

Heart conditions - angina

Angina (also known as angina pectoris, which in Latin means 'squeezing of the chest') is chest pain caused by insufficient blood flow and oxygen to the heart muscle. The heart muscle is serviced by the coronary arteries. If these arteries are narrowed, the reduced blood flow means that the heart muscle receives less oxygen than it needs to properly function. A common cause of narrowed coronary arteries is atherosclerosis, a condition characterised by fatty plaques, which develop in the artery walls. Angina is often a warning sign of an impending heart attack. If a coronary artery becomes blocked, either by fatty material or a blood clot, then part of the heart muscle is starved of oxygen. The cells of the heart, called myocardial cells, are damaged. The severity of the heart attack depends on how many myocardial cells are damaged or killed. Middle-aged and overweight male smokers are most at risk of angina.

Symptoms of angina

The symptoms of angina can include:

- Pain or discomfort in the middle of the chest
- Pain may be accompanied by breathlessness and sweating
- Pressure or a feeling of tightness in the chest
- Radiating pain to the neck, jaw and left arm, or both arms
- Sometimes, radiating pain in the upper back and shoulders.

Common triggers of angina

Angina attacks can be prompted by exertion or physical exercise, when the hard-working heart muscle requires greater amounts of oxygen. The pain usually fades away with rest. Other triggers of angina may include:

- High emotion, such as anger or excitement
- Cold temperatures
- Eating a large meal.

Unstable angina

Angina is usually triggered by exertion, and stops once the person rests for a few minutes. However, unstable angina is characterised by unpredictable attacks, even when the person is not being active. Unstable angina indicates that one or more of the coronary arteries may be dangerously narrow. The risk of having a heart attack is much greater if a person experiences unstable angina.

Risk factors for angina

Over time, the coronary arteries are narrowed by a layering of fatty deposits (plaques) in the inner linings of the artery walls. This is called atherosclerosis. These plaques are caused by a combination of factors, including:

- A diet high in cholesterol and saturated fats
- High blood pressure, or hypertension
- Cigarette smoking
- Insufficient exercise
- Obesity
- Uncontrolled diabetes

- Genetic factors, or an inherited susceptibility.

Diagnosis of angina

Angina is diagnosed using a number of tests, including:

- **Exercise stress test** – the heart is monitored using a device called an electrocardiogram (ECG), while you ride a stationary bicycle or walk on a treadmill. The test is halted once angina is triggered.
- **Cardiac catheterisation** – a tube, or catheter, is threaded into the coronary arteries via a blood vessel in the groin. A special dye is then injected into the coronary artery. This outlines the artery while movie x-rays are taken. Narrowings and blockages within the artery are outlined by the dye.

Treatment for angina

Medications

Treatment depends on the severity of the condition, but may include the following medications:

- **Aspirin** – taken on a daily basis to help manage the condition and reduce the risk of blood clots.
- **Nitrates** – drugs called nitrates can ease the pain of an angina attack. Nitrates can be taken in many forms, including an aerosol pump spray or a tablet dissolved under the tongue. The side effects of nitrates can include flushing, headache and dizziness.
- **Drugs to lower the cholesterol level** in the blood.
- **Drugs to lower blood pressure and slow the heart rate** – which reduces how hard the heart must work.

Other treatments

Treatment may also involve:

- **Lifestyle changes** – including quitting cigarettes, losing excess body fat, switching to a low fat diet and taking regular exercise (such as walking every day).
- **Surgery** – procedures such as angioplasty and bypass surgery are used if the angina doesn't respond to drugs and lifestyle changes.

Surgery

Surgery is not a cure for atherosclerosis. Unless substantial lifestyle changes are made, fatty plaques will continue to build up in the artery walls. The two main types of surgical intervention include:

- **Angioplasty** – a thin tube is threaded into the coronary arteries via a blood vessel in the groin, in a similar procedure to cardiac catheterisation. A small balloon attached to the end of the tube is inflated, which widens the blocked portion of the artery and allows increased blood flow to the affected part of the heart muscle. Stents (tubular grids) may be inserted to hold open the affected part of the artery.
- **Bypass surgery** – the blockage is bypassed with a section of vein, taken from the leg, or artery from the forearm or inside the chest. Blood flow is then directed through this newly attached blood vessel, into the coronary artery beyond the narrowing or blockage.

Long term management of angina

Fatty plaques will continue to narrow the coronary arteries unless the person makes substantial lifestyle changes under medical supervision. These include:

- Maintaining a healthy weight
- Having regular exercise
- Eating a low fat and low cholesterol diet
- Becoming a non-smoker
- Taking prescribed medications to treat angina
- Taking prescribed medications to treat high blood pressure and cholesterol.

Heart attack

Angina doesn't cause any lasting harm to the heart muscle. The danger of leaving the condition untreated, however, is the increased risk of heart attack. If the pain persists for more than 10 minutes, or is more severe than usual, it could be symptomatic of a heart attack. Seek medical attention immediately. The longer you wait, the greater the potential damage to your heart.

Where to get help

- Your doctor
- Heart Foundation Tel. (03) 9329 8511
- In an emergency, always call 000 for an ambulance.

Things to remember

- Angina is chest pain caused by insufficient blood flow and oxygen to a portion of the heart muscle.
- Arteries that service the heart are narrowed by fatty plaques, which reduces blood flow.
- Angina may be a warning sign of an impending heart attack.

This page has been produced in consultation with, and approved by:

Heart Research Centre

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