

“Which Came First, the Chicken or the Egg?”

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Asthma

Asthma is a chronic lung disease that causes difficulty breathing, and sometimes chest pain, secondary to constriction of the smooth muscle in the airways (bronchospasm), airway inflammation, and increased airway secretions.

In the United States it is estimated that there are 17.5 million adults, and 7.1 million children, currently diagnosed with asthma. Also in the United States approximately 3,500 people die from asthma related symptoms each year.

For many years asthma has had a significant financial impact on healthcare systems. In recent years asthma has cost U.S. healthcare systems alone over \$56 billion dollars, which is a 6% increase from 2002.

Types of Asthma

Asthma isn't exactly a *one-size-fits-all* disease. There are several types of asthma, each with its own set of triggers, complications, and *personality*.

Allergic Asthma

- Asthma that is triggered by an allergic reaction from exposure to a substance such as pollen, pet dander, certain chemicals, or other substance that one is allergic to. Most allergic asthmatics have other allergy symptoms such as allergic rhinitis, hay fever, or eczema. There may even be a family history of allergies.

Non-Allergic Asthma

- Asthma that is triggered by foreign substances or irritants in the air such as cigarette or wood smoke, fumes from chemicals, cooking odors, deodorizers, excessive humidity, cold air, pollution, etc... Asthmatics are not necessarily allergic to these substances. They cause asthma symptoms because their presence irritates the hyper-sensitive asthmatic airways causing airway inflammation, bronchospasm, and difficulty breathing.

Nocturnal Asthma

- Asthma symptoms that seem to worsen in the middle of the night is often referred to as nocturnal asthma. Nocturnal asthma is not actually a separate type of asthma, but rather a phenomenon of timing and our own body clock, in those who suffer from asthma. Our body produces its own natural epinephrine and corticosteroids. These substances help protect us against asthma symptoms. It was discovered that the levels of these substances are lowest between the hours of midnight and 4:00am, leaving us less protected against allergens, and making it more likely that symptoms will flare up during these times.

Treating Asthma

Treatment of asthma should revolve around long term maintenance and prevention of asthma symptoms. The use of long acting bronchodilators (*long-acting beta² agonists – or LABA's*) and inhaled corticosteroids (*ICS's*), along with certain lifestyle changes, is a common strategy to minimize the incidence of acute asthma symptoms.

When acute asthma symptoms do present a combination of fast acting beta² agonist bronchodilators, inhaled corticosteroids, and sometimes IV corticosteroids, is usually an effective arsenal.

GERD

GERD (gastro-esophageal reflux disease) is the backflow of stomach acids into the lower part of the esophagus causing a burning sensation commonly referred to as heartburn. There are two main causes of GERD.

1. Lower esophageal sphincter insufficiency. A poorly functioning lower esophageal sphincter doesn't close completely, which allows stomach acids to splash up, or *reflux*, into the lower part of the esophagus causing the heartburn.
2. A hiatal hernia. This is when part of the stomach "*herniates*" upward through the lower esophageal sphincter into the lower part of the esophagus. This allows stomach contents to free-flow back and forth between the stomach and the esophagus.

In the United States about 15 million adults are reported to have heartburn symptoms every day, indicating that they have GERD. However, it is estimated that approximately 35% of the U.S. population actually have GERD. It is also common in infants, often starting at birth, but they eventually outgrow it.

Untreated, long term GERD can lead to esophagitis, esophageal stricture, esophageal ulcers, and malignant esophageal tumors. People who have suffered from symptoms of GERD for an extended period of time should be seen by a Gastroenterologist for an evaluation.

Asthma & GERD

Approximately 75% of all patients who have asthma also have GERD. Question: Does asthma cause GERD, or does GERD cause asthma? There are several studies that show a relationship between asthma and GERD but the exact details of that relationship aren't fully understood.

Micro-aspiration

Frequent micro-aspiration of stomach acids will certainly aggravate asthma symptoms. In fact many Physicians will consider GERD to be a main cause of asthma if it is adult onset in nature, if asthma symptoms typically worsen after meals, and/or if asthma symptoms are not easily relieved by traditional methods and medications.

Heartburn

Another possible link between asthma and GERD is the main symptom of GERD itself, heartburn, which is caused by the backflow of stomach acids into the esophagus. It is believed that this triggers a reflex that causes the airways to narrow in an attempt to prevent gastric acids from entering the lungs.

Beta²-Effect

Finally, there appears to be a link between some asthma medication and the symptoms of GERD. Although it is still being studied, it is believed that beta²-agonists, which are the asthma medications that cause relaxation of the smooth muscle in the airways, also cause relaxation of the muscles of the lower esophageal sphincter. This medication induced lower esophageal sphincter insufficiency allows gastric acids and contents to reflux into the esophagus, thus causing the heartburn symptoms of GERD.

GERD by itself is not necessarily life-threatening, although left untreated can lead to life-threatening circumstances that include esophageal cancer. Asthma, however, CAN be life-threatening on a much more acute scale. If some of your asthma symptoms are directly being caused by GERD then the GERD is, in a sense, becoming a life-threatening circumstance. As mentioned earlier the key to asthma is maintenance and prevention of asthma symptoms. To many known asthmatics this also means prevention of symptoms of GERD as well. In either case this means the right combination of medications, and certain life-style changes that include light exercise and certain dietary changes. And see your Physician regularly so he/she can make changes to your maintenance schedule as necessary. After all it's your life, so take care of it and enjoy as many symptom-free days as possible...