

# ANGIOPLASTY FOR ANGINA

THERE ARE TWO MAIN TYPES OF TREATMENT FOR PEOPLE WITH ANGINA (CHEST pain) caused by coronary artery disease: medications (medical therapy) and interventional treatment (treatment that opens or bypasses narrowed coronary arteries). The goals of these treatments are to improve a person's quality of life and to alleviate symptoms such as angina.

Chest pain that is a consequence of decreased oxygen rich blood to a portion of the heart muscle is called angina pectoris. Angina is a signal that the heart muscle is not getting sufficient blood flow, specifically sufficient oxygen. Lack of oxygen to the heart muscles is termed ischemia. A person with narrowed arteries may develop angina during activity, exercise, or any other physical or mental stress that increases the heart's demand for blood.

For people who have had a heart attack or unstable angina (angina that comes on with minimal physical activity or even while one is resting), coronary angioplasty is sometimes used as an emergency treatment.

Coronary angioplasty, also known as percutaneous coronary intervention or PCI is a procedure that uses a flexible plastic catheter with a balloon at the end to widen up narrowed arteries in the heart. The procedure usually includes placement of a metal stent to hold the artery open. In this way, angioplasty helps to restore blood flow to the heart muscle and help to relieve angina symptoms.

Angioplasty may be recommended in addition to medical therapy for two groups of people with stable angina:

- People who have persistent and intolerable symptoms despite adequate medical treatment
- People who have specific patterns of arterial narrowing and a high risk of either a heart attack or death

The usefulness of angioplasty depends upon the severity of arterial narrowing. Angioplasty is often recommended when arterial narrowing is moderate to severe or when only one or two coronary arteries are severely narrowed. It may be less effective in patients who have diabetes. People with diabetes appear to have greater benefit from bypass surgery, especially if there involvement of their left main arteries or when there are two or three vessels involved.

People who have extensive coronary heart disease, including a large number of narrowed coronary arteries or narrowing of the left main coronary artery and poor pumping function of their left ventricle (lower heart chamber), tend to do better when they have coronary artery bypass surgery rather than medical treatment.

Angioplasty is usually performed in a hospital in an area called the catheterisation laboratory. The procedure usually takes between one and two hours. To open the narrowed artery, a long, thin catheter with a deflated balloon at its end is inserted into an artery in the leg (the femoral artery) or the arm (the radial artery). The catheter is guided through blood vessels to the beginning of a narrowed coronary artery in the heart. The placement of the catheter is confirmed by injecting a dye into the coronary artery and using a type of x-ray machine (called a fluoroscope) to view the catheter's position.

The balloon is then inflated, which expands the narrowed artery. A stent (an expandable metal tube usually made of wire mesh) is usually placed after the

vessel is expanded to reduce the risk of narrowing in the future. Some stents are coated with a medication (called drug-eluting stents) to help prevent the development of excessive tissue growth. This tissue forms in an effort to "heal" the stented area and could potentially narrow or totally block the coronary artery over time. The drug-eluting stent releases a medication that helps to prevent excessive tissue growth. The latest stents include those that are bioresorbable over time.

Angioplasty is an invasive procedure and is associated with risks that should be discussed with a doctor prior to the procedure. The extent of this risk depends upon many individual factors. Complications of angioplasty are fortunately relatively infrequent.

Occasionally, angioplasty creates a small tear (dissection) of an internal layer in the coronary artery. Usually, the tear is small and heals by itself. In some cases, the intimal tear is corrected with a stent. If the tear is severe, causing a blockage in blood flow in the artery or loss of blood around the heart, immediate treatment is given. This usually includes a repeat angioplasty and insertion of a stent. Rarely, would a person need urgent bypass surgery, but this may be necessary in less than one per cent of patients.

Other potential risks and complications include:

- Stroke
- Irregular heart rhythms (arrhythmias)
- Allergic reactions to the dye or medications used during the procedure
- Kidney damage
- Excessive bleeding
- Infection
- Radiation exposure from the X-rays

In the majority of cases, the blood flow through the artery is improved, and many people will find that their symptoms have improved. Although angioplasty restores blood flow and relieves symptoms in over 90 per cent of patients, there remains a small risk of recurrent symptoms within six months, often due to recurrent narrowing (restenosis) of the artery. This stent restenosis risk, is fortunately further reduced with compliance of prescribed modern day contemporary anti-platelet medications. ■



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