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## **HEART ATTACK - a patient's guide**

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### **What is a heart attack?**

Other names: Myocardial infarction, (MI)

Normal

Your heart is a muscle pump that delivers blood to the body each time it beats. It is fueled by blood from the coronary arteries.

Abnormal

A blood clot may form and block one of these arteries. If the blockage is not promptly relieved, the heart muscle supplied by that artery will die. This is a heart attack or myocardial infarction.

### **Causes**

The blood clots that cause heart attacks form on areas of the coronary artery wall damaged by 'atherosclerosis' (narrowing of the arteries).

### **Risk factors**

The risk factors for developing atherosclerosis include male gender, age, cholesterol, smoking, high blood pressure, diabetes, obesity, stress and family history of ischaemic heart disease (angina or myocardial infarction).

### **Genetics**

A history of angina, heart attack, cardiac bypass surgery or coronary angioplasty in a parent or sibling is a powerful risk factor for heart attack.

### **Gender differences**

Women are to a degree protected by female hormones from developing atherosclerosis, until they reach menopause. In general, women develop heart attacks 10-15 years later than men do.

### **What are the symptoms?**

A heart attack may start at rest or when you are exerting yourself. It is typically a sensation of tightness or pressure behind your breast bone (sternum). It may also be felt in the arm, between the shoulder blades, neck or jaw. The pain is similar to that of angina, but it is not relieved by GTN tablets or spray placed under the tongue. Other symptoms include cold clammy skin, shortness of breath, faintness and nausea.

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Sometimes death can follow rapidly after the onset of an MI because the heart develops an abnormal rhythm, which prevents it from pumping blood. On the other hand, some people notice no symptoms at all and the "silent" MI passes unrecognised.

### **What tests will the doctor consider?**

Tests & shortcomings

The doctor will obtain an electrocardiograph (a tracing of the electrical activity of your heart). Sometimes this may not show the typical changes of an MI until some hours later. Blood will be drawn to measure enzymes that are released from damaged hearts, although these may not become abnormal for 6-24 hours following the onset of MI.

### **What treatment options are available?**

Natural history

A heart attack is a medical emergency because life-saving treatment needs to be given as soon as possible. That is why you should call an ambulance if chest pain lasts longer than 15 minutes.

Lifestyle

Changes will need to be made after recovery.

### **Drug treatment**

Aspirin

A whole aspirin (300-325 mg) should be given as soon as possible following the onset of an MI (except for those allergic to aspirin). It reduces the chance of dying by about 13%. It should be continued long term.

Thrombolytic agents ("clot-busters")

These agents may be administered in hospital through your vein ('intravenously'). They work together with aspirin to break down clots, preventing death of heart muscle and further reduce the chances of dying. This treatment carries a small risk (about 2%) of causing bleeding in the brain (stroke). For each individual case, your doctor will advise whether the benefits of treatment outweigh this small risk.

Beta-blockers

Beta-blockers also reduce the risk of dying (by about 20%) and need to be continued for 2-3 years and possibly longer. They relieve stress on the heart by slowing it down and allowing it to pump less vigorously. Beta-blockers may worsen asthma and heart failure and therefore are not usually given to people with these conditions.

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Angiotensin converting enzyme (ACE) inhibitors

ACE inhibitors will reduce the risk of dying by 7-27% following some types of MI. When indicated their dose will gradually be increased, and then maintained for 2-3 years.

### **Surgery or other intervention**

Angiography

Coronary artery X-rays (angiography) will outline blockages that may be relieved by angioplasty or surgery. Whether it is performed depends on the presence of ongoing pain following the MI but practises vary widely between countries and individual doctors.

Angioplasty (percutaneous transluminal angioplasty, PTCA)

This procedure is similar to an angiogram, being done by passing thin tubes up from the groin whilst you are lightly sedated. A tiny balloon is passed down the narrowed vessel and inflated to clear the blockage. Usually you can leave hospital the following day, however over the next six months there is one chance in three that the procedure will need repeating (because the artery closes up again).

Cardiac surgery (coronary artery bypass grafting, CABG)

This is open heart surgery where the narrowed and blocked arteries are bypassed with other vessels. You will be in hospital for about one week. It takes about six weeks for the chest scar to heal and full recovery to occur.

Primary angioplasty

Some hospitals will perform angioplasty as soon as you are admitted to hospital with an MI, instead of administering clot-busting drugs.

### **Prognosis**

Recovery and return to work takes about six weeks following an MI. You will be allowed to gradually increase your physical activities during this time.