Understanding

COPD

Chronic Obstructive Pulmonary Disease

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IMPORTANT
This book is intended not as a substitute for personal medical advice but as a supplement to that advice for the patient who wishes to understand more about his or her condition.

Before taking any form of treatment
YOU SHOULD ALWAYS CONSULT YOUR MEDICAL PRACTITIONER.

In particular (without limit) you should note that advances in medical science occur rapidly and some information about drugs and treatment contained in this booklet may very soon be out of date.

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Introduction

Background to COPD

Chronic obstructive pulmonary disease or COPD affects the lives of people from various communities and different nations. More and more people are being diagnosed with the condition. COPD is very disabling and many people find it hard to cope with the restrictions that it brings.

People with COPD can suffer greatly and many do so in silence. They often wrongly feel that it is their fault that they have developed COPD in the first place and that nothing can be done about it now. Although smoking is the major cause of COPD, it is not the only cause. Being given a diagnosis of COPD is not the same as being handed a death sentence.

COPD imposes limitations on activities of daily living through the symptoms that it causes. It affects the lives of sufferers, carers and the entire community, and also places a significant burden on the health service.

Living with COPD does not have to be a daily struggle. There are medications available that will help to improve symptoms. Practical support is also at hand

from various sources ranging from education about COPD to advice on coping with COPD.

This book tries to provide you with a better understanding of COPD. It will give you some insight into the management of the condition. It will also provide you with information on the support network that is available. Living with COPD is no doubt difficult. Understanding it will hopefully make the journey easier.

Case histories

John – mild COPD

John is 50 years old and enjoys playing golf. He has always been a fit and healthy individual. John does not suffer from any medical condition and he does not take any regular medication.

John, however, smokes about 20 cigarettes a day. He has been smoking since he was 20 years old. He attributes his smoking to the stress that he encountered at work. It helps him cope better with the daily strain that he feels.

John took early retirement to spend more time at home with his wife. He started to notice that he got breathless more easily when playing at the golf course. He could no longer walk as far as he used to without first stopping to catch his breath, and also found that he would tire more easily.

Climbing stairs was never a difficulty for him but lately he has been getting breathless when he reaches the top of the stairs. This was obviously worrying him because he could not understand why he should feel this way. After all, he had no health problems that he was aware of.

John's wife also started to notice how he has gradually slowed down and is helping her less with

chores at home. This is because he gets tired more easily and is more breathless than usual. He felt that, if he rested more and did less work at home, his condition would improve. It never did. Finally, John decided to see his doctor.

The doctor found that John was mildly wheezy when listening to his chest. John himself had not noticed this wheezing before. A breathing test was performed, which showed evidence of airway narrowing in the lungs. A diagnosis of COPD was made and John was given an inhaler to take whenever he felt breathless.

John is now back playing golf. He is less tired or breathless and is able to do more than before. He finds the inhaler useful and uses it when he gets out of breath. He has also given up smoking. John has mild COPD that is simply controlled with a rescue inhaler.

Comments on case study

It is crucial that John does not start smoking again. Tobacco smoke will irritate the airways in the lungs and cause narrowing, which then leads to breathlessness and wheezing. The inhaler opens up the airways to help with breathing.

If John were to continue smoking, not only would he damage his lungs further, but the tobacco smoke would also fight against the effects of the inhaler. This is because, on the one hand, by taking the inhaler John is keeping his airways opened, but, on the other, by smoking John will cause the airways to narrow.

It is important that you see your doctor should you find that you become easily tired or breathless for no particular reason. This is especially relevant if you are a current smoker or have been a smoker in the past.

The onset of COPD is usually a gradual process and for this reason COPD is sometimes known as 'the silent disease'. You do not necessarily know that your lungs have been damaged by tobacco smoke or that there is airway narrowing in your lungs.

John was not aware that he was wheezing until his doctor examined him. Often people get so used to their limitations and adjust so well to them that they do not realise the gradual deterioration that takes place over time.

Mary – moderate COPD

Mary, a 60-year-old widow and great-grandmother, has been coughing for many years. She says that she feels like she has been coughing all her life but her symptoms really began about 10 years ago. She would cough most mornings and bring up clear thick phlegm. She never took any notice of it at first and accepted that this was simply a smoker's cough.

Mary has been a heavy smoker since she was 12 years old, smoking 20 to 40 cigarettes a day. She said that she took to cigarettes by copying her father and that she would steal cigarettes that were half used from her father's ashtray. She had thought of giving up before but was never able to carry it through.

Mary found that she gradually became more breathless over time and was diagnosed with COPD five years ago. She was given an inhaler to be used whenever she felt breathless. This helped with her symptoms initially.

However, as time went on, she felt that she needed to use her rescue inhaler more and more. She was using it up to four times a day. On occasions, she would be using more than eight puffs of her inhaler in a day.

She returned to her doctor for help. Mary was started on regular inhalers for better control of her symptoms.

Unfortunately, Mary was not able to give up smoking. This was not helped by the fact that most of her family and friends also smoke. Everyone would smoke when there was a gathering of relatives or friends. It was also part of the social etiquette to smoke among her group of friends.

Mary became more breathless as the months went by and her breathing continued to decline. The medications did help with her breathing but they did not take away her breathlessness completely.

Mary knew that something had to be done. She felt that if her breathing were to continue to go downhill at this rate, she might soon not be able to breathe at all, even with the inhalers. She was determined to take a positive step forward and made a firm mental effort to stop smoking.

Mary has now managed to cut down her smoking to 10 cigarettes a day and is continuing to try hard to stop completely.

Comments on case study

Mary has moderate COPD that requires control with daily therapy. Her symptoms are currently on an even keel as the regular inhalers are keeping her airways opened. Unfortunately, with the ongoing insult to the lungs from the tobacco smoke, Mary's condition is likely to get worse.

It would be best if Mary could stop smoking altogether. This will not only slow down the decline in her lung function but also help reduce her risk of developing lung cancer.

Although smoking is a major risk factor for developing COPD and lung cancer, many smokers find it very hard to give up. The nicotine in cigarettes is a highly addictive compound, making giving up smoking a very difficult process indeed.

If you are struggling to give up, see your doctor who will be able to offer advice on how to stop. There are support and medications available that will help you cope with the early stages of nicotine withdrawal and craving.

Paul – severe COPD

Paul is 70 years old and this is his third admission to hospital this year with a flare-up of his COPD. He is getting very frustrated at having to come in to hospital so often. Each time he comes in and out of hospital, he feels that he is getting a little bit weaker.

His hospital stay also seems to get longer with each admission and subsequent chest infections seem harder to treat compared with the previous ones. At the same time, he is also frightened about being discharged home too soon, just in case he gets another flare-up and struggles to breathe.

Help is not easily at hand because he lives alone. Carers visit during the day but it is the nights that worry him most.

Paul is on a lot of medication for his COPD. He takes regular inhalers and tablet medications to help him breathe better. He also receives regular nebuliser therapy.

In addition, Paul has an oxygen concentrator at home that he uses to deliver continuous oxygen for more than 15 hours a day. Each day he has to take a fair amount of time to sort out his different medications and to work out the time of day that he needs to take

them. He finds this is getting harder lately with his failing eyesight and his difficulty in concentrating.

Paul gets breathless very easily. Daily chores such as dressing and undressing or even just simply moving around the house will affect his breathing.

Paul tires easily and is no longer able to go upstairs. He has started to feel down and sometimes wonder whether life is worth living with the limitations and restrictions that are being imposed on him by his disabling COPD.

Comments on case study

Paul has severe COPD and is currently on maximum therapy. He is not able to do much without getting breathless. Paul is also starting to become depressed. The limitations that are created from living with severe COPD can be overwhelming. Paul is unable to do the simple things in life that we take for granted without struggling for breath.

Having COPD will make you more prone to develop chest infections. It is important to recognise infections early and treat them quickly to avoid a bad flare-up. However, you may find that, despite all the precautions that you take, you still end up with an infection. Do not despair, as people with COPD are generally more susceptible to developing repeated infections.
Seek medical attention from your doctor to receive appropriate and prompt treatment.

You may feel discouraged and down because of your daily struggles with COPD. Stay positive and do not give in to desperation. It is totally understandable if you become depressed. This can be expected, because it is difficult to have to live with a chronic disabling condition.

It is important that you recognise depression early and seek medical help. Do not try to deal with it on your own.

Maintain a healthy lifestyle and diet. Always try to stay active and go outdoors when the weather permits. A little activity goes a long way in COPD. Try to develop a good social support network. Involve your relatives and friends in your daily life. Learn more about COPD. This will help you to cope better with it.

KEY POINTS

- Smoking is the major cause of COPD
- The symptoms of COPD can be relieved by medication

What is COPD?

How do we breathe?

Air enters the lungs through the nose and mouth. It then travels down the trachea or windpipe before going into the left and right lungs. The airways of the lung consist of the trachea, which then divides into two main tubes known as the left main bronchus and the right main bronchus.

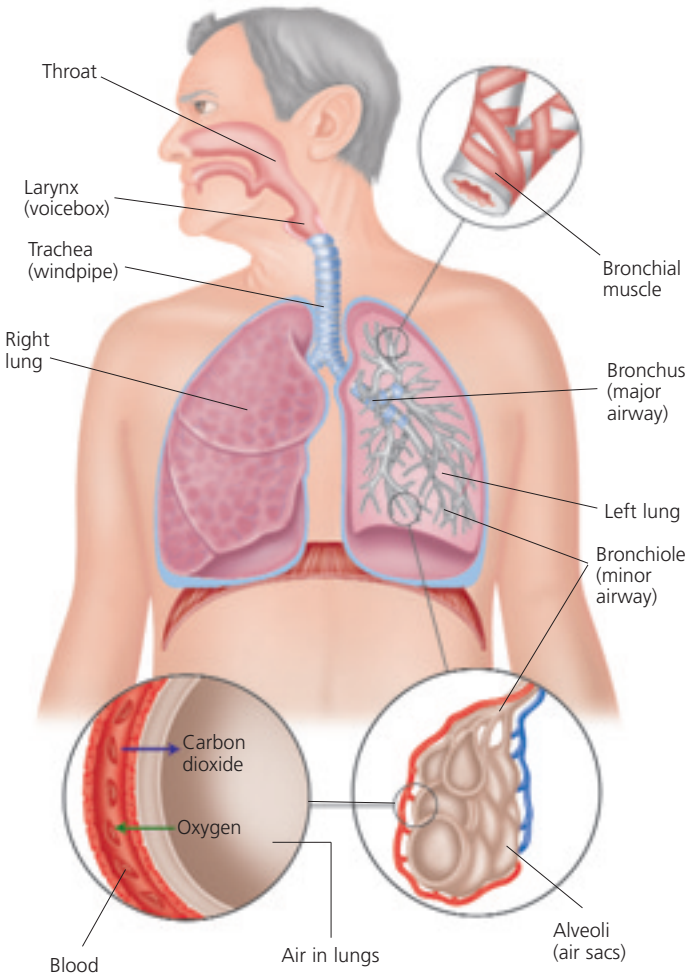
The bronchial tubes then split further into smaller divisions known as bronchioles before finally reaching the alveolus or air sac. It is through the air sacs that air enters the bloodstream.

What is COPD?

COPD is a disabling condition affecting the lungs and involving irreversible lung damage, so that the lungs can no longer function at full capacity. COPD has been known by other names in the past such as chronic obstructive airway disease (COAD) or chronic obstructive lung disease (COLD). These terms are now obsolete.

The respiratory system

The airways (trachea, bronchi and bronchioles) and airspaces within the lungs supply oxygen to and remove carbon dioxide from the body.



Exchange of gases in alveoli

COPD comprises two related lung diseases:

- Chronic bronchitis
- Emphysema.

There is ongoing inflammation in the airways in COPD. The onset of breathlessness is gradual over time.

Chronic bronchitis

Chronic bronchitis results from inflammation and irritation of the airways in the lung. This causes airway narrowing, which can cause shortness of breath or wheezing. It is characterised by the presence of cough and phlegm production for more than three months in two consecutive years.

Emphysema

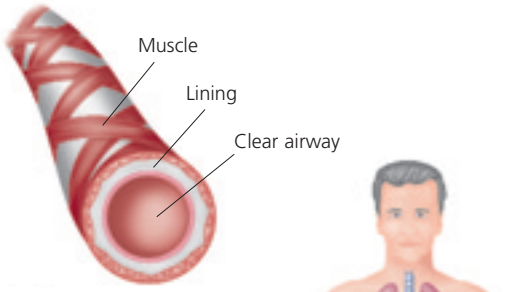
Air sacs deep within the lungs, where oxygen is absorbed into the bloodstream, are prone to damage from toxins such as tobacco smoke. Emphysema develops when the air sacs enlarge and are no longer able to function properly. This results in poor oxygen delivery to the blood circulation.

The chest muscles that are involved in breathing in people with emphysema have to work harder in order to sustain an adequate oxygen level in the blood. This contributes to breathlessness, which is made worse by the associated collapse in the surrounding airways caused by the loss of the lungs' natural elasticity as a consequence of lung tissue destruction. Air gets trapped in the lungs when the airways collapse during exhalation and this leads to hyperinflation of the lungs where the volume of the lungs becomes larger than normal.

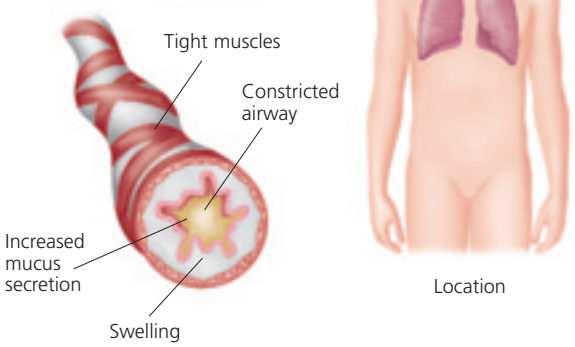
Chronic bronchitis

In chronic bronchitis the airways are narrowed from inflammation and increased mucus secretions. This reduces the amount of air that passes through the lungs.

1. Normal airway



2. Chronic bronchitis

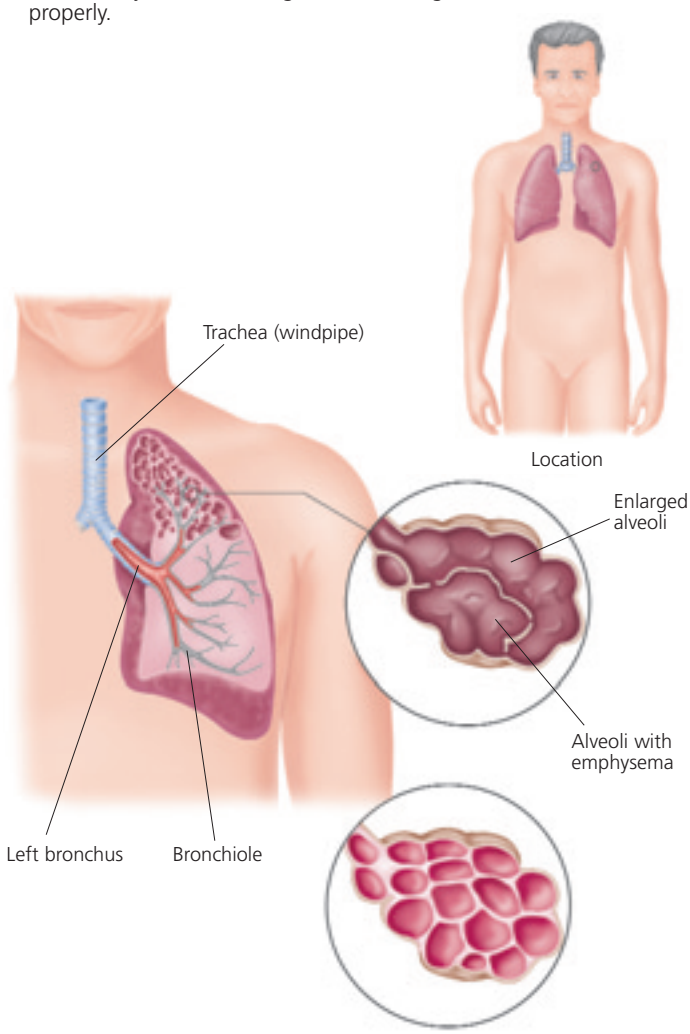


The burden of COPD

COPD affects about three million people in the UK. It therefore places a tremendous burden on the health service and is the fourth most common cause of death worldwide. COPD also represents a considerable economic and social burden globally. The total estimated cost of COPD in the USA in 2002 was US$32.1 billion. In the UK, COPD accounted for more than £800 million

Emphysema

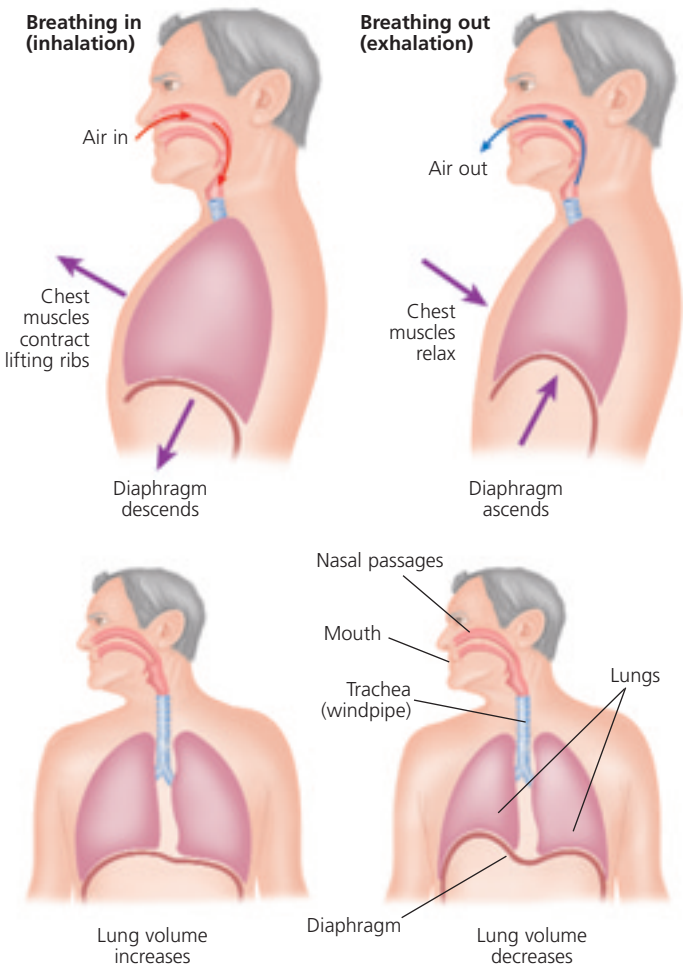
Emphysema develops when the alveoli (air sacs) are damaged by toxins. They become enlarged and no longer able to function properly.



Microscopic view of normal alveoli

The mechanics of breathing

To inhale air, muscles in the chest wall contract, lifting the ribs and pulling them outwards. The diaphragm moves downward enlarging the chest cavity further. Reduced air pressure in the lungs causes air to enter the lungs from outside. Breathing out reverses this.



in direct health-care costs in 2004 and this continues to rise annually.

Symptoms of COPD

- Many people get used to their COPD without realising it, especially in the early stages of the condition.
- You may find that you become tired easily when gardening or get out of breath when walking on an incline.
- People with COPD also tend to produce phlegm, particularly in the mornings.
- You may find that you always need to bring up phlegm by constantly coughing.
- You may also find it hard sometimes to shift phlegm from your lungs.
- The phlegm is usually clear in colour. Green or brown discoloration of thickened phlegm usually indicates an infection. Chest infection is common in people with COPD, especially during the winter months. It is important to recognise infection early and to seek medical treatment.

Causes of COPD

Smoking

Smoking is the main cause of COPD. It is estimated that smoking directly causes up to 90 per cent of COPD.

There are about 4,000 substances in tobacco smoke, of which 250 are classified as toxic matter and 60 are known to cause cancer in the body, such as in the bladder, cervix, kidneys, larynx or voicebox, lips, lungs, mouth, oesophagus or gullet, pancreas, stomach and throat.