the allergen can aid in its total elimination, resulting in asthma management or even cure. Environmental allergens, as well as genetic susceptibility, contribute to the development of asthma.

Common respiratory viruses, including rhinoviruses, respiratory syncytial virus (RSV), influenza viruses, parainfluenza viruses, adenoviruses, and human metapneumovirus, can cause recurrent wheezing episodes in children. This suggests that the host trait influencing inflammation and the amount of airway damage in early childhood is vulnerability to recurrent wheeze. (13)

Bronchoconstriction can be caused by tobacco smoke, common air pollutants, particulate matter, dust, coal burning smoke or 'chulas' at home, farm and barn exposures in rural regions, cold, dry air, hyperventilation due to physical exertion or play, weeping or laughter, and strong fragrances [13, 14]. The environmental elements that cause the development of host susceptibilities to airway hypersensitivity to common airway exposures are yet unknown [14].

Types of childhood asthma

Based on the natural history of the disease, there are two forms of paediatric asthma. They are:

Transient non-atopic wheezing

a. Common in early childhood;
b. Usually resolves between preschool and elementary school, with no increased risk of asthma later in life [15].
c. Recurrent cough/wheeze caused mostly by respiratory viral infections (RSV).
d. Approximately 40% of these youngsters are atopic. The inflammatory response is mostly neutrophilic [15].
e. It happens as a result of maternal impact via genetic influences or the intrauterine surroundings.

Persistent atopy associated asthma

a. Starts in early preschool years.
b. Is associated with atopy in early childhood,

1. Clinical, e.g., atopic dermatitis in infancy, allergic rhinitis, food allergy.
2. Biologic, raised IgE levels, early allergen sensitization inhalant, increased blood eosinophils [12].

c. The inflammation is eosinophilic in nature [16].
d. 90% of them have a high chance of developing chronic asthma in later childhood & mostlly in adulthood [16, 13]. The influences might be parental.
e. Milder illness normally resolves on its own, sometimes completely ceasing in early adolescence.
f. School-age children with mild-moderate chronic asthma usually improve as teens, while some develop intermittent illness.
g. As children get older, their need for controller treatment decreases and, in many cases, disappears [13]. However, even at that period, homoeopathy can help reduce the need for inhaler therapy or its reliance, resulting in higher tolerance of previously ill elements.

Pathogenesis

Airflow in smaller airways is controlled by smooth muscles that line the walls of these airways. Bronchoconstriction of these smooth muscle bands induces airway restriction [13] because the bronchial smooth muscles thicken greatly due to hyperplasia and proliferation of smooth muscle fibres and goblet cells, causing in mucus hypersecretion [14].

Infiltrates and exudates formed by Eosinophils, as well as other inflammatory cell types such as, monocytes, neutrophils, lymphocytes, mast cells, and basophils, can fill and block the airways, causing desquamation and epithelial injury. Langerhans cells (LC), Dendritic cells (DC), macrophages, & monocytes can transmit allergens to T-cells, modulating inflammation by influencing the sort of T-cells that mature.

Atopic people respond to allergens by quickly increasing T-helper type 2 (Th2) cells, which create cytokines and enhance eosinophilia and IgE production. T-regulatory (Treg) cells, on the other hand, have the ability to dampen

effector T-cells, which may play a role in predisposing to allergy illness. Hypersensitivity or susceptibility to triggers after sensitization to numerous allergens can result in inflammation and, ultimately, airway remodeling [13, 14].

Airway remodeling

1. Even in asymptomatic atopic people, structural alterations in the airway walls are prevalent.
2. These alterations are referred to as airway remodeling, and they subsequently lead to asthma symptoms.
3. Patchy shedding of the stratified ciliated epithelium has long been recognized as a hallmark of asthma, with epithelial cells identified in the sputum of such individuals.
4. Under the epithelial basement membrane lies the lamina reticularis, which is thickened with collagen layers in asthmatics.
5. This subepithelial thickening is ubiquitous in asthma. Oedema and increased vascularity of the airway wall develop [14].

Bronchial hyper responsiveness (BHR)

1. BHR refers to the tendency of asthmatic sufferers' airways to constrict when exposed to certain chemical and physical stimuli.
2. Various stimuli, such as inhaled histamine or methacholine in the laboratory, exercise, or cold air in the outdoors, can be used to quantify the degree of BHR, after which FEV1 is measured.
3. The physical stimuli are more harder to titrate but likely replicate day-to-day problems more precisely.
4. When normal individuals are challenged with histamine, a small degree of bronchoconstriction occurs, but FEV1 values plateau before a 20% fall is achieved; however, in asthmatics, bronchoconstriction occurs at a much lower histamine concentration, and there is no plateau, so increasing histamine dose produces greater bronchoconstriction to a life-threatening level [14].

Clinical features

The most frequent chronic asthma symptoms are intermittent dry coughing and expiratory wheezing. Chest tightness, nocturnal cough, dyspnea and early morning symptoms are also common, lowering quality of life [17, 13]. Daytime symptoms associated with physical activity are frequently mentioned in youngsters, impairing their play with friends. The majority of paediatric clinical visits consist of the typical absence of unusual indications, implying the need of adequately eliciting medical history [17].

The common clinical features include the following

- Recurrent cough: 90% of the time, children come with recurrent cough. Coughing is more common at night or early in the morning, and is caused by physical or emotional stress.
- Depending on the severity of the asthma, retractions are a typical characteristic of airway blockage.
- Recurrent wheeze is a prominent feature of lower airway obstruction.
- Due to the overuse of the abdominal muscles that contract during expiration, abdominal ache seldom arises.
- Pain in chest occurs rarely.
- Post-tussive vomiting occurs in 5% of cases.
- There may also be other coexisting diseases such allergic rhinitis, sinusitis, serous otitis media, eczema, and conjunctivitis.

Criteria to diagnose persistent asthma

- Two exacerbations needing oral corticosteroids in children older than 5 years old within a year.
- Infants and preschool-aged kids with risk factors for asthma who had had 2 or more exacerbations in the previous six months that required systemic corticosteroids or 4 or more episodes of wheeze that lasted longer than a day and disrupted with sleep qualify as having persistent asthma [13].
- Increased nasal secretion.
- Swelling of Mucosa.
- Children with well controlled asthma who is not experiencing an acute exacerbation will probably need a full physical examination.
- Polyps in the nose, indicates the presence of allergic rhinitis.
- By skin examination, atopic dermatitis can be determined [17].

General advises as management strategies

This includes – Education, Environment control, Medication, Regular follow up [19].

Education: The pediatrician has to take the time to clarify any myths about the illness. In order to regulate an adolescent's surroundings, individual counselling is advised.

Environment: This is the most crucial aspect in the management of asthma. Avoiding irritants and allergies should be the goal: dust mites, steer clear of carpets, routinely wash soft toys, and damp clean the floor.

Medication: Timely detection of asthma and administration of medications.

Regular follow up: The control of asthma must be evaluated on a regular basis utilising parameters. Always inspire positivity, self-assurance, and athletic participation. encouraging parents of asthmatic kids not to limit their physical activity out of concern for an asthma attack [21].

Prognosis: In India, there are no published research with long-term follow-up. By the time a child is five years old and their immune system has developed to adult levels, viral infection-related asthma tends to outgrow. 35% of preschoolers experience recurrent coughing and wheezing. Of them, one-third develops chronic asthma into later childhood, while the other two thirds gradually get well on their own into the adolescent years. When asthma is severe between the ages of 7 and 10, it is possible to predict whether it will continue into adulthood.

Prevention: Preventing allergy sensitization is the main method of prevention. According to the "hygiene theory," early exposure to naturally occurring microbes may prevent allergic sensitivity, persistent airway inflammation, and remodelling. These results might lead to novel asthma preventive methods if these natural microbial exposures

genuinely protect against asthma without having major negative health effects.

Homoeopathic management

Reportorial Rubrics for dental caries in Synthesis 8.1V repertory in RADAR 10.0.028 version

1. Respiration- Asthmatic, air
2. Respiration- Asthmatic, allergic
3. Respiration- Asthmatic, children
4. Respiration- Asthmatic, children, infant, in
5. Respiration- Asthmatic, children, vaccination, after
6. Respiration- Asthmatic, chronic
7. Respiration- Asthmatic, constriction, larynx, of
8. Respiration- Asthmatic, dampness, from
9. Respiration- Asthmatic, dust, from inspiration of
10. Respiration- Asthmatic, exertion from slight
11. Respiration -Asthmatic, flower, from
12. Respiration -Asthmatic, fright, from
13. Respiration – Asthmatic, head on knee position
14. Respiration- Asthmatic, humid
15. Respiration- Asthmatic, hysterical
16. Respiration- Asthmatic, intermittent fever, with
17. Respiration- Asthmatic, night
18. Respiration -Asthmatic, obstruction, from nasal
19. Respiration- Asthmatic, periodical
20. Respiration- Asthmatic, sudden attacks
21. Respiration- Asthmatic, summer, in
22. Respiration -Asthmatic, thunderstorm, during
23. Respiration- Asthmatic, tuberculosis family history
24. Respiration- Asthmatic, weather, change, of
25. Respiration - Asthmatic, winter

Homoeopathic therapeutics

Arsenicum album

- Breathing asthmatic, must bend forward or sit, comes out of bed at night, especially after 12 o' clock.
- Unable to lie down due to fear of suffocation, air passages are constricted.
- Burning in chest, suffocative catarrh. Wheezing Respiration present.
- Darting pain through upper third of right lung. Cough is dry.
- Cough worse after midnight, lying on back, from cold, cold food & drinks and better from heat, warm drinks [22, 23].

Natrum sulphuricum

- It is known for asthma in children as constitutional remedy. Every fresh cold cause attack of asthma.
- Dyspnea, during damp weather. Must hold chest when coughing.
- Known for humid asthma in children, with every change to wet weather. There is rattling in chest at 4 and 5 a.m.
- Cough, with thick greenish expectoration, there is all gone sensation in chest [23, 22].

Spongia tosta

- Great dryness of all air- passages. Bronchial catarrh with wheezing, asthmatic cough, worse on exposure to cold air, lying with head low and in hot room.
- Cough is dry, barking, croupy and larynx sensitive to touch.
- Respiration short, difficult, panting and feeling of a plug in larynx.
- Cough abates after eating or drinking, especially warm drinks [23].

Antimonium tartaricum

- Great rattling of mucus, but very little is expectorated.
- Rapid, difficult, short breathing, as if the patient will suffocate so must sit up.
- Cough excited by eating and with pain in chest and larynx.
- Cough and dyspnea better by lying on right side [23].

Blatta orientalis

- Asthma along with labored breathing with obstructive cough.
- Asthma associated with bronchitis. Cough with dyspnea. Acts especially in corpulent and stout persons.
- Pus like mucus present [23].

Ipecac uanha

- Cough which is dry constricted, spasmodic, asthmatic. Difficulty breathing from least exercise.
- Violent dyspnea with wheezing and anxiety about the stomach.
- Whooping cough in which child loses breath, becomes stiff, turns pale and blue, with gagging and vomiting of mucus [22, 23].

Calcarea silicata

- Difficult Respiration. There is chronic irritation of air passages.
- Copious, yellow green mucus. Cough with coldness, weakness, sensitiveness.
- Worse from cold air and there is pain in chest wall [22].

Calcarea carbonica

- Cough tickling in nature which is increased during night, free and dry expectoration in morning.
- Extreme dyspnea present.
- Expectoration only during day, yellow, thick, sour mucus.
- Worse from physical or mental exertion, ascending, wet weather, during full moon. Better by dry climate [22].

Bryonia alba

- Difficult, quick Respiration which is worse in every movement, caused by stitches in chest.
- Tough mucus which is loosened with much hawking.
- Worse in warm room, excites cough [22].

Hepar sulphur

- Cough starts whenever any part of the body is uncovered or cold or from eating anything cold.
- Rattling, croaking cough attacks are suffocative in nature, the person has to rise up and bend backwards.
- Anxious, wheezing, moist breathing, asthma worse in dry cold air and better in damp [22].

Conclusion

Homoeopathy has a better understanding of the factors that cause asthma, which lowers the incidence of morbidity and mortality**.** By using identical Homoeopathic constitutional medicines, it helps in treating acute episodes as well as the severity and frequency of recurrences of bronchial asthma.

Conflict of Interest
Not available

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