

COPD - Chronic Bronchitis & Emphysema

Chronic bronchitis and emphysema are common long-term lung diseases that cause shortness of breath. Each condition can occur on its own, but many people have a mixture of the two problems. The terms "Chronic obstructive airways disease" (COAD) or "chronic obstructive pulmonary disease" (COPD) are often used to refer to these conditions. "Chronic" has nothing to do with severity but simply means that the problem has been going on for a long time.

In Australia, chronic bronchitis and emphysema usually occur in people who have smoked or continue to smoke cigarettes. Once you stop smoking you gradually reduce your chances of getting these diseases. A small proportion of cases of emphysema are caused by an inherited problem called alpha-1-antitrypsin deficiency. This condition is made worse by smoking cigarettes.

To understand what happens to the airways and lungs of people with Chronic Bronchitis and emphysema it is useful to know how healthy lungs work.

How the lungs work?

Each time you breathe, air is drawn, via the nose and mouth, into the windpipe or trachea. The windpipe is a tube about 10-12 centimetres long in adults and splits into two smaller tubes that go to the left and right lungs. Each of these tubes is called a bronchus. They divide into smaller and smaller airways, and together they are called bronchi. The air passes down the bronchi in each lung, dividing another 15-25 times into smaller and smaller airways called bronchioles. The smallest airways end in tiny air sacs called alveoli. It is here that the oxygen from the air is absorbed into tiny blood vessels called capillaries which criss cross the walls of the alveoli.

Once it passes into the blood stream, oxygen is carried all around the body, and at the same time a waste product, called carbon dioxide, comes out of the capillaries back into the alveoli ready to be breathed out. If you could look inside your lungs, you would see a mass of fine tubes and air pockets, all looking rather like a giant sponge.

What happens in emphysema?

In emphysema, the alveoli or airsacs in the lungs are gradually destroyed so people have difficulty absorbing enough oxygen. The bronchi becomes floppy and narrow so that it becomes harder to breathe in and out.

These days, the most common cause of emphysema is cigarette smoking. Industrial pollutants may also cause emphysema.

What happens in chronic bronchitis?

Bronchitis means inflammation of the bronchi. As a result mucus which is normally made in the airways to keep them moist, is produced in excessive amounts. This leads to cough and sputum production. The bronchi may also become narrow and floppy (making them narrower) and therefore it is harder for air to get in and out of the lungs. Breathlessness results.

Most adults have a bout of 'acute' or short-term bronchitis at some time in their lives, lasting a week or two at the most. In chronic bronchitis, however, people produce a lot of mucus, sometimes called phlegm and they cough and are breathless for months or even years.

How do people feel?

In mild forms of these diseases, breathlessness may occur walking up hills or stairs, but in severe cases, breathlessness can occur walking slowly along flat ground. Normally daily activities become more difficult as the disease gets worse.

It is not surprising that people with chronic bronchitis and emphysema may become frustrated, anxious and depressed, making breathing problems worse. People who feel more positively toward life tend to do better.

Adapting to the limitations placed on lifestyle, together with the care and support of family and friends, can do a lot to relieve anxiety and lift depression.

Other problems

People with chronic bronchitis and emphysema are more prone to chest infections and pneumonia and occasionally require admission to hospital for intensive treatment of their disease. During these episodes they may have a low oxygen level in the blood and develop swollen ankles because of inadequacy of the pumping action of the heart.

Tests

Breathing tests enable your doctor to measure the rate at which air can move out of your lungs. A breath-holding test can also be used to see how severe your emphysema is. Sometimes the oxygen level in the blood stream is measured either through the skin or from the blood itself.

Blood tests are sometimes necessary as examination of the phlegm in the laboratory may show infection with a germ, for which the best antibiotics can be chosen. A chest X-ray may help in the diagnosis of emphysema and chronic bronchitis. These are especially useful during acute infections to detect the presence of pneumonia.

Treatment

A lot can be done to improve function and relieve symptoms associated with the two conditions, but unfortunately it is not possible to reverse the processes which have already taken place. You can improve your breathlessness and other symptoms and reduce the rate of progression of the disease by giving up smoking. If you stop smoking, this alone will help improve the cough and phlegm and slow down the rate at which breathlessness will increase.

Cough mixtures and expectorants may be helpful, but you should discuss these with your doctor. In some cases, drugs can reduce some of the inflammation in the airways and make them wider so that it is easier to breathe.

Drugs which make the airways wider are called bronchodilators, usually taken in the form of an inhaler. If you are prescribed an inhaler, make sure that you are using it properly by checking your delivery technique with your doctor. Occasionally tablets are also used as bronchodilators. Bronchodilators can also be delivered by electrically driven pumps (nebulisers) which may be useful in emergencies but are not usually necessary for routine daily use.

Chest infections make chronic bronchitis and emphysema worse, so these should be treated with antibiotics. Ideally, they should be taken at the first signs of infection - usually an increase in the amount of mucus or a change in its colour. During infections, inflammation in the airways may be treated with a corticosteroid or 'cortisone' medication as well. Discuss with your doctor whether it is worth keeping a small supply of these medications ready at home.

The annual influenza vaccination in autumn is also worthwhile. Your doctor may also recommend a vaccination against the commonest germ causing chest infection. This vaccination is called Pneumovax™.

It is important to keep as active as possible. Your doctor may refer you for a special programme of exercises called Pulmonary Rehabilitation. This may help relieve some of the breathlessness and enable you to be even more active.

Some patients with emphysema may be suitable for an operation on their lungs called "Lung Volume Reduction Surgery". Although this is still an experimental procedure it may help breathlessness in some patients. You would need to discuss this with your doctor to see if it was a suitable procedure for your situation.

What about oxygen?

Most attacks of breathlessness in chronic bronchitis and emphysema are best treated with antibiotics, corticosteroids and bronchodilators. Some people, on the other hand, may benefit from oxygen treatment. Those who had a low level of oxygen in their blood between attacks of infection and who sometimes get swollen ankles may benefit from small amounts of extra oxygen given for 15 or more hours per day.

To find out if oxygen can help, you will need a referral to a specialist respiratory physician who may order additional tests. These will include breathing tests, measurement of the amount of oxygen in the blood and possibly a simple exercise test. If the amount of oxygen in your blood is found to be very low, and you have stopped smoking for good, the specialist may arrange to have an oxygen supply at home. This is usually a machine called an oxygen concentrator but oxygen cylinders are sometimes used.

The oxygen concentrator is an electrically driven machine which extracts the oxygen from the air in your home, and is more convenient and cheaper than using oxygen cylinders. You breathe the added oxygen at a rate set by the specialist through nasal prongs or cannulae (small soft plastic tubes that fit just inside your nostrils). Wearing nasal prongs for long periods can make the nasal tissues dry out, but this can be helped by a small device called a humidifier which moistens the oxygen. The oxygen supply tube from the concentrator can be metres long, so you will be able to move about your home whilst having your oxygen treatment. Your specialist will usually ask you to use the oxygen for at least 15 hours per day because there are few benefits from using it for less than this time.

Portable oxygen cylinders are sometimes recommended if you get very breathless when walking. These cylinders contain enough oxygen for an hour or so and can be placed on a shoulder pack or in a small hand-pushed trolley to make shopping or travelling easier.

Please Note: This information is intended by The Australian Lung Foundation to be used as a guide only and is not an authoritative statement. Please consult your family doctor or specialist respiratory physician if you have further questions relating to the information provided here.

For details of patient support groups in Australia please call **1800 654 301**