Kenilworth Medical Associates

 Adult and Pediatric Allergy and Asthma

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**ASTHMA**

***What is asthma?***

Asthma is relatively common, more than 40 million in the US, and is characterized by:

Inflammation of the breathing tubes or airways: causing cough

Mucus, produced as a result of the inflammation: causing wet cough

Narrowing of the airway lumen by tightening of the airway muscles: causing wheeze and chest tightness.

It can be manifested by one or all three at the same time.

Other terms used when asthma is suspected but not confirmed can include wheezing bronchitis, recurrent croupy cough, bronchiolitis, and reactive airway disease. Generally one has to have several episodes of symptoms before asthma is confirmed, although there is no required number or age for the diagnosis.

***Why would I get asthma, I’ve never had it before?***

Asthma can develop at any time from infancy to later adulthood.

It is thought to be in part inherited, and is often preceded by a history of childhood eczema.

Often different members of an allergic family can develop either eczema, seasonal allergies, food allergy, asthma, bee sting allergy, spontaneous hives, drug allergies, or sometimes several of these listed.

***Is asthma an allergy?***

Seasonal pollen, dust, mold or animal allergies cause inflammation of the nasal areas above the neck.

Similar allergic inflammation below the neck is called asthma.

Asthma can be thought of as allergies of the chest.

Even if the trigger of asthma symptoms may not seem allergic, for example exercise or a viral ‘cold’,

there is often an underlying allergic component such as dust, cat or dog dander exposure in the home.

***Monitoring your asthma***

Symptom frequency is the best way to monitor how well your asthma is controlled.

Asthma symptoms should be infrequent - no more than once or twice a week.

Patients with asthma should be able to participate and compete in any athletic activity

Many elite athletes have asthma that is well controlled

***Triggers of asthma:***

1. Allergens can cause acute asthma attacks. Cats are a major asthma allergen. Pollens can cause seasonal asthma in spring and fall. Chronic inflammation can occur with daily exposure such as dust mites or animals living in the house. Not all asthma is “allergic.” Skin tests can help determine if your asthma has an allergic component.

2. Upper respiratory infections seem to ‘settle’ into the chest in asthma patients. The infection resolves, but the inflammation of asthma persists causing weeks of coughing after a ‘cold’.

3. Exercise-induced asthma is airway tightening and inflammation triggered by exercise. Some patients develop symptoms at start of exercise while for others exercise is followed by a prolonged cough.

Many athletes with asthma begin their warm-up with a brief but moderately intense initial run.

Example: 80% max effort sprint for 200-300 yards.

This is followed by a 3-4 hour refractory period with significant reduction in asthma symptoms.

This technique is worth a try.

The NCAA and the United States Olympic Committee have different inhalers allowed during competition. Check websites for updated medicine-use details.

The United States Olympic Committee banned medication that has a decongestant “D” including many over-the-counter preparation with pseudoephedrine.

4. Irritants such as chemicals, perfume, paint fumes, pollution can trigger asthma even at low levels

Control of baseline inflammation can often diminish this irritant sensitivity.

5. Aspirin and other arthritis/pain type medications called NSAIDs can cause unexpected and severe asthma attacks in some patients allergic to NSAIDs, some of whom have nasal polyps as well.

6. Chronic sinus inflammation and infection can worsen asthma but otherwise be silent.

Many patients do not know that ongoing asthma symptoms can be a result of undiagnosed sinusitis.

7. GERD, or acid reflux, can result in coughing or airway muscle spasm similar to asthma.

Heartburn might be an associated symptom, but often is not present and patients are not aware.

8. Emotions. Emotional stress can mimic asthma-like symptoms in some patients or can result in chest tightness and can mimic an ‘asthma attack’.

9. Occupational asthma is well described and can affect many kinds of workers who have become sensitized. Over 200 occupations are known to place workers at risk for asthma symptoms.

***How is asthma diagnosed?***

Asthma is a clinical diagnosis. A detailed medical history including symptoms, patterns, severity, triggers, home situation, medical and family history is necessary. Spirometry lung function testing can show obstruction of airflow, a hallmark of asthma, and can also show reversal with medications. Allergy skin testing is done to rule in or out allergic or extrinsic triggers of asthma.

Response to asthma medications is often most helpful diagnostically.

***Remodeling (scarring of airways)***

We now know that years of active asthma can result in scarring of the airways resulting in a more severe, difficult to manage emphysema-like picture.

Asthma needs to be well controlled early to prevent the development of fibrous tissue in the airways.

***Asthma Treatment:*** treatment generally consists of several approaches:

1. Evaluating the triggers and directing treatment toward the control or removal of those triggers. In some cases, this warrants changes in the environment if allergens are present at home.

2. Lessening inflammation and hyper-reactivity of the airway through medication and other means.

3. Treating chronic sinusitis and eliminating acid reflux.

4. Allergy shots, immunotherapy can markedly decrease symptoms and medication requirements.

5. Annual Flu vaccine is generally recommended.

***Allergen Avoidance***

Knowing what allergies are present can highlight appropriate measures in homes to lessen the exposure.

If symptoms are triggered by animal dander or feathers, the best treatment may be removal.

Some allergens, such as house dust mites or molds, are difficult to remove entirely:

Cover mattress, pillows/comforters in plastic encasements, wash pillows, sheets and blankets in hot water. Mold can grow in damp areas of homes such as the kitchen and bathrooms. Fix water leaks, ventilating areas well, clean frequently, using a weak chlorine bleach solution.

Consider a dehumidifier if basement is damp or you live in a very humid climate.

Air conditioning reduces the number of airborne allergens by filtering and by making it easier to keep windows closed in hot weather and lowering the humidity. Air filtration systems, if carefully selected and properly maintained, can aid some people by lessening exposure to their allergens.

***Asthma Therapy***

***Anti-inflammatory Medications***

**1. Corticosteroids (“steroids”)** There are effective inhaled anti-inflammatory drugs for asthma.

They help reduce and prevent inflammation in the airways and decrease airway hyper-reactivity.

Inhaled steroids – An inhaled steroid is often recommended as a “first-line” drug in the treatment of asthma. This is a preventive medication and must be used regularly to be effective. Studies have shown that at recommended dosages the medicine is metabolized at the lung tissue and little enters the bloodstream. Possible local side effects include: hoarseness, cough and thrush. Using a spacer with the steroid inhaler reduces the risk of these side effects. We also recommend that you rinse your mouth after taking an inhaled steroid. Steroid inhalers include: Arnuity Ellipta, Alvesco, Aerospan, Pulmicort, Flovent, QVAR, and Asmanex. Advair, Symbicort, Dulera, and Breo Ellipta are inhaled steroids in “combination” with Long Acting Beta Agonists (LABA).

Oral steroids – Oral steroids can be used occasionally in short-term bursts or for severe asthmatics as part of their treatment. There are frequent mild side effects such as increased appetite, fluid retention, moodiness and stomach upset. These are temporary and typically disappear after the medicine is stopped.

The use of long-term oral steroids can be associated with significant side effects including weight gain, fluid retention, osteoporosis, high blood pressure, cataracts, bruising easily, muscle weakness and weakened immune system. This is why oral steroids are used for brief periods only.

**2. Singulair/montelukast**  This is a preventive oral anti-inflammatory medication that is not a steroid, but act by decreasing inflammation.

**3. Intal/cromolyn** Cromolyn (Intal) is an effective preventive treatment available as inhaler outside the US. It helps to lessen symptoms triggered by exercise, cold air and animal exposure. When used routinely, it can help prevent ongoing inflammation. Intal is no longer available in the US, although some asthma patients acquire Intal from non-US sources (Canada). Intal has a very low incidence of side effects.

**4. Recsue inhaler bronchodilators** Albuterol and other bronchodilators open the airways by relaxing the smooth muscle. They do not have much effect on inflammation. They are “rescue” medicines and should not be needed routinely. Over-reliance on these medicines is an indication of inadequate asthma control

**5. Xolair, Fasenra, Nucala Dupixent, and others.** Monoclonal antibody Biologics injected typically monthly which reduce allergic inflammation and decrease the need for ongoing ‘controller’ medications in asthma.

**6. SCIT Immunotherapy (allergy shots)** Many asthmatics have positive skin tests for allergies.

Even though viral ‘colds’ or exercise cause cough or wheeze, the ultimate cause may be those two cats.

Immunotherapy is a series of injections of a weak allergy solution given once or twice a week, the strength increasing gradually. When the strongest dosage is reached, the injections are given once or twice a month. Immunotherapy is a form of treatment which can change the immune system and potentially cure the allergy.

***Goals of asthma management***

* Be able to attend work or school every day.
* Be able to exercise without frequent symptoms
* Be able to sleep well through the night
* Not need urgent or emergency visits
* Not need oral steroids for exacerbations
* Not need hospitalization for asthma.
* Not need rescue inhalers regularly.

CORRECT USE OF A METERED-DOSE INHALER

Inhaler technique will affect whether or not a full dose is delivered.

Steps for making sure adequate medicine is in the canister

1. When the canister is new, it is full.
2. Check product label to see how many inhalations contained in each canister.
3. **Write the date on the side of the cannister that the medication will run out if the doses are taken exactly as prescribed.**
4. If the canister has been used repeatedly, if unsure whether or not empty, get refill.
5. Check expiration date on canister.

Steps for using the inhaler

1. Shake the inhaler a few times, and hold it upright.
2. Position the inhaler in one of the following ways:

Directly in mouth

Use spacer – mask also recommended especially for young children

(Open mouth not usually recommended)

1. **Breathe out completely.**
2. **Press down just as you begin to breathe in slowly and quite deeply.**
3. **Hold breath 10 seconds**.
4. Repeat puffs as directed. Wait a few seconds between puffs.
5. Spacers are essential for some patients.