

Date: 5/27/2008 Patient: Elizabeth Test

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Emphysema

What is emphysema?

Emphysema is a chronic (long-lasting) disease that gradually destroys the lungs. The damage makes it hard to breathe. You have trouble breathing out carbon dioxide and eventually become unable to breathe in enough oxygen.

How does it occur?

Cigarette smoking is the main cause of emphysema. An inherited disorder (passed down from parents) called alpha-1 antitrypsin deficiency, or AAT deficiency, can also cause emphysema. If you are a smoker AND have this genetic disorder, the lungs become damaged more quickly.

Cigarette smoke can damage the cells in your lungs. As the air sacs in your lungs (alveoli) become damaged, it gets harder for you to breathe out carbon dioxide after you breathe in air. This means more carbon dioxide stays in your lungs and you have less room for oxygen to be breathed in. Once this damage occurs, it does not go away.

Alpha-1 antitrypsin (AAT) is a protein that is made in the liver. The liver releases this protein into the bloodstream. AAT helps protect the lungs against damage from other chemicals in the blood. If you have AAT deficiency, you have too little of this protein and your lungs can be damaged more easily.

What are the symptoms?

The most common symptom of emphysema is a feeling of shortness of breath. At first this occurs with mild exercise or normal daily activities. After a while, you have trouble breathing all the time. Another symptom is coughing.

Sometimes the first obvious symptom of emphysema is wheezing, which can also be a symptom of asthma. These two medical problems can be confused with each other.

How is it diagnosed?

Your health care provider will ask about your medical history, including your smoking history and family medical history. Your provider will examine your heart and lungs. Then he or she will examine your hands and feet to look for signs that your body is not getting enough oxygen.

Spirometry, a breathing test, is the most helpful test for emphysema. It checks your ability to breathe out forcefully and quickly.

Early in the disease, you may not have any physical symptoms and lab tests of your blood and x-rays of your chest may be normal. However, once you begin to have symptoms, blood tests may show that you have more red blood cells than normal. (Red blood cells are the cells that carry oxygen in your blood.) Other blood tests may show that too much carbon dioxide is staying in your body. As

damage to your lungs gets worse, chest x-rays will usually show changes that suggest emphysema.

If you are young or a nonsmoker and have symptoms of emphysema, your health care provider will do a blood test to check the level of alpha-1 antitrypsin.

How is it treated?

There is no cure for emphysema, but treatment can help control the disease. The treatment goals for emphysema are:

- to relieve symptoms and keep you as active as possible, based on your ability and lifestyle
- to avoid things that make emphysema or its symptoms worse, such as smoking and lung infections.

The most important part of treatment is to **stop smoking**. Talk to your health care provider about ways to stop smoking. You might find it helpful to join a quit-smoking program or to use nicotine patches or gum.

Asthma medicines can make it easier for you to breathe. Ipratropium (Atrovent) is a commonly prescribed asthma inhaler. Other inhaled or oral asthma medicines may also be prescribed.

For times when you are feeling especially bad, other medicines such as antibiotics or steroids may be given for a short time. Steroids are available in forms that may be inhaled or taken by mouth.

At some point it is likely that you will need oxygen therapy. At first you may need oxygen only in some situations, but later you may need continuous oxygen.

Emphysema caused or worsened by AAT deficiency may be treated with AAT replacement therapy. This medicine will not cure the emphysema, but it will increase the level of AAT in your body and may slow down damage to your lungs caused by the lack of AAT.

How can I take care of myself?

- Do not smoke. If you stop smoking before much of your lungs have been damaged, the disease may progress more slowly. Also, if you stop smoking you are less likely to have problems with frequent bronchial infections.
- Follow your health care provider's recommended treatment.
- Ask your provider how often you need follow-up appointments.
- Ask your provider what symptoms or problems you should call about before your next visit.
- If you are able to exercise, get regular exercise according to your health care provider's recommendations. Exercise will help keep your heart and other muscles healthy. Do not start an exercise program without your provider's approval.
- Do the breathing exercises recommended by your provider. They can help strengthen the muscles used for breathing. You may need a physical therapist to help you learn to do them properly.
- If you think you are getting a cold or the flu, contact your health care provider right away. You need prompt treatment for any possible lung infections. Symptoms of emphysema often worsen during an infection.
- To help avoid lung infections, you should have a Pneumovax shot. This is a

shot that protects against a common type of pneumonia. You should have no more than 2 shots of the pneumonia vaccine in your lifetime. The shots should be given at least 5 years apart.

- Get a flu shot every October.
- If you live in an area where smog or air pollution is a problem, be sure to ask your provider how you should take care of yourself when the air is bad.
- If you plan to travel, discuss your plans with your health care provider. It's good to make sure there will be no problems with high altitude, humidity, temperature, pressurized airplane cabins, or smoggy cities, especially if you are using oxygen.

How long will the effects last?

There is no cure for emphysema. It gradually worsens over many years until the lungs can no longer function.

How can I prevent emphysema?

The best way to prevent emphysema is never to smoke. If you are a smoker, quit now. The fewer years you smoke, the less likely it is that you will develop emphysema.

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