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Date : 08-Sep-2009 Edition : Delhi Page No.: 24 Page Name: n.a. Size: 942.24 sq. cm

Sector: Pharma Healthcare and Biotech Circulation: 140000 AVE: Rs.518233.58 Frequency: Daily

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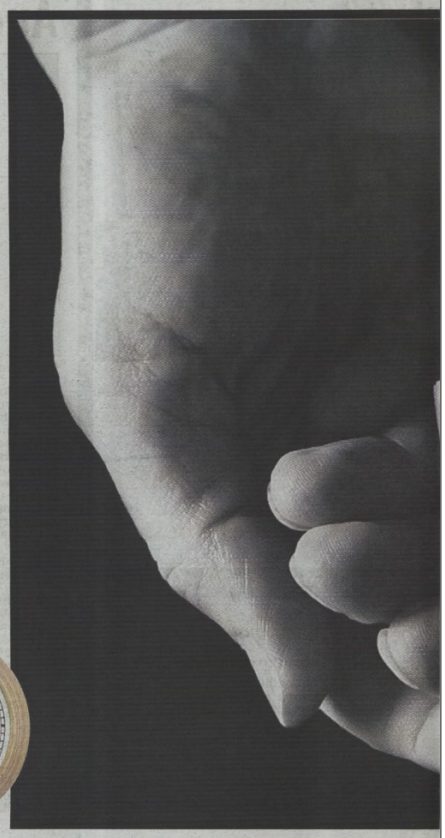
THE HEART OF

The heart is our most precious organ and caring for it is crucial. Here we guide you on how to identify and deal with cardiac problems

By MANU MOUDGIL



YOUR HEART may "miss a beat" when confronted with a breath-taking view or may just "break into pieces" after failure in love. Both these expressions used to explain deep emotions are for real in medical science. Besides being the seat of romantic thoughts and emotions, the heart is one of the most important organs of our body as it also supplies oxygen- rich blood or life to all other organs. And that's why any harm to the heart can be fatal. Heart disease is, in fact, the most prominent disease faced by modern man. In the last 50 years, the rate of coronary heart disease among urban Indians has risen from 4 per cent to 11 per cent. Heart ailments are responsible for almost one third of all deaths among this population, and according to WHO estimates, Indians will make up 60 per cent of the world's cardiac patients by 2010.

Even if you are healthy, you run a basic risk for a heart attack. If you exercise regularly, eat healthy food and have an ideal body weight, you are less likely to suffer a heart problem. But the risk is never zero and just gets multiplied by factors such as family history, high body fat, smoking and diabetes.

WHY HEART ATTACKS HAPPEN

A HEART attack occurs when blood flow in the heart meets an obstruction (caused by fat accumulation) on its way. This blockage deprives the heart muscles of blood and oxygen and if blood flow is not restored within a few hours, the heart muscles start dying. If a heart attack is mild, not many muscles are affected and there may not be any complications to alert you to it. You would go on with life as usual. However, in the effort to heal itself, the heart goes through remodelling. It enlarges and changes shape. This remodelling eventually leads to a decrease in blood pumping, and another heart attack months or years after the first one.

If the damage due to heart attack is extensive, it causes extremely low blood pressure and the person develops immediate heart failure leading to death. This is what is termed as cardiac arrest. So, you can probably live after a heart attack but not after a cardiac arrest. "Around 50 per cent of the patients of heart attack die immediately due to cardiac arrests. Of those who get some medical attention or survive a heart attack, 30 per cent risk a recurrent attack. The scar that forms on the muscle after a heart attack leads to a loss of coordination between different chambers of the heart and hence permanent instability in the heart beat," says Dr K K Sethi, Director of the Delhi Heart and Lung Institute.

The good news, however, is that most heart muscle can be saved with prompt medical attention. If treatment is delayed beyond 6 hours, the amount of heart muscle that can still be saved drops significantly.

ALL OF US ARE AT RISK

IF YOUR father, mother, brother or sister developed a cardiac ailment before the age of 55, you are also likely to have the gene which puts you at a greater risk of a heart attack. "A family history of cardiac problems means you have a deficient enzyme system which will lead to the production of high cholesterol, and consequently heart problems. You may be on a healthy diet, but still have high cholesterol because around 60 per cent of cholesterol is produced by our own body," says Dr Neeraj Bhalla, senior interventional cardiologist, Max Heart and Vascular Institute. The gene defect runs in the family and gets activated very easily. Around 20-30 per cent patients in India have a family history of heart disease.

Central obesity, which means carrying extra weight around the waist, is another reason for heart disease. Abdominal fat can increase the production of bad cholesterol, which gets deposited on the inside of blood vessel walls and causes clotting. Another risk factor can be high blood pressure which poses strain on your heart, makes it work harder to pump blood and damages blood vessels. Diabetics are also at increased risk of a heart since high blood sugar can lead to increased deposits of fatty substances on the insides of the blood vessel walls, as well as high cholesterol. Most diabetics do not die from high blood sugar, but from cardiac complications instead!

Smokers and drinkers are also at greater risk. Nicotine constricts blood vessels, and carbon monoxide can damage their inner lining, making smokers more susceptible to fat deposition. Smoking also increases the heart rate, decreases the heart's ability to carry and deliver oxygen, reduces the good cholesterol and leads to activation of blood-clotting cells. Every alcoholic drink increases the level of triglycerides, which is a strong predictor of cardiac disease.

While women are generally protected against the heart attacks by their high estrogen level, by the age of 60 a woman's risk of heart attack equals that of a man.

SYMPTOMS OF AN ATTACK

Time is the most crucial factor when it comes to dealing with someone having a heart attack. Here are some symptoms to which you need to respond immediately:

- Most heart attacks start slowly, with mild pain or discomfort. Those affected aren't even sure about what's wrong and wait too long before getting help.
- Most heart attacks involve discomfort in the centre of the chest that lasts more than a few minutes, or goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- Symptoms can also include pain or discomfort in one or both arms, the back, neck or jaw . Shortness of breath, breaking into a cold sweat, nausea or lightheadedness are other signs.
- The most common symptom among women is chest pain. But women are more likely than men to experience other signs, particularly shortness of breath, nausea, and back or jaw pain.
- Pain or a burning sensation or even distension of the stomach or vomiting can also be an alarm from your heart.

PULSE TELLS HEART HEALTH

Our pulse rate is a good indicator of heart health, and ideally this should be less than 70. A study published in the European Heart Journal says men whose heart rate increased the most during mild mental stress had twice the risk of dying of a sudden heart attack in later life, compared with men whose heart rate did not increase as much. Our heart rate is controlled by various hormones secreted by the nervous system including adrenaline. Some people produce more adrenaline, which increases their heart rate. But once the threat or stress is gone, the body returns to a state of balance. If this internal thermostat is out of balance, this may cause a higher resting heart rate.When the heart beats too quickly, it does not have enough time to fill with blood , so cannot effectively pump oxygen-rich blood to the rest of the body. This can cause cardiac arrest. Ironically, the key to attaining a perfect heart rate is to make your heart beat faster for an hour per week with exercise. Athletes have lower heart rate than an average person which indicates their heart functions more efficiently.

ANGIOPLASTY OR BYPASS?

THERE are two ways doctors can treat a blockage in the blood arteries. Angioplasty is performed by placing a catheter in an artery in your arm or groin and threading a small balloon to your blocked artery and inflating it to reopen the artery. A small metal coil called a stent is often placed in the artery during angioplasty. The stent helps keep the artery open. This is a non-invasive procedure since it does not require opening up of the chest.

A more invasive procedure is bypass surgery. In this, the blocked portion of your artery is removed and a vein from another part of your body usually the leg replaces the diseased part of the artery. "Angio-

GET THESE TESTS DONE TO DETECT

Cholesterol tests:
THEY determine if the level of bad cholesterol is high enough to cause blockage in the arteries supplying blood to the heart. The bad cholesterol called LDL is responsible for a heart attack and should be kept under 100, whereas good cholesterol (HDL) protects the heart by removing fat from your arteries and should be more than 50.

C-reactive protein (CRP):
THIS test reveals inflammation of the arteries, a risk factor for cardiovascular disease. The body produces CRP during the general process of inflammation. Inflammation in any body part also leads to an increase in levels of C-reactive protein. So this has to be confirmed with other tests and symptoms to determine if the inflammation is related to the arteries.

Electrocardiogram (ECG):
THIS is the main test used to diagnose a heart attack by recording the electrical activity of your heart via electrodes attached to your skin. Impulses are recorded as waves displayed on a monitor or printed on paper. Because injured heart muscle doesn't conduct electrical impulses normally, the ECG may show a heart attack in progress.

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Date : 08-Sep-2009 Edition : Delhi Page No.: 25 Page Name: n.a. Size: 944.76 sq. cm

Sector: Pharma Healthcare and Biotech Circulation: 140000 AVE: Rs.519620.00 Frequency: Daily

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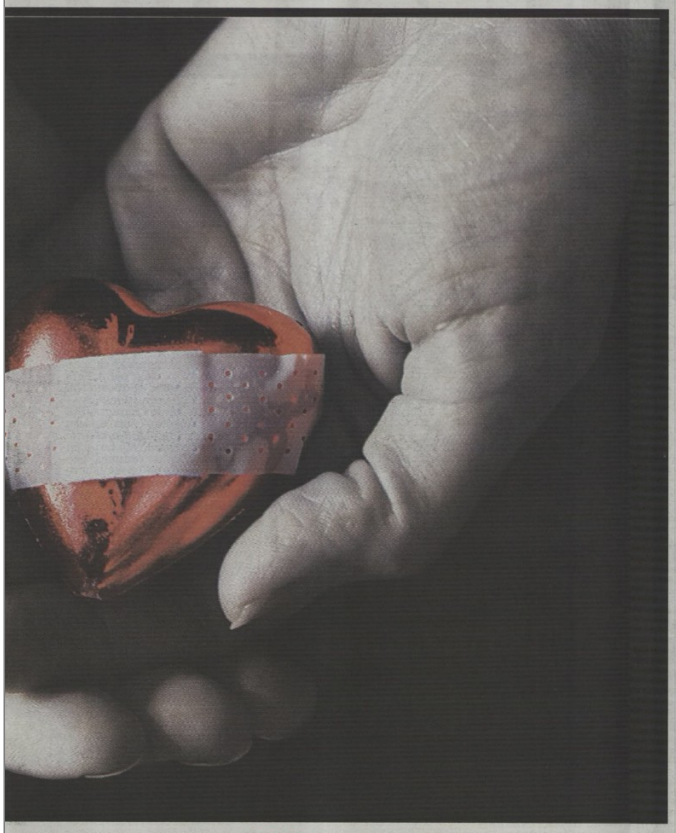
THE MATTER



plasty is a better option if single or double vessels are to be unclogged. It's still good if there are three vessels and the patient is non-diabetic. But if the patient is diabetic with three or more vessels to be operated upon, bypass surgery is a better option," says Dr Bhalla.

The patient can be relieved from hospital the next day after an angioplasty and the recovery is faster as compared to bypass surgery. Elderly patients are generally recommended angioplasty because of lesser risk factors and early recovery. Cost of the treatment may depend upon the number and quality of stents being used. An angioplasty would cost you Rs 1 lakh upwards depending upon the number and quality of stents used while a bypass surgery would cost you Rs 1.75 to 2.5 lakh.

LIFE AFTER HEART ATTACK

A HEART attack doesn't mean the end of a normal, healthy life. What it does mean, however, is a change in lifestyle. Heart attacks serve as a wakeup call for all the smokers to quit tobacco. It is best to avoid fats, especially animal fats and saturated fats, desserts that are high in sugar and butter. Regular physical activity will ease stress, help control weight and lower blood pressure and cholesterol levels. Control of diabetes is another important factor that should be considered.

A heart attack leads to damage of the heart muscle, which in turn leads to remodelling by the heart. This results in a drop in volume of the blood being pumped. If the drop is 40 per cent or more of the normal blood supply, there are greater chances of a recurrent heart attack. Drugs like ACE inhibitors are given to prevent remodelling of the heart. Aspirin, a common medicine used for headache, is also useful for heart patients as it retards blood clotting. " Beta blockers, which reduce the heart rate by blocking the affect of adrenaline, are also recommended. In addition, statins are given to lower cholesterol levels," says Dr Balbir Singh, senior interventional cardiologist, Indraprastha Apollo Hospital.

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A POTENTIAL PROBLEM

Echocardiogram:
During an echocardiogram, sound waves are directed at your heart from a device held on your chest. These waves bounce off your heart and are reflected back through your chest wall, providing video images of your heart. An echocardiogram can help identify whether an area of your heart has been damaged by a heart attack.

Angiography:
This test can show if your coronary arteries are narrowed or blocked. A liquid dye is injected into the arteries of your heart through a long, thin tube that's fed to the arteries in your heart. As the dye fills your arteries, they become visible on X-ray, revealing areas of blockage. It is the most definitive test about the position and the amount of blockage.

DEALING WITH AN EMERGENCY

IF SOMEONE you know has a heart attack, you have only a few minutes to act before it is too late. That's why it's vital to know what to do beforehand.

1 The first thing you should do if you feel that either you or someone around you is experiencing a heart attack is to call an ambulance, move to an open area and take deep breaths. If you have a gauge at home, check blood pressure as an attack leads to a drop in B.P.

2 If you know that you are at risk of a heart attack, always keep a nitroglycerine spray within reach. " Spray twice under your tongue. Nitroglycerine dilates blood vessels, removes blockages and makes it easier for blood to flow through them. This helps the heart pump the blood," says Dr Peerzada Badruduja, emergency medical officer at Max Healthcare. If you don't have the nitroglycerine spray, chew 325 mg of aspirin. Chewing the pill pushes it faster into the bloodstream than swallowing. Aspirin should not be taken by people who have been advised otherwise because of allergies or possible harmful interactions with other medications or known disease complications. Painkillers can be taken to relieve chest pain.

3 If the person becomes unconscious, make sure he is lying on his back on a hard surface. Check for breathing by looking for falling and rising movement of the chest, feeling the breath on the cheek and listening to it. Also check the pulse by placing two fingers on one or the other side of the person's neck muscle adjacent to the Adam's apple to feel if he has a carotid pulse. Carotid pulse is a better indicator of a heart attack than pulse on the wrist because it's nearer to the heart.

4 If there is no breathing or pulse, the patient has had a heart attack. Provide artificial respiration in this case. Tilt the head back and lift up the chin. Pinch the nostrils shut with two fingers to prevent leakage of air. Take a deep breath and seal your own mouth over the person's mouth. Push two deep breaths inside the person's mouth for expansion of patient's lungs. Also start cardiopulmonary resuscitation (CPR). "Once you reach 30 compressions, ask somebody else to administer two artificial breaths. The frequency of compression should be 100 times a minute. This would supply oxygen to the brain and other tissues. The latest research says just compressing for 8 minutes can pull up the body reservoir and the patient can survive the cardiac event," says Dr Badruduja.

5 At a hospital emergency, ECG is the first test to be done. Along with this, medications like aspirin, nitroglycerine, and morphine are given to treat chest pain and beta blockers to reduce the heart rate. Clopidogrel is given to check blood clotting. Tests for cardiac enzymes which are released by heart muscles when they are damaged are also done. Peak levels of these enzymes may vary depending upon the type of enzyme released during the event.

6 While an ECG tells you which part of the heart is affected, angiography pinpoints the artery which is blocked and the amount of blockage. Depending on this your doctor can recommend angioplasty or bypass surgery. However, if a patient can't afford to undergo surgery due to financial constraints and if the blockage is not high, thrombolytic therapy can be given. It involves injecting clot-dissolving medicines within recommended time, but it can only be given to people whose blood coagulation is normal and they have not undergone any recent major surgery otherwise profuse bleeding can take place.

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