

Heart attack

Overview

The coronary arteries supply blood and oxygen to the heart muscle. Having a 'heart attack' usually means there has been a blockage somewhere in the coronary arteries causing some of heart muscle to die.

In most cases, this is accompanied by a crushing type of chest pain, felt behind the breast bone and perhaps spreading to either arm, the jaw or back of the head. The pain lasts longer than 10 minutes and the person feels horrible - frightened, nauseated, light-headed and sweaty.

A heart attack - also called a myocardial infarct, coronary thrombosis or coronary occlusion - can be fatal. It can cause an electrical 'short circuit' in the heart muscle so instead of contracting in the usually regular manner, the heart muscle loses its rhythm and quivers uselessly leading to cardiac arrest.

If this occurs, giving the heart an electric shock with a machine called a defibrillator is needed to reset it back to a normal rhythm. If this is not available cardio-pulmonary resuscitation (CPR) should be performed until appropriate help arrives.

Call 000 for immediate medical assistance.

Causes

A blockage to part of the blood supply to the heart muscle causes a heart attack. The heart requires oxygen, carried in the blood, for it to function. Without blood flow, there will be no oxygen available and chest pain will develop. If the lack of oxygen continues then death of some heart muscle will result.

The main cause of the lack of blood supply to the heart is coronary artery disease, which is the result of the build up of plaque in the artery walls supplying the heart muscle. When this plaque 'ruptures' it can lead to a clot formation around the plaque in the vessel, which in turn can lead to total blockage so no blood gets through.

A major problem is when heart muscle death triggers an abnormal rhythmic contraction, prevent it from pumping blood. In such cases, an electrical shock from a defibrillator is needed to 'reboot' the heart back into its correct regular beat.

Symptoms

About one in four heart attacks are not recognised at the time and are discovered only accidentally at a later date.

However, most heart attacks lead to:

- Severe chest pain that persists for 10

minutes or more, usually described as "crushing" or "like a tight band around the chest". Often it is mistaken for severe indigestion.

- Pain in either arm (most commonly the left), or the neck, shoulders, jaw and back of the head.
- Shortness of breath.
- Weakness.
- Dizziness or giddiness.
- Pale skin or grey in colour.
- Sweaty or clammy skin.
- Vomiting.
- Fear or anxiousness.
- Loss of consciousness or fainting.
- Abdominal pain.
- Fatigue.

If the person has been diagnosed earlier with angina (heart pain from restricted blood flow to the heart muscle), the usual medicines for angina should be given but will not relieve the pain.

Taking an aspirin may help prevent further damage caused by the restricted blood flow as it thins the blood, provided there is no known allergy to it.

If cardiac arrest occurs, CPR should be started immediately.

Call for immediate medical assistance by dialling 000.

Treatment

First aid

If a heart attack is suspected, tell the person to stop whatever they are doing and rest. If they have been prescribed medication for angina, either as a tablet (such as Anginine or Isordil) or a spray (Nitrolingual) - all of which are 'under the tongue' medications - give it to them as soon as possible.

Unless allergic to it, aspirin is usually recommended to help stop any further clotting in the heart's arteries.

A call to '000' to request an ambulance should be made as soon as possible.

Finally, be prepared to administer chest compressions if the person loses consciousness and mouth-to-mouth breathing if they have stopped breathing (CPR).

Hospital treatment

The diagnosis of a heart attack is made initially on the person's history and description of pain. It then requires a recording of the heart's electrical activity (electrocardiogram (ECG)) showing an alteration in its normal

pattern. Some blood tests will also be done to confirm the diagnosis.

After this, the aim of hospital treatment is to ensure that the heart is pumping adequately for survival and to minimise the damage to the heart by restoring blood flow to the injured area of the heart.

If the heart is not beating or beating in a very abnormal fashion, drugs and/or defibrillation will be used to correct this as far as possible.

As soon as the diagnosis of heart attack is established the person will be referred immediately for treatment to unblock the artery, either by physical intervention to unblock the offending artery, or "clot-busting" medications to dissolve the clot. What treatment is offered depends on the facilities available in the hospital and nearby hospitals

In larger hospitals with the necessary specialist services and equipment, the blocked artery can be cleared by use of a device (a 'stent') inserted into position and opened up to hold the artery open. If the use of a stent is not appropriate because of the nature or position of the blockage, coronary artery by-pass grafting (CABG) may be advised. This is a more major operation, where veins from the lower leg are taken and joined ("grafted") onto the damaged coronary artery above and below the blockage to divert the blood around the blocked sections so normal blood flow to the heart muscle can commence again.

In a local and regional hospital, clot dissolving therapy (fibrinolysis) given intravenously is most likely to be offered. It works best if it is given within six hours. Outside that time limit, the risks outweigh the benefits and they may not be used.

Medicines

There can be a wide variety of drugs used after a heart attack, depending on the course of the condition in hospital.

Blood thinning medications will be prescribed unless there is an allergy or bleeding problem and will include aspirin in combination with either clopidogrel or prasugrel.

Beta blocking drugs are commonly used for their multiple benefits. These include lowering the risk of abnormal rhythms of the heart, as well as also decreasing the blood pressure and reducing the force of the heart's pumping action. A history of asthma may make this family of drugs unsuitable for use.

Heart attack

Drugs to reduce cholesterol will almost certainly be used. These reduce the likelihood of further plaque build-up and stabilise plaques making them less likely to rupture.

Blood pressure medication may be required.

Lifestyle and diet

Reducing fat in the diet is a must to decrease the amount of cholesterol in the system and lower the risk of further plaque build-up in the arteries.

Reducing salt intake is also advised to decrease high blood pressure (hypertension) and keep the arteries stretchy or elastic.

Increasing fibre, fruit and vegies, and decreasing red meats and high fat foods like cream, butter and cheese is a good idea, as are no added salt, low fat diets.

Rest is important at the time and for 2-3 days in hospital. Once discharged, a heart rehabilitation course is often offered, with guided, gradual increase in activity, including resumption of sexual activity, over the period of the course. Moderate exercise with a view to reducing weight towards the person's ideal weight will also be suggested.

Giving up smoking will be the first piece of advice offered. Good control of diabetes mellitus (diabetes = type 1 + type 2 mellitus) will also be encouraged.

Support and resources

- www.heartfoundation.org.au

ItsMyHealth.com.au