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# An Exploratory Study of Bronchial Asthma (*Zeeq un nafs)* in the light of Unani & Modern system of Medicine- A Review Article

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**Abstract:** Asthma is a common disease worldwide with significant ethnic and regional variations. Asthma is known by various terms as *Zeeq un nafs, ribw, boḥr* and *dama* in Unani system of medicine. It is a chronic inflammatory paroxysmal disease characterized by spastic contraction of smooth muscles in bronchioles, which can cause extreme difficulty in breathing. An increasing morbidity and mortality, as well as health care burden from asthma have been recognized lately. Several evidence-based guidelines have been developed with an aim to standardize and improve the quality of management. These guidelines seek to translate the advances in the understanding of pathogenesis of asthma and in the development of new agents and strategies into practical application at all levels of healthcare. These advocate an assessment of the patients to classify the severity of diseases followed by a stepwise approach to treatment. With the current management we hope to achieve minimum or nil day time and night time symptoms, prevent acute exacerbations and attain normal or near normal lung function, thus improving the overall quality of life. The results are attributed to the herbal drugs which not only provide symptom relief but also correct the airway hyper-responsiveness and correct the histopathological changes induced by asthma.

**Keywords**: Asthma, Etiologies, Prevention and managements, Herbal drugs and treatment

## I. Asthma History & Background in early civilization

Asthma has a long history of evolution before it was categorically defined. The earliest mention of respiratory distress and wheezing (the occurrence of a whistling sound while breathing) has been found in 2600 BC in China. Herbal fumes and extracts have been used for many centuries to alleviate the symptoms, though the underlying mechanisms and pathways were not known. The contemporary "Georg Ebers papyrus" found in Egypt indicated more than 700 remedies for airway discomfort. Later, in 1792 BC, the "Code of Hammurabi" was created. It documented the symptoms of breathlessness in a group of individuals in Babylon. While contributing to a range of explanations put forward to describe the condition, Hippocrates coined the term "Asthma". This Greek term means respiratory distress and panting. Hippocrates correlated the occurrence of asthma with environmental triggers. In 327 BC, during the era when Alexander the Great was extending his invasions to India, the smoke of stramonium (a herb with anticholinergic effects) was used for relaxing the lungs. During the Roman era, physicians correlated symptoms such as the inability to breathe without making noise and gasping with asthma. They also described the worsening of these symptoms with physical activity.

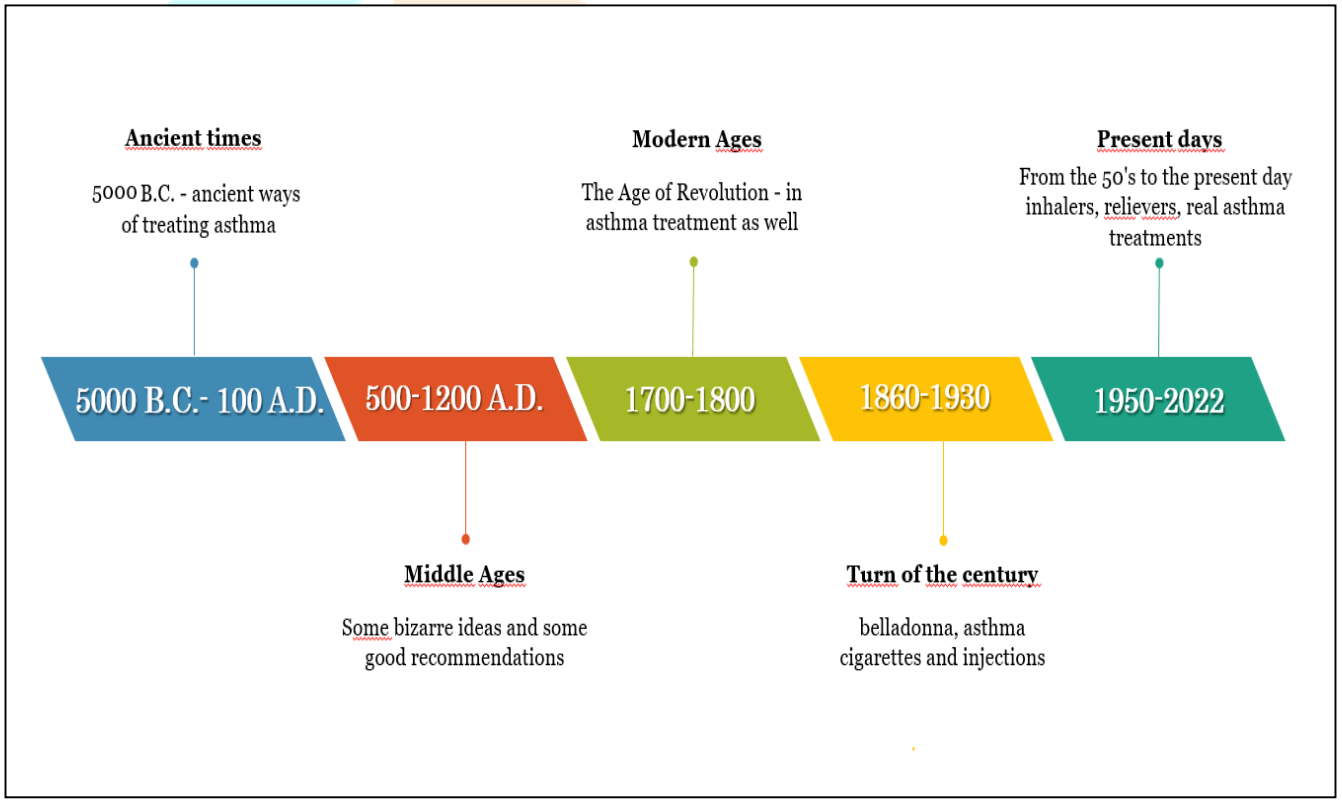


**Fig. 01 History of Asthma since Ancient Era**

### A. Asthma history: AD

In 50 AD, Pliny the Elder reported that pollen was one source of breathing difficulty. The extract of ephedra was recommended, along with wine, to ease the discomfort. In 100 AD, a Greek physician, Aretaeus of Cappadocia, listed the symptoms of asthma, including cough, difficulty in breathing, tiredness, and heaviness in the chest. He also mentioned that the frequency of coughing increased as the condition worsened, and vice versa; and he observed that even though asthma might not be fatal, the patients lived under its constant shadow. In 129 AD, a Roman Physician, Claudius Galen, based on his thorough research into human

anatomy, suggested that the respiratory rate could be controlled manually as breathing was a function of muscular contraction. During 200-500 AD, the Jewish Talmud advocated the use of "hiltith", a resin found in vegetables of the carrot family, for treatment of asthma symptoms. Another Jewish scholar, Maimonides advised intake of fluid and chicken soup, good personal hygiene, and sleep based on his observations around 1200 AD.

**B. Asthma history: the medieval era**

In the Middle Ages, the knowledge of asthma and its treatments started to move forward bit by bit. Europeans started using tobacco as an expectorant to aid the removal of mucus around 1500 AD. A Belgian researcher, Jean Baptiste Van Helmont in around 1700 AD, mentioned that asthma began in "the pipes of the lungs". Bernardino Ramazzini was the first to discover a relationship between asthma and dust, and identified "exercise-induced asthma". The Aztecs used ephedra for mucus clearance in Central America. In South America, the Incas employed a cocaine-like dried leaf to treat asthma. Arsenic was recommended by a few physicians for the treatment of respiratory distress around 1800 AD.

**C. Asthma history: modern day**

A Canadian scientist, Sir William Osler, who is known as the "Father of modern medicine", reported in his epoch-making book "The Principles and Practice of Medicine", that asthma was a swelling of the bronchial membranes accompanied by spasm of the bronchial tubes, closely related to hay fever, often pediatric, and familial in nature. He recognized nervous stimulation as a cause of asthma attack. His research led to the idea that asthma was a psychosomatic disease. His choice of treatment approaches reflected his understanding of the nervous system triggers of asthma.

**D. Asthma in 1900s**

In the early 1900s asthma began to be treated with selective β2-adrenoceptor agonists. Belladonna alkaloids from plant source began to be utilized from 1905. Allergy immunotherapy was also introduced during the same period for treating this ailment. Francis Rackemann discovered that asthma could result from reasons other than allergy as well, and characterized allergic and non-allergic triggers of asthma in 1916. Küstner and Prausnitz identified IgE and its correlation with allergic reactions in asthmatics in 1921. Physicians started to prescribe aminophylline suppositories and tablets, and adrenaline injections for asthma in the 1940s and 1950s. Inhalation anti-cholinergics were used as rescue medications, while oral combinations became popular for long-term treatment in the 1960s. The invention of peak flow meters during the 1960s and 1970s was a technological leap aiding effective treatment. In the 1970s, extensive clinical research led to the use of inhaled corticosteroids for effective management of asthma. As the understanding of allergen exposure and the resultant release of chemical mediators which cause airway constriction and remodeling became clearer, around 1980, targeted treatment options were established, including the antileukotrienes, cromones, and anti-IgE therapies. After centuries of work, more promising options are being developed for asthma management with continued enhancement in the knowledge of cellular biochemistry.

**E. Asthma in Ancient Greek**

In Unani system of medicine asthma is known by various terms as *Zeeq un nafs, ribw, boḥr* and *dama.* According to Avicenna (980-1035 AD), asthma or *dama* is a disease of respiratory system specifically involving lungs and whole bronchial tree in which there is difficulty in breathing similar due to which patient takes short and rapid breaths as if he is being strangulated [6,7]. The term *Zeeq un nafs*, meaning difficulty in breathing is used in Unani medicine as a comprehensive term for all conditions which lead to asthmatic symptoms, which may be neurological, physical obstructions such as tumors, structural abnormalities of rib cage or *boḥrān* (stage of crisis) in febrile illnesses. While the terms *ribw, boḥr* and dama are used exclusively for asthma caused by pathology of lungs and airways [8]. Management should focus on use of drugs which dry and expel the humors causing the constriction and airway obstruction; along with symptomatic treatment. After necessary *tanqiya* (expulsion of morbid humors), exercises are prescribed to improve airway function. Constipation should be avoided and diet should be prescribed accordingly. Treatment may also be affected through *'ilāj bit tadbīr* (regimental therapy) such as *dalk* (massage), *ḥammām* (Turkish bath), *qay* (emesis) and *mus-hil* (laxative) drugs may be utilized as necessary for expulsion of humors[6,9].

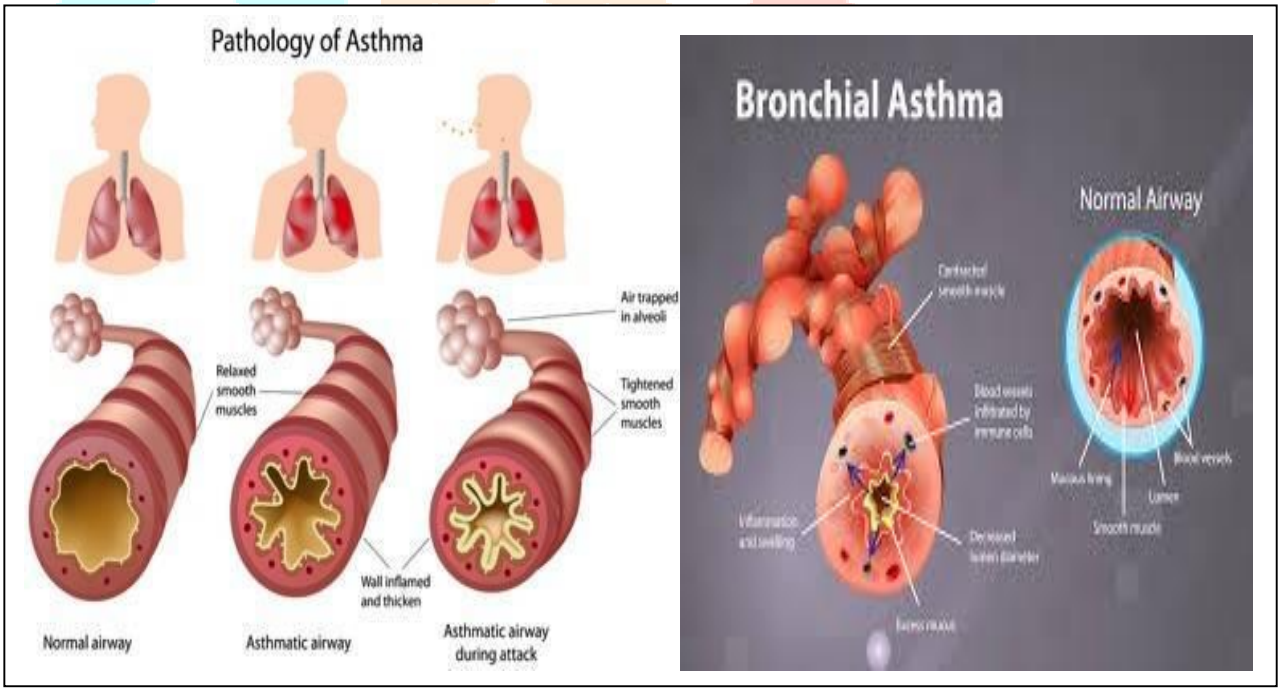


**Fig. 02 Pathology of Asthma**

## II. Introduction of Asthma

Asthma is a chronic inflammatory paroxysmal disease characterized by spastic contraction of smooth muscles in bronchioles, which can cause extreme difficulty in breathing. Hallmark of the disease are increased airway responsiveness, broncho-constriction, inflammation of bronchial walls and increased mucus secretion. Bronchial asthma clinically presents as paroxysmal dyspnoea, cough, chest tightness and breathlessness, especially at night. This disease is common in all the ages but more prevalent in the age group of 10 to 30 years. The leading etiopathology is contractile hypersensitivity (especially by plant pollen) [1]. Asthma prevalence has been increasing rapidly over the last few decades all over the world. Intriguingly,

statistics indicate that the prevalence is although high in developed countries, but is stabilized. While the prevalence in slightly lower in developing and under-developed countries, but is rapidly on the rise. This suggests the involvement of biological, environmental and social factors in its causation [2]. According to the Global Asthma Report 2018, about 6% of children and 2% of adults in India are known to be living with asthma, and this is just the tip of the ice-berg, as under-reporting is common in developing countries [3].

Bronchial asthma may be

- Type 1 (Extrinsic/ Atopic/ Allergic)
- Type II (Intrinsic/ nonatopic/ idiosyncratic)
- Mixed.

| | **Asthma** | **COPD** |
|---|---|---|
| Onset | Anytime | Mid to late adult life |
| Smoking | + | ++ |
| Cough and sputum | Less common | Common |
| Dyspnoea on exertion | Variable | Progressive |
| Nocturnal symptoms | Common | Uncommon |
| Airway obstruction | Diurnal variation | Little variation |
| Response to CS | Good | 15-20% |
| Nonspecific BHR | Majority of patients | Only in minority of patients |

The other types of Bronchial asthma are Drug induced asthma (a very rare condition but commonly induced by aspirin) and Occupational asthma. Extrinsic type of asthma can be described as the most common type of asthma, prevalent in young age (10 to 30 yrs), very common in the people having family history of asthma or any kind of past history of Rhinitis, Urticaria, or Infantile eczema. The main cause of extrinsic asthma is hypersensitivity reactions due to plant pollen grains, household dusts, allergens, animal danders, moulds etc. Inhaling any kind of above-mentioned allergens stimulates the production of IgE antibodies and they react with mast cells to release Histamine, slow reacting substances of anaphylaxis i.e. a mixture of leukotrienes, eosinophillic chemotactic factor, bradykinin, prostaglandins and platelet aggravating factors. The combined effects of all these factors are Localised oedema in the walls of small bronchioles, secretion of thick mucus into the bronchial lumen, spasm of bronchial smooth muscles and accumulation of eosinophills and neutrophills. These gives rise to symptoms like chest tightness, air hunger, difficulty in breathing and increased residual capacity. Diagnosis may be made by Spirometry, PEF (peak expiratory flowmeter), chest X-Ray and RAST (Radioallergosorbent test). Intrinsic type of asthma is more common in adults mostly associated with diseases like URTI (caused by viruses like Rhinoviruses), nasal polypi and chronic bronchitis.

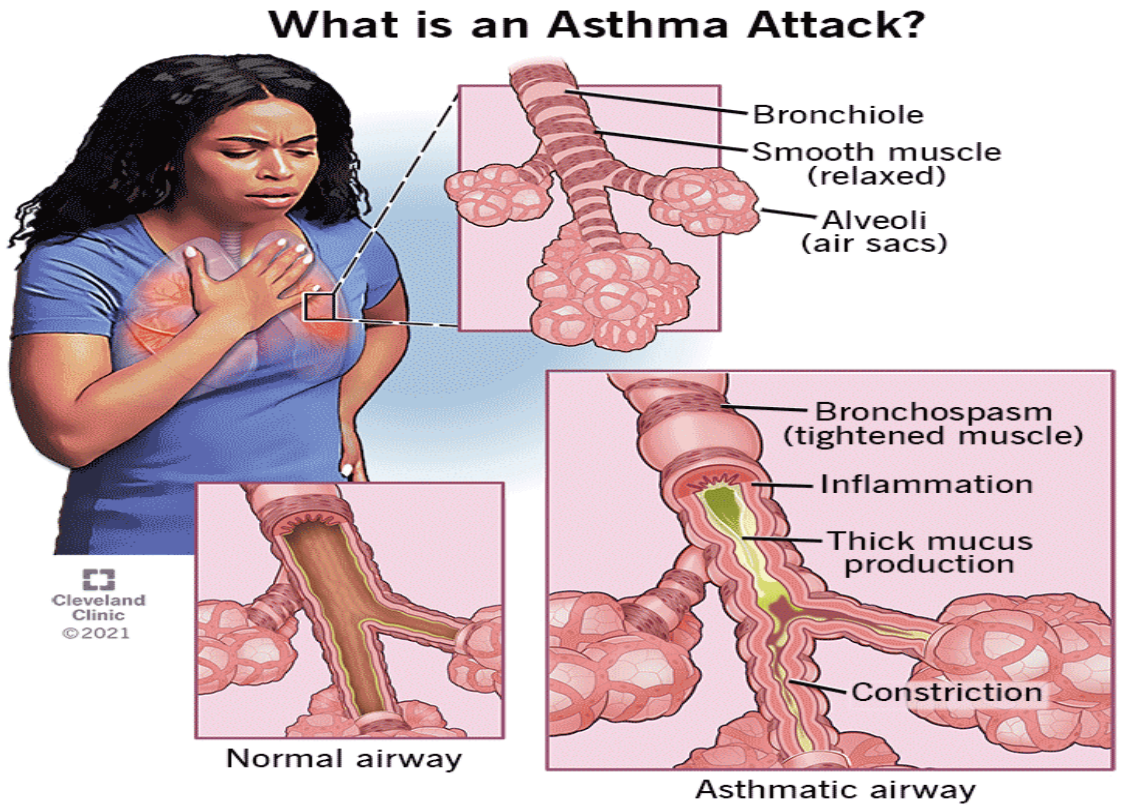


**Fig. 03 Attack of Asthma in female**

Patients suffering from Intrinsic type of asthma show negative past history or family history of allergy, show negative skin test and no raised level of IgE. Mixed type of asthma is that asthma in which physician is not able to categorized patient into any kind of asthma extrinsic or intrinsic as the patient is having mixed symptoms [4]. Pathologically, grossly oedematous and over distented bronchioles are characteristic of asthma. Microscopically, formation of twisted strips called as "Curschmann's spirals" and diamond shape crystals in the sputum known as "Charcot leyden crystals" are seen [5]. Conventional management of bronchial asthma rests on bronchodilation, mostly administered as inhalers; and steroid injections to reduce disease severity. However, the disease is usually considered life-long and difficult to treat [1].

## III. Types of asthma.

- **Allergic asthma**: when allergies trigger asthma symptoms
- **Cough-variant asthma**: when your only asthma symptom is a cough
- **Exercise-induced asthma**: when exercise triggers asthma symptoms
- **Occupational asthma**: when substances you breathe in at work cause you to develop asthma or trigger asthma attacks.

Asthma is a condition that causes your airways to swell, narrow and fill with mucus. This can make it hard to breathe or cause other symptoms, like chest tightness, cough and wheezing. Common asthma triggers include allergies (like pets or pollen), smoke, cold weather, exercise, strong smells and stress. Asthma attacks can be fatal if not treated.

Asthma triggers like allergies, cold, stress, smells or exercise cause your airways to tighten, swell and

fill with mucus. Asthma is a condition that causes long-term (chronic) inflammation in your airways. The inflammation makes them react to certain triggers, like pollen, exercise or cold air. During these attacks, your airways narrow (bronchospasm), swell up and fill with mucus. This makes it hard to breathe or causes you to cough or wheeze. Without treatment, these flare-ups can be fatal.

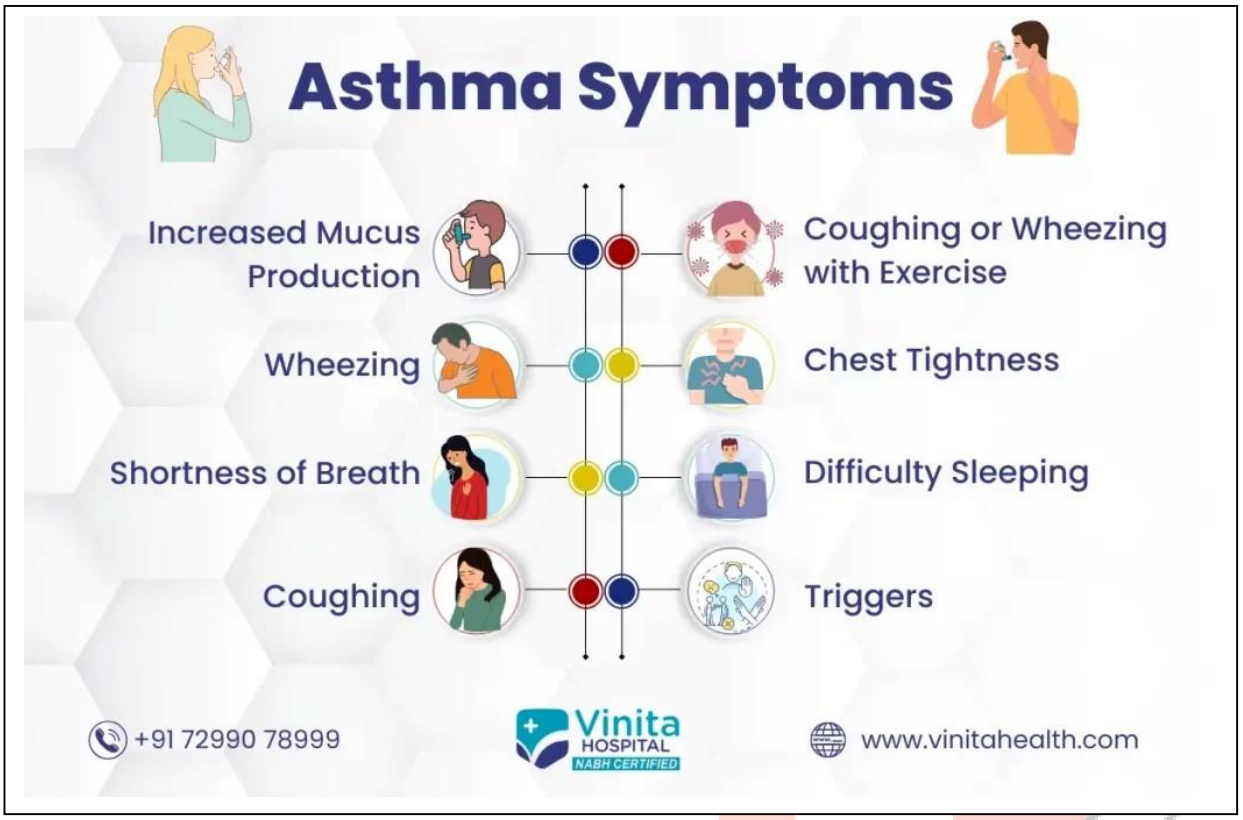


**Fig. 04 Sign and symptoms of Asthma**

## IV. Symptoms of Asthma

Asthma symptoms vary from person to person. You may have infrequent asthma attacks, have symptoms only at certain times such as when exercising or have symptoms all the time.

Asthma signs and symptoms include:

- Shortness of breath
- Chest tightness or pain
- Wheezing when exhaling, which is a common sign of asthma in children
- Trouble sleeping caused by shortness of breath, coughing or wheezing
- Coughing or wheezing attacks that are worsened by a respiratory virus, such as a cold or the flu

Signs that your asthma is probably worsening include:

- Asthma signs and symptoms that are more frequent and bothersome
- Increasing difficulty breathing, as measured with a device used to check how well your lungs are working (peak flow meter)
- The need to use a quick-relief inhaler more often

For some people, asthma signs and symptoms flare up in certain situations:

- **Exercise-induced asthma,** which may be worse when the air is cold and dry
- **Occupational asthma,** triggered by workplace irritants such as chemical fumes, gases or dust
- **Allergy-induced asthma,** triggered by airborne substances, such as pollen, mold spores, cockroach waste, or particles of skin and dried saliva shed by pets (pet dander)

## V. Diagnosis of Asthma

### A. Physical exam

Doctor will perform a physical exam to rule out other possible conditions, such as a respiratory infection or chronic obstructive pulmonary disease (COPD). Your doctor will also ask you questions about your signs and symptoms and about any other health problems. You may be given lung function tests to determine how much air moves in and out as you breathe. These tests may include:

- **Spirometry.** This test estimates the narrowing of your bronchial tubes by checking how much air you can exhale after a deep breath and how fast you can breathe out.
- **Peak flow.** A peak flow meter is a simple device that measures how hard you can breathe out. Lower than usual peak flow readings are a sign that your lungs may not be working as well and that your asthma may be getting worse. Your doctor will give you instructions on how to track and deal with low peak flow readings.

Lung function tests often are done before and after taking a medication to open your airways called a bronchodilator (brong-koh-DIE-lay-tur), such as albuterol. If your lung function improves with use of a bronchodilator, it's likely you have asthma.

### B. Additional tests

Other tests to diagnose asthma include:

- **Methacholine challenge.** Methacholine is a known asthma trigger. When inhaled, it will cause your airways to narrow slightly. If you react to the methacholine, you likely have asthma. This test may be used even if your initial lung function test is normal.
- **Imaging tests.** A chest X-ray can help identify any structural abnormalities or diseases (such as infection) that can cause or aggravate breathing problems.
- **Allergy testing.** Allergy tests can be performed by a skin test or blood test. They tell you if you're allergic to pets, dust, mold or pollen. If allergy triggers are identified, your doctor may recommend allergy shots.
- **Nitric oxide test.** This test measures the amount of the gas nitric oxide in your breath. When your airways are inflamed a sign of asthma you may have higher than normal nitric oxide levels. This test isn't widely available.
- **Sputum eosinophils.** This test looks for certain white blood cells (eosinophils) in the mixture of saliva and mucus (sputum) you discharge during coughing. Eosinophils are present when symptoms develop and become visible when stained with a rose-colored dye.

- **Provocative testing for exercise and cold-induced asthma.** In these tests, your doctor measures your airway obstruction before and after you perform vigorous physical activity or take several breaths of cold air.

### C. Asthma triggers

Exposure to various irritants and substances that trigger allergies (allergens) can trigger signs and symptoms of asthma. Asthma triggers are different from person to person and can include:

- Airborne allergens, such as pollen, dust mites, mold spores, pet dander or particles of cockroach waste
- Respiratory infections, such as the common cold
- Physical activity
- Cold air
- Air pollutants and irritants, such as smoke
- Certain medications, including beta blockers, aspirin, and nonsteroidal anti-inflammatory drugs, such as ibuprofen (Advil, Motrin IB, others) and naproxen sodium (Aleve)
- Strong emotions and stress
- Sulfites and preservatives added to some types of foods and beverages, including shrimp, dried fruit, processed potatoes, beer and wine
- Gastroesophageal reflux disease (GERD), a condition in which stomach acids back up into your throat

## VI. Risk factors of Asthma

A number of factors are thought to increase your chances of developing asthma. They include:

- Having a blood relative with asthma, such as a parent or sibling
- Having another allergic condition, such as atopic dermatitis — which causes red, itchy skin — or hay fever which causes a runny nose, congestion and itchy eyes
- Being overweight
- Being a smoker
- Exposure to secondhand smoke
- Exposure to exhaust fumes or other types of pollution

- Exposure to occupational triggers, such as chemicals used in farming, hairdressing and manufacturing

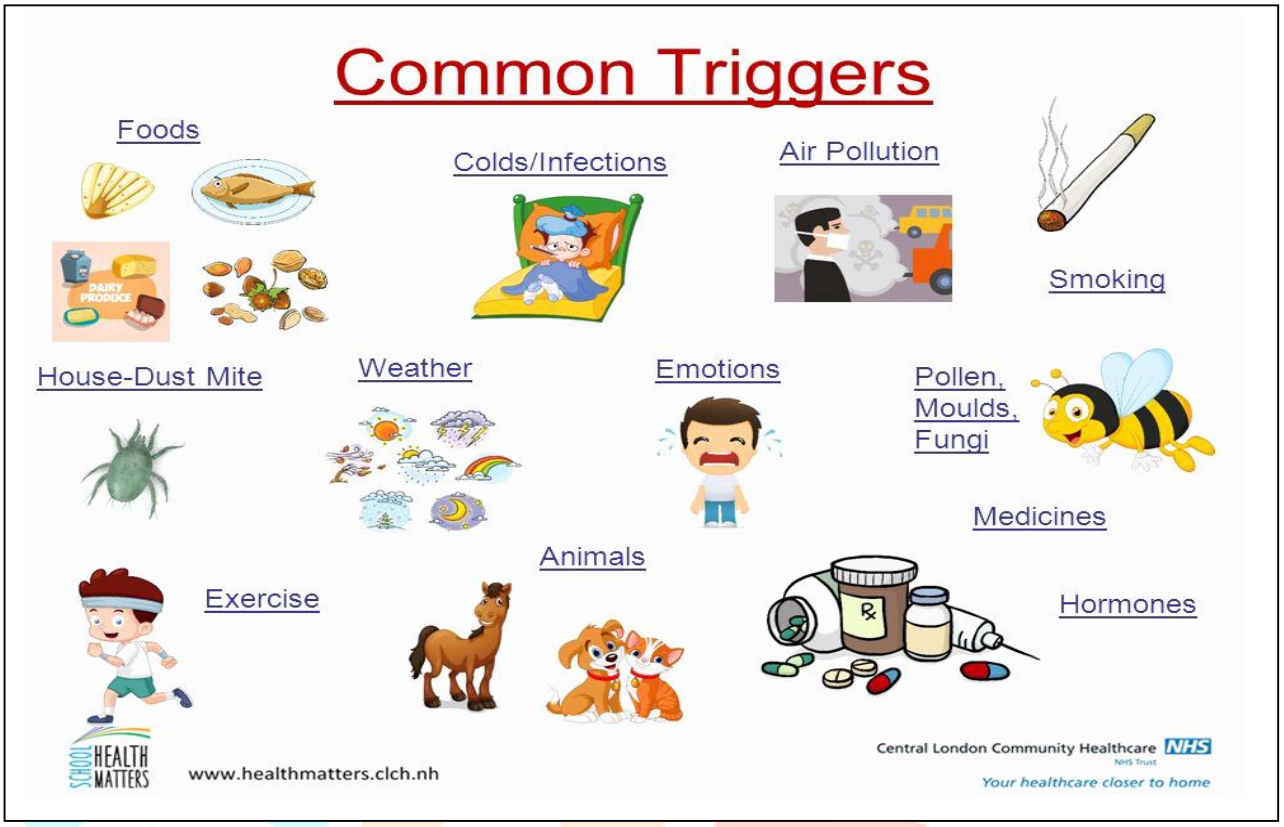


**Fig. 05 Common Trigger of Asthma**

## VII. Complications of Asthma

Asthma complications include:

- Signs and symptoms that interfere with sleep, work and other activities
- Sick days from work or school during asthma flare-ups
- A permanent narrowing of the tubes that carry air to and from your lungs (bronchial tubes), which affects how well you can breathe
- Emergency room visits and hospitalizations for severe asthma attacks
- Side effects from long-term use of some medications used to stabilize severe asthma

Proper treatment makes a big difference in preventing both short-term and long-term complications caused by asthma.

## VIII. Prevention of Asthma

While there's no way to prevent asthma, you and your doctor can design a step-by-step plan for living with your condition and preventing asthma attacks.

- **Follow your asthma action plan.** With your doctor and health care team, write a detailed plan for taking medications and managing an asthma attack. Then be sure to follow your plan. Asthma is an ongoing condition that needs regular monitoring and treatment. Taking control of your treatment can make you feel more in control of your life.
- **Get vaccinated for influenza and pneumonia.** Staying current with vaccinations can prevent flu and pneumonia from triggering asthma flare-ups.

- **Identify and avoid asthma triggers.** A number of outdoor allergens and irritants ranging from pollen and mold to cold air and air pollution can trigger asthma attacks. Find out what causes or worsens your asthma, and take steps to avoid those triggers.
- **Monitor your breathing.** You may learn to recognize warning signs of an impending attack, such as slight coughing, wheezing or shortness of breath.

But because your lung function may decrease before you notice any signs or symptoms, regularly measure and record your peak airflow with a home peak flow meter. A peak flow meter measures how hard you can breathe out. Your doctor can show you how to monitor your peak flow at home.

- **Identify and treat attacks early.** If you act quickly, you're less likely to have a severe attack. You also won't need as much medication to control your symptoms.

When your peak flow measurements decrease and alert you to an oncoming attack, take your medication as instructed. Also, immediately stop any activity that may have triggered the attack. If your symptoms don't improve, get medical help as directed in your action plan.

- **Take your medication as prescribed.** Don't change your medications without first talking to your doctor, even if your asthma seems to be improving. It's a good idea to bring your medications with you to each doctor visit. Your doctor can make sure you're using your medications correctly and taking the right dose.
- **Pay attention to increasing quick-relief inhaler use.** If you find yourself relying on your quick-relief inhaler, such as albuterol, your asthma isn't under control. See your doctor about adjusting your treatment.

## IX. Treatment of Asthma

Prevention and long-term control are key to stopping asthma attacks before they start. Treatment usually involves learning to recognize your triggers, taking steps to avoid triggers and tracking your breathing to make sure your medications are keeping symptoms under control. In case of an asthma flare-up, you may need to use a quick-relief inhaler.

The right medications for you depend on a number of things — your age, symptoms, asthma triggers and what works best to keep your asthma under control.

Preventive, long-term control medications reduce the swelling (inflammation) in your airways that leads to symptoms. Quick-relief inhalers (bronchodilators) quickly open swollen airways that are limiting breathing. In some cases, allergy medications are necessary.

A. **Long-term asthma control medications,** generally taken daily, are the cornerstone of asthma treatment. These medications keep asthma under control on a day-to-day basis and make it less likely you'll have an asthma attack. Types of long-term control medications include:

- **Inhaled corticosteroids.** These medications include fluticasone propionate (Flovent HFA, Flovent Diskus, Xhance), budesonide (Pulmicort Flexhaler, Pulmicort Respules, Rhinocort), ciclesonide (Alvesco), beclomethasone (Qvar Redihaler), mometasone (Asmanex HFA, Asmanex Twisthaler) and fluticasone furoate (Arnuity Ellipta). These medications for several days to weeks before they reach

their maximum benefit. Unlike oral corticosteroids, inhaled corticosteroids have a relatively low risk of serious side effects.

- **Leukotriene modifiers.** These oral medications including montelukast (Singulair), zafirlukast (Accolate) and zileuton (Zyflo) help relieve asthma symptoms.
- Montelukast has been linked to psychological reactions, such as agitation, aggression, hallucinations, depression and suicidal thinking. Seek medical advice right away if you experience any of these reactions.
- **Combination inhalers.** These medications such as fluticasone-salmeterol (Advair HFA, Airduo Digihaler, others), budesonide-formoterol (Symbicort), formoterol-mometasone (Dulera) and fluticasone furoate-vilanterol (Breo Ellipta) contain a long-acting beta agonist along with a corticosteroid.
- **Theophylline.** Theophylline (Theo-24, Elixophyllin, Theochron) is a daily pill that helps keep the airways open by relaxing the muscles around the airways. It's not used as often as other asthma medications and requires regular blood tests.

**B. Quick-relief (rescue) medications** are used as needed for rapid, short-term symptom relief during an asthma attack. They may also be used before exercise if your doctor recommends it. Types of quick-relief medications include:

- **Short-acting beta agonists.** These inhaled, quick-relief bronchodilators act within minutes to rapidly ease symptoms during an asthma attack. They include albuterol (ProAir HFA, Ventolin HFA, others) and levalbuterol (Xopenex, Xopenex HFA). Short-acting beta agonists can be taken using a portable, hand-held inhaler or a nebulizer, a machine that converts asthma medications to a fine mist. They're inhaled through a face mask or mouthpiece.
- **Anticholinergic agents.** Like other bronchodilators, ipratropium (Atrovent HFA) and tiotropium (Spiriva, Spiriva Respimat) act quickly to immediately relax your airways, making it easier to breathe. They're mostly used for emphysema and chronic bronchitis, but can be used to treat asthma.
- **Oral and intravenous corticosteroids.** These medications — which include prednisone (Prednisone Intensol, Rayos) and methylprednisolone (Medrol, Depo-Medrol, Solu-Medrol) — relieve airway inflammation caused by severe asthma. They can cause serious side effects when used long term, so these drugs are used only on a short-term basis to treat severe asthma symptoms.

**C. Allergy medications** may help if your asthma is triggered or worsened by allergies. These include:

- **Allergy shots (immunotherapy).** Over time, allergy shots gradually reduce your immune system reaction to specific allergens. You generally receive shots once a week for a few months, then once a month for a period of three to five years.
- **Biologics.** These medications which include omalizumab (Xolair), mepolizumab (Nucala), dupilumab (Dupixent), reslizumab (Cinqair), benralizumab (Fasenra) and tezepelumab (Tezspire) — are specifically for people who have severe asthma.

## X. Lifestyle and home remedies

Although many people with asthma rely on medications to prevent and relieve symptoms, you can do

several things on your own to maintain your health and lessen the possibility of asthma attacks.

**A. Avoid your triggers:**

Taking steps to reduce your exposure to asthma triggers is a key part of asthma control. To reduce your exposure, you should:

- **Use your air conditioner.** Air conditioning reduces the amount of airborne pollen from trees, grasses and weeds that finds its way indoors. Air conditioning also lowers indoor humidity and can reduce your exposure to dust mites. If you don't have air conditioning, try to keep your windows closed during pollen season.
- **Decontaminate your decor.** Minimize dust that may worsen nighttime symptoms by replacing certain items in your bedroom. For example, encase pillows, mattresses and box springs in dustproof covers. Avoid using down-filled pillows and blankets. Throughout the house, remove carpeting and install hardwood or linoleum flooring. Use washable curtains and blinds.
- **Maintain optimal humidity.** If you live in a damp climate, talk to your doctor about using a dehumidifier.
- **Prevent mold spores.** Clean damp areas in the bathroom, kitchen and around the house to keep mold spores from developing. Get rid of moldy leaves or damp firewood in the yard.
- **Reduce pet dander.** If you're allergic to dander, avoid pets with fur or feathers. Having pets regularly bathed or groomed may also reduce the amount of dander in your surroundings.
- **Clean regularly.** Clean your home at least once a week. If you're likely to stir up dust, wear a mask or have someone else do the cleaning. Wash your bedding regularly.
- **Cover your nose and mouth if it's cold out.** If your asthma is worsened by cold or dry air, wearing a face mask can help.

**B. Stay healthy**

Taking care of yourself can help keep your symptoms under control, including:

- **Get regular exercise.** Having asthma doesn't mean you have to be less active. Treatment can prevent asthma attacks and control symptoms during activity.

Regular exercise can strengthen your heart and lungs, which helps relieve asthma symptoms. If you exercise in cold temperatures, wear a face mask to warm the air you breathe.

- **Maintain a healthy weight.** Being overweight can worsen asthma symptoms, and it puts you at higher risk of other health problems.
- **Control heartburn and gastroesophageal reflux disease (GERD).** It's possible that the acid reflux that causes heartburn may damage lung airways and worsen asthma symptoms. If you have frequent or constant heartburn, talk to your doctor about treatment options. You may need treatment for GERD before your asthma symptoms improve.

## XI. Unani Treatment for Asthma

Asthmatic patients might also find it hard to breathe and experience chest tightness, feelings of being suffocated, wheezing, sometimes fever, and cough. This condition has been affecting people for ages, long before the majority of treatment options become available. The condition can be effectively managed with the

ancient traditional way of Unani medicine and below is a closer insight into the Unani medicine and how it can help in preventing asthma. Often referred to as an Arabian or Islamic medicine, as it was once used by the Arabs and the Mughals in India, Unani medicine refers to the natural ways of treating a disease. Following a humoral theory of the presence of four '**humor**' or the body's way of working in the body, which are Dum or blood, Balgham or phlegm, Safra or yellow bile and Sauda or the black bile, Unani medicine is offered depending on the presence of dominant humor in the body. Rather than a single medicine, Unani medicine is more of therapy that focuses on diagnosing the disease, monitoring the body's reaction to different things, and then treating the disease with natural medicines void of side effects. Considering diseases to be the natural processes of the body, Unani medicine aims to restore the balance between the body's power to control the body's reaction to the diseases. Medicine offers a complete cure to a medical condition and Asthma is one condition that most people seek Unani Medicine as an option for treatment. Offering regimental therapy, diet-therapy, and even pharmacotherapy, the Unani medicine ensures that the body regains its self-preservation power over the breathing problem called asthma. While the detoxification method of this particular field of medicine helps in defending the body's mechanism against asthma, the Unani regulation of the quality and quantity of food helps in alleviating the symptoms of asthma. Also, the consumption of the natural drugs made from plants, animals, and minerals helps in dealing with asthma in the best way possible. Here are eight healthy foods for asthma that individuals must include in their asthma diet:

**A. Ginger**

A study published in Allergologia et Immunopathologia, a Spanish medical journal, found that ginger extract can help reduce the severity of asthma by positively affecting the main cells involved in asthma symptoms. One of the most common ways to consume this vegetable is to brew it with water to make Ginger tea.

**Fig. 06 Common household remedies for Asthma**

**B. Turmeric**

Commonly referred to as haldi, this Indian cuisine staple is known for its healing properties around the world. Turmeric's core component is a natural compound called polyphenol. Also known as curcumin, this compound has anti-inflammatory and antioxidant properties that can help asthma patients reduce the chances of an asthma attack. While turmeric is a core ingredient in most Indian dishes, individuals can also consume it by mixing it with milk.

**C. Pomegranate**

This fruit is high in antioxidants that can help reduce inflammation in the airways. The seedy fruit is high in fibre, vitamin C, magnesium, folate, phosphorous, and potassium, making it a healthy food for asthma patients. Individuals can consume them raw or blend them into a refreshing juice to help keep fluid intake high on hot days.

**D. Whole Grain Foods**

These are an important part of a healthy asthma diet. These include whole oats, whole wheat pasta, buckwheat, and quinoa, among others. This food group includes nutrients such as vitamins A, B-1, B-2, B-3, B-6, B-9, E, magnesium, phosphorous, etc. These help reduce the severity of asthma symptoms by ensuring the overall health of the body.

**E. Tomato Juice**

Tomatoes are low in calories while being high in antioxidants, making them one of the best foods for asthma patients. Further, a study published in the Journal of Allergy and Clinical Immunology found that daily intake of tomato juice for over six months can contribute to improving the health of asthma patients.

**F. Beans**

A healthy gut microbiome can help reduce asthma symptoms and fight off autoimmune disorders. Further, high-fibre foods can also promote the overall health of the body and reduce inflammation.However, asthma patients must exercise caution when consuming beans. This is because its excess consumption can increase the chances of bloating and gas.

**G. Salmon**

Polysaturated fats, especially omega-3 fatty acids, must be included in an asthma diet. As per a study published in the Allergology International journal, there is a positive link between omega-3 fatty acids and inflammation in asthma patients.Further, salmon is also a rich source of vitamin D, producing 500 IU of the vitamin in a 100 gm serving, which is 66% of the daily recommended intake.

**H. Spinach**

Spinach is not only high in vitamins and minerals but also folate, a B vitamin which is crucial to a balanced asthma diet.

## XII. Discussion

Unani medicines have immense potential in the management of chronic illnesses, which was highly evident in the management of the above case. The treatment is extremely cost-effective, holistic in nature and is not a financial burden, so can be used in all types of clinical settings. The combination of drugs used in this case was done according to the Unani guidelines of age, mizāj (temperament), season and need of the

patient. In accordance with Unani guidelines, we prescribed drugs which could correct his digestion and relieve constipation so that the *akhlāt-e-fāsida* (morbid humors) could be expelled easily[14]. The details of some important drugs are given in the table below:

| Drug | Botanical name | Active constituent and action | Reference |
|---|---|---|---|
| *Tukhm khaṭmī* | *Althaea officinalis* Linn. | Rhamnogalacturonan: Anti-tussive and anti-spasmodic by action on 5-HT (2) receptors. | [15] |
| *Tukhm khubbāzī* | *Malva sylvestris* Linn. | Flavonoids and anthocyanins: Anti-oxidant<br>Mucilages: Cough suppressant<br>Ascorbic Acid: Anti-oxidant and immunomodulator | [16] |
| *Aşl-us-sūs muqa- shshar* | *Glycyrrhiza glabra* Linn | Glycyrrhizin: Correction of airway remodeling. Corticosteroid-like activity, it causes relaxation of bronchial smooth muscles; and flavonoids contribute to the anti-spasmodic action.<br>The results were found comparable to prednisolone in a clinical study.<br>Immunological effects (decrease in plasma leukotriene C, malondialdehyde and nitric oxide) | [17,18,19] |
| *Par- siāoshān* | *Adiantum capillus-veneris* Linn. | Flavones, phenolics and triterpenes: suppression of prostaglandins, interleukins and tumor necrosis factor-α involved in inflammatory reaction | [20] |
| *Ustukhudūs* | *Lavandula stoechas* Linn. | 1,8-cineole: Anti-inflammatory<br>A relaxant effect on tracheal smooth muscles has also been identified in the hydro-alcoholic extract. | [21,22] |
| **Constituents of Habb. Zeeq un-Nafas** | | | |
| *Filfil Daraz* | *Piper longum* Linn. | Piperine: Reduces the allergic response through downregulation of CD4 and CD8 T lymphocyte subsets, production of IL-4 and IL-5 thereby preventing IgE production and eosinophil infiltration. | [23] |
| *Kakra Singhi* | *Rhussuccedenae* Linn. | Rhusflavone: Anti-oxidant, anti-microbial especially against gran negative bacteria | [24,25] |
| *Asl-us- Soos* | *Glycyrrhiza glabra* Linn. | Glycyrrhizin: Correction of airway remodeling. Corticosteroid-like activity, it causes relaxation of bronchial smooth muscles; and flavonoids contribute to the anti-spasmodic action. The results were found comparable to prednisolone in a clinical study. Immunological effects (decrease in plasma leukotriene C, malondialdehyde and nitric oxide) | [19,18,17] |

| | | | |
|---|---|---|---|
| *Qaranfal* | *Syzygium aro- maticum* | Eugenol: Also other phenolic compounds like flavonoids, hidroxibenzoic acids, hidroxicinamic acids and hidroxiphenylpropens. Clove exhibits anti-inflammatory and immunomodulatory activity through inhibition of Myeloperoxidase and decreases neutrophil count in animal models of asthma. | [26] |
| *Post-e-Anar Sheerin* | *Punica granatum* Linn. | Ellagic acid, gallic acid and punicalagin A&B: Suppression of nitric oxide production, prostaglandin E2 production, and cyclooxygenase inhibition leading to anti-inflammatory action | [27] |
| *Asl* | Honey | Phenolic compounds: Anti-inflammatory, also alleviates the structural changes in respiratory epithelium caused by asthma. | [28] |
| **Constituents of Cap. Pitkirya** | | | |
| *Asrol* | *Rauwolfia serpentina* (L.) Benth. | Kaempherol (flavonoid): Inhibition of fatty acid amide hydrolase and free radical scavenging activity leading to anti-oxidant effect. | [29] |
| *Bacch* | *Acrous calamus* Linn. | Crude extract (n-hexane fraction): Inhibition of calcium channels and phosphodiesterase which leads to reduced rate and force of airway contractions in animal models of asthma | [30] |
| *Ustukhudūs* | *Lavandula stoechas* Linn. | 1,8-cineole: Anti-inflammatory A relaxant effect on tracheal smooth muscles has also been identified in the hy-droalcoholic extract. | [21,22] |

## Conclusion

Plant-based medicines have several advantages over synthetic agents, as the drugs often contain more than one active ingredient, along with several compounds which neutralize any possible adverse effects. In many cases, crude drugs have been shown to have superior effects to synthetic drugs, even in acute diseases like bronchial asthma. Asthma constitutes a medical emergency, hitherto considered untreatable even with the best known conventional treatments. The available treatment methods are largely aimed at providing clinical relief and controlling exacerbations. Unani physicians have often embarked on seemingly difficult disorders and treatment methods like cauterization which are often dealt with skeptically. In the above-mentioned case of asthma, the Unani formulations demonstrated exceptionally good results, and the drugs were easily tolerable without any adverse effects during the complete duration of treatment.

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