

Asthma

Asthma is a long-term condition that can cause a cough, wheezing and breathlessness. The severity of the symptoms varies from person to person. In Ireland, respiratory diseases are the third commonest long-term illness group after cardiovascular and musculoskeletal diseases, with asthma being the second most common single condition reported.

Causes

With asthma, the airways become over-sensitive and react to things that would normally not cause a problem, such as cold air or dust. Muscles around the wall of the airway tighten up, making it narrow and difficult for the air to flow in and out. The lining of the airways swell and sticky mucus is produced. This makes it difficult for air to move in and out and why the chest has to work so much. Tightening of muscle around the airways can happen quickly and is the most common cause of mild asthma. The tightening of muscle can be relieved with a reliever inhaler. However, the swelling and mucus happen more slowly and need a different treatment. This takes longer to clear up and is a serious problem in serious episodes of asthma.

Facts about asthma

The exact cause of asthma is not known. According to the Asthma Insights and Realities in Ireland (AIRI) report in 2002, 470,000 people have asthma in Ireland meaning approximately one in 8 of the population suffer from it. Ireland has the fourth highest prevalence of asthma in the world after Australia, New Zealand and the UK. The Irish Pharmaceutical Health Care Association (IPHA) reported there were 600,000 GP consultations for asthma in 1997 and it is likely this figure has risen since.

There is a strong genetic link, meaning that it can run in families. If a parent has asthma, the risk of their child getting it doubles. If both parents have it, it doubles again. And, if one in a family has asthma, the risk of the other children getting it increases, but it is not known by how much. In adults, it is more common in women than men. Asthma can start at any age, but most commonly starts in childhood. Adult onset asthma may develop after a respiratory tract infection. In many cases, asthma disappears during teenage years. Many people with asthma also suffer from other allergic conditions such as hayfever, eczema and hives. Asthmatics who also have hayfever find that their symptoms get worse during hayfever symptoms. In fact, research by allergy UK found that 69% of asthmatics who also had hayfever found their symptoms worsened during hayfever season. Asthma has got more common in recent years. The incidence of asthma among 13 and 14 year olds has increased by 40% from 1995 to 2003. The exact reason for this is not known. Many aspects of modern living such as changes in housing, diet and a more sterile home environment may have contributed to the rise in asthma over the last few decades.

Facts about asthma in children

Asthma in children is more common in boys than girls. Children who develop asthma at a very young age are more likely to 'grow out' of the condition as they get older. If asthma is moderate to severe during childhood, it is more likely to continue into adulthood. During the teenage years, the symptoms of asthma disappear in about three-quarters of all children with the condition.

Known risk factors for the development of asthma in children include:

- a family history of asthma, or other related allergic conditions (known as atopic conditions) such as eczema, hayfever or allergic conjunctivitis,
- developing another atopic condition,
- being exposed to tobacco smoke, particularly if the child's mother smoked during pregnancy,
- being born prematurely, and
- being born with a low birth weight.

A child with asthma should be taught to recognise the initial symptoms of an asthma attack, how they should respond, and when they should seek medical attention. Some children are less likely to develop asthma than others. Studies have found those children who are given fewer antibiotics and those who live on or near farms have less asthma than children with different backgrounds. Medical researchers explain this with the 'hygiene hypothesis'.

Symptoms

- Difficulty in breathing/shortness of breath.
- A tight feeling in the chest.
- Wheezing (a whistling noise in the chest).
- Coughing, particularly at night.
- Hoarseness

These symptoms may occur in episodes, perhaps brought on by colds or chest infections, exercise, change of temperature, dust or other irritants in the air, or by an allergy e.g. pollen or animals. Episodes at night are common, often affecting sleep.

Common triggers

Anything that irritates the airways and brings on the symptoms of asthma is called a trigger. Common triggers include house dust mites, animal fur, pollen, tobacco smoke, exercise, cold air and chest infections. Other triggers which are less common include non-steroidal anti-inflammatory drugs such as ibuprofen (Nurofen[®]) and diclofenic (Difene[®]), emotional factors such as stress, sulphites in some foods and drinks (found in certain wines and used as a preservative in some foods such as fruit juices and jam), mould or damp in houses and food allergies (eg) nut allergy.

What happens during an asthma attack?

During an asthma attack, something triggers a biological process called inflammation. Inflammation is one of the ways that the body's immune system fights infection. If the body detects a lung infection, it starts the process of inflammation. White blood cells engulf infection area to kill the infection and prevent it spreading. The white blood cells cause the airways to swell and produce mucus. In an asthmatic, the airways are very sensitive to the effects of inflammation. As a result, too much mucus is produced and the airways swell more than usual. Also, as a response to the inflammation, the muscles surrounding the airways begin to contract, making the airways narrower and narrower. The combination of excess mucus, swelling and contraction of the airways, makes breathing difficult and produces the wheezing and coughing that is associated with asthma.

Diagnosis of Asthma

A doctor will ask many of the following questions to help ascertain if asthma is the problem.

- Is there a family history of asthma?
- How long has asthma like symptoms been occurring?
- How frequent are the symptoms and how they affect quality of life?
- Has there been an attack or recurrent attacks of wheezing?
- Is there a regular night time cough?
- Does exercise trigger wheezing or coughing?
- Is there wheezing, chest tightness, or cough after exposure to airborne allergens or pollutants?
- Does the patient suffer from constant chest infections?
- Do chest infections take a long time to clear up?
- Are symptoms improved by when using a reliever inhaler?

The following tests are often done to confirm the diagnosis of asthma:

1. Spirometry is a simple breathing test that gives measurements of lung function. A spirometer is the device that is used to make the measurements. It is common to measure lung function with a spirometer before and after a dose of reliever to see if lung function has improved.
2. Peak Expiratory flow rate (PEFR) is a breathing test. It uses a simple hand held device called a peak flow meter which a person blows into to measure lung function. The PEFR test is only suitable for children over five years of age.
3. An exercise test to check if exercise worsens asthma symptoms.

When to get immediate help?

The following are signs of a severe asthma attack:

- The reliever inhaler (usually blue) does not help symptoms at all.
- The symptoms of wheezing, coughing, tight chest are severe and constant.
- Too breathless to speak.
- Pulse is racing.
- Feeling agitated or restless.
- Lips or finger nails look blue.

It is important to immediate medical help when these symptoms occur. An asthma attack can be fatal if not treated quickly. Asthma related deaths are extremely rare nowadays because of advances in modern medicine.

Non-Pharmacological Management

Asthmatics should be advised strongly not to smoke and to lose weight. Allergen avoidance measures may be helpful but the benefit of avoiding allergens such as dust mite, animal fur has not been proven in studies. Currently there is insufficient or no evidence of the clinical benefit of complementary therapy for asthma such as Chinese medicine, acupuncture, breathing exercises and homeopathy. In Whelehans, we have found that some asthmatics claim Lyprinol[®] relieves their asthma symptoms. Lyprinol[®] is a potent omega 3 supplement made from muscle lipid extract. It is available in Whelehans. Some studies have shown the benefit of Lyprinol[®] in relieving asthma symptoms. However, more studies are needed before it is conclusively proven to benefit asthma.

Treatment

There is no cure for asthma. Symptoms can come and go throughout the person's life. Treatment can help control the condition. Treatment is based on relief of symptoms and preventing future symptoms and attacks from developing. Successful prevention can be achieved through a combination of medicines, lifestyle changes and identification and avoiding asthma triggers. Chesty cough mixtures such as Whelehans Special Cough Mixture and Exputex[®] contain an expectorant which liquefy mucus so it can be coughed up easier.

Reliever inhalers

A drug called a short-acting beta 2-agonist open up the airways. These work quickly to relieve asthma. They work by relaxing the muscles surrounding the narrowed airways. Examples of beta 2-agonists include salbutamol (Ventolin[®], Salamol[®]) and terbutaline (Bricanyl[®]). They are usually blue in colour. They are generally safe medicines with few side effects, unless they are over used. It is important for every asthmatic to have a beta-2 agonist inhaler. If an asthmatic needs to use their beta agonist inhaler too regularly (three or more times per week) should have their therapy reviewed. The main side effects include a mild shaking of the hands, headache and muscle cramps. These usually only occur with high doses of relievers and usually only last for a few minutes. Excessive use of short acting relievers have been associated with asthma deaths.

This is not the fault of the reliever medication, but down to the fact that the person failed to get treatment for their worsening asthma symptoms. In exercise induced asthma, sufferers are advised to use a short acting beta2-agonist, 10-15 minutes before exercise, and again after 2 hours of prolonged exercise, or when they finish.

Preventer inhalers

Preventer inhalers are slower acting inhalers that reduce inflammation in the airways and prevent asthma attacks occurring. The preventer inhaler must be used daily for some time before full benefit is achieved. The preventer inhaler usually contains a medicine called an inhaled corticosteroid. Examples of preventer medicines include beclometasone (Becotide[®], Beclazone[®]), budesonide (Pulmicort[®]) and fluticasone (Flixotide[®]). Preventer inhalers are often brown, red or orange. The dose of inhaler will be increased gradually until symptoms ease. For example, a patient may start on a beclomethasone 100mcg inhaler and may be put on a beclomethasone 250mcg inhaler if there is not sufficient improvement in symptoms. Preventer treatment is normally recommended if you:

- have asthma symptoms more than twice a week
- wake up once a week due to asthma symptoms
- have to use a reliever inhaler more than twice a week

Regular inhaled corticosteroids have been shown to reduce symptoms, exacerbations, hospital readmissions and asthma deaths. The majority of patients require a dose of less than 400mcg per day to achieve maximum or near maximum benefit. Side effects are minimal at this dose. Smoking can reduce the effects of preventer inhalers. Preventers are very safe at usual doses, although they can cause some side effects at high doses, especially over long-term use. The main side effect of preventer inhalers is a fungal infection (oral candidiasis) of the mouth or throat so it is important to rinse the mouth with water after inhaling a dose. You may also develop a hoarse voice. Using a spacer can help prevent these side effects.

Long-acting reliever inhaler

If short acting beta 2-agonist inhalers and preventer inhalers are not providing sufficient symptom relief, a long-acting reliever (long-acting bronchodilator/long acting beta2-agonist) may be tried. Inhalers combining an inhaled steroid and a long-acting bronchodilator (combination inhaler) are more commonly prescribed than long acting beta 2-agonists on their own. These work in the same way as short-acting relievers, but they take longer to work and can last up to 12 hours. A salmeterol (Serevent[®]) inhaler is an example of a long acting reliever inhaler used in Ireland. Long-acting reliever inhalers should only be used in combination with a preventer inhaler. Studies have shown that using only a long-acting reliever can increase the chance of an asthma attack and can even increase the risk of death. Examples of combination inhalers containing long acting beta 2-agonist and steroids include Seretide[®] and Symbicort[®]. These are usually purple, red and white, or maroon. Long-acting relievers may cause similar side effects to short-acting relievers, including a mild shaking of the hands, headache and muscle cramps. Some studies have suggested that there may be a small increased risk of serious side effects, including severe asthma attacks and death, when using long-acting relievers with corticosteroids.

Preventer medicines

If treatment of your asthma is still not successful, additional preventer medicines will be tried. Two possible alternatives include leukotriene receptor antagonist tablets and theophylline tablets. Leukotriene receptor antagonist tablets block part of the chemical reaction involved in inflammation. Montelukast is the name of the drug and the brand name is Singulair[®]. Leukotriene receptor agonists do not usually cause side effects, although there have been reports of stomach upsets, feeling thirsty and headache. Theophylline tablets help widen the airways by relaxing the muscles around them. Theophylline has been known to cause side effects in some people, including headaches, nausea, insomnia, vomiting, irritability and stomach upsets. These can usually be avoided by adjusting the dose. Whelehans have less expensive but equally effective generic versions of most asthma inhalers in stock, ask our pharmacist for more details.

If asthma is still not under control, regular oral steroids (steroid tablets) may be prescribed. This treatment is usually monitored by a respiratory specialist. Long-term use of oral steroids has possible serious side effects, so they are only used once other treatment options have been tried.

Occasional use of oral steroids

Most people only need to take a course of oral steroids for one or two weeks. Once the asthma symptoms are under control, the dose can be reduced down slowly over a few days. Oral steroids can cause side effects if they are taken for more than three months or if they are taken frequently (three or four courses of steroids a year). Side effects can include:

- weight gain
- thinning of the skin
- osteoporosis
- high blood pressure
- diabetes
- cataracts and glaucoma
- easy bruising
- muscle weakness

To minimise the risk of taking oral steroids:

- Eat a healthy, balanced diet with plenty of calcium.
- Maintain a healthy body weight.
- Stop smoking
- Only drink alcohol in moderation
- Do regular exercise

When can therapy be reduced?

Once control is achieved and sustained, gradual stepping down of therapy is recommended. Good control is reflected by the absence of night time symptoms, no symptoms on exercise and the use of relievers less than three times a week. Patients should be maintained on the lowest effective dose of inhaled steroids, with reductions of 25-50% being considered every three months.

Spacer devices

Spacers are large plastic or metal containers with a mouthpiece at one end and a hole for the inhaler at the other. The medicine is puffed into the spacer by the inhaler and it is then breathed in through the spacer mouthpiece. Spacer devices in combination with metered dose inhalers (MDI) have a number of advantages: a) no need to co-ordinate inhaler activation with inspiration, b) increase in the amount of drug that enters the lungs and c) reduction in deposition of the drug in the mouth and throat (which reduces the risk of oral side effects such as oral thrush). Some inhalers emit an aerosol jet when pressed. These work better if given through a spacer, which increases the amount of medication that reaches the lungs and reduce side effects. Some people, especially children and elderly patients, find using inhalers difficult, and spacers can help them. However, spacers are often advised even for people who use inhalers well as they improve the distribution of medication in the lungs. Spacers are also good for reducing the risk of thrush in the mouth or throat with corticosteroid inhalers. When a spacer device is being used, only one puff of the inhaler must occur at a time.

Asthma and pregnancy

Medication used for asthma will not cause any problems for the developing baby in the womb. Due to the changes that take place in the body during pregnancy, asthma symptoms may change during pregnancy. For some women asthma improves, for others asthma worsens and for others asthma stays the same. The most severe asthma symptoms experienced by pregnant women tend to occur between the 24th and 36th week of pregnancy. Symptoms then decrease significantly during the last month of pregnancy. Only 10% of women experience asthma symptoms during labour and delivery, and these symptoms can normally be controlled through the use of reliever medicine. Asthmatics who are pregnant should manage their asthma in the same way as before pregnancy. The medicines used for asthma have been proven to be safe to take during pregnancy and when breastfeeding. The one exception is leukotriene receptor antagonists (Singulair®). There is no evidence that it can harm babies during pregnancy and breastfeeding. However there is not enough evidence about its safety compared with other asthma medications.

However, if leukotriene receptor antagonists are needed to control asthma during pregnancy, the GP or asthma clinic may recommend that they are continued. This is because the risks to the patient and child from uncontrolled asthma are far higher than any potential risk from this medicine.

More advice and information.

More advice and information about asthma is available from your pharmacist, your GP and from the Asthma Society of Ireland at 1850 445464 or on their website www.asthmasociety.ie

Disclaimer: Please ensure you consult with your healthcare professional before making any changes recommended. For comprehensive and free health advice and information call in to Whelehans, log on to www.whelehans.ie or dial 04493 34591. You can also e-mail queries to info@whelehans.ie.