

# Heart Disease

## What is ischaemic heart disease?

Ischaemia is a condition where there is a decreased blood flow in the blood vessels supplying blood to the heart muscle. This results in inability to provide adequate Oxygen to heart muscle (ischaemia) and this can cause damage to the heart muscle.

The commonest cause of ischaemic heart disease is atherosclerosis, in which fatty deposits (plaques) build up gradually and accumulate on the inner walls of the coronary arteries and this leads to narrowing and hardening of the blood vessels supplying blood and oxygen to the heart muscle.

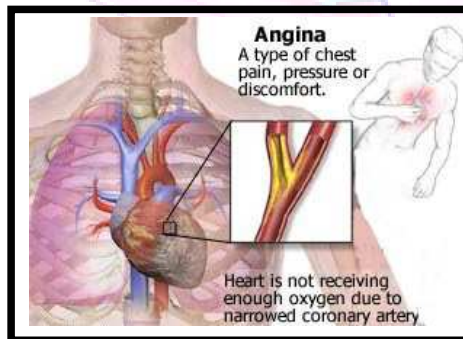
## Symptoms of Ischaemic heart disease.

The manifestations of ischaemic disease can range from asymptomatic disease to a severe chest pain and sudden death.

## Types of Ischaemic heart disease.

### 1. Angina

Healthy Muscle



Blood Clot

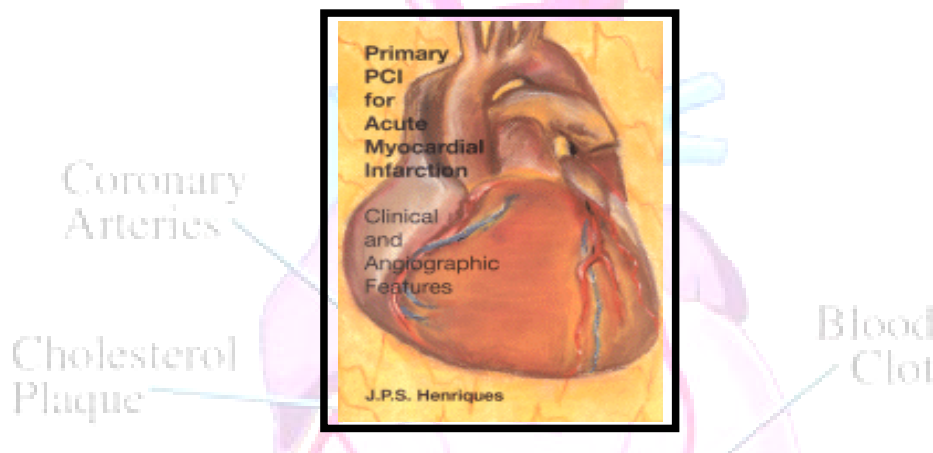
Dying Muscle

Is caused by decreased blood flow in the coronary arteries, which become blocked by plaques. The pain of angina is usually experienced in the centre or left side of the chest and often

radiates to the left arm and neck. Angina can be precipitated by a number of events which increase the amount of oxygen which the heart needs beyond that which can be supplied and this include physical exertion, heavy meal, cold weather and emotional stress.

There are many types of angina and among these are stable and unstable anginas. Stable angina, this is usually felt with some kind of exertion, which may be mild and the pain or the heaviness is relieved by rest. Unstable angina involves any new onset angina which is frequent and severe, people with angina which is worsening in severity and increasing in frequency, and angina which occurs at rest.

## 2. Myocardial infarction ( heart attack)



Complete occlusion of the blood vessels leads to a heart attack (death of part of the heart muscle). People usually describe this as heaviness, pressure, squeezing or choking, often using a clenched fist against the centre of the chest to localise the feeling. A fair proportion of people will have no symptoms, except sudden death. Heart disease is the leading cause of death among both sexes and the death rate is higher for men than for women between the ages of 35 and 55.

### **Risk factors for atherosclerosis and ischaemic heart disease.**

- ❖ Family history of ischaemic heart disease.
- ❖ Hypertension.
- ❖ Diabetes.
- ❖ Smoking.

- ❖ Overweight.
- ❖ Elevated cholesterol.
- ❖ Sedentary life.
- ❖ Emotional stress.

## **Diagnosis of ischaemic heart disease.**

If you go to your doctor with symptoms of angina he/she will ask you questions about your complaint and the risk factors outlined above and examine you physically. Then you will be sent for an electrocardiogram (ECG), which measures the electrical activity of the heart, which surprisingly may be normal in some cases. In a lot of cases, there are characteristic changes of which suggest heart ischemia. Confirmation of ischaemic heart disease may be obtained by doing treadmill exercise test (TME). In this your ECG is taken while you are exercising on a treadmill and this is a fairly reliable test. The definitive test is invasive and called coronary angiography or angiogram. In this, a dye is injected into the coronary arteries, and they are then seen on a screen using X- ray techniques.

## **Treatment of ischaemic heart disease**

Treatment is aimed first at reducing risk factors. You can not do anything about your genes and your gender. But by reducing certain risk factors, we can both prevent ischaemic heart disease and delay it's progression and complications after it has become manifest.

### **1. General prevention measures.**

- ❖ If your 75 year-old parent died of a heart attack, then that does not necessary place you at any more risk than the rest of the population. However, if your parent died of a heart attack aged 55, you are smoker, with high blood pressure and maybe diabetes as well, then start taking control of your life if you don't want to do the same.
- ❖ Stop smoking.
- ❖ To comply and continue on your treatment for high blood pressure and diabetes.
- ❖ Treatment of elevated cholesterol levels with low fat diet; exercise with or without cholesterol lowering medications. This has now been shown to delay the progression of

atherosclerosis and in some cases has even produced regression of the atherosclerotic plaques.

- ❖ Maintain ideal body weight. Engage in a program of moderate daily physical exercise and control your diet.
- ❖ Reduce stress e.g. by taking short breaks, relaxation techniques etc.

## 2. Medical treatment

Different types of medications are available such as

- Beta-blockers- reduce the heart rate and so reduce the demand for oxygen.
- Nitrates- cause dilatation of the blood vessels.
- Calcium channel blockers- prevent the blood vessels from constricting and thus prevent coronary artery spasm.
- Anti-platelet drugs- such as aspirin. Aspirin binds to platelets and prevent them from clumping on blood vessel walls- thus preventing platelets from forming a clot on the fatty plaques which could block an artery and result in heart attack.

## 3. Surgical treatment.

- Balloon angioplasty (PTCA). A small uninflated balloon is passed up the artery to the obstruction, and then expanded to release the obstruction.
- Open heart surgery to bypass the obstructed coronary arteries (CABG). Here a section of vein usually taken from the leg is used to form a connection between the aorta and the coronary artery beyond the obstructed area.

## Prognosis

Treatment can prolong life and improve its quality. It is very important to follow your doctor's instructions especially with respect to medications and life style changes.