

Stents to Treat Coronary Artery Blockages

The coronary arteries supply blood to the heart muscle. Cholesterol and calcium can deposit plaques on the walls of these vessels, reducing the amount of blood that can flow through them. This is known as **atherosclerosis**, literally hardening (**sclerosis**) of the arteries (**athero**). Lack of enough blood to the heart muscle may cause chest pain, which is usually described as a pressure sensation in the front of the chest. Patients often say it feels like “an elephant sitting on my chest.” Pain may also be felt in the left arm. When there is a severe shortage of blood supply to the heart, some of its muscle may die, causing a heart attack (**myocardial infarction**). The November 7, 2012, issue of *JAMA* is a theme issue on cardiovascular disease.

CORONARY STENTS

When the coronary arteries become too narrow, cardiologists may perform an **angiogram**, a test that involves passing a catheter from a large artery in the leg or arm into the heart's coronary arteries. Dye is injected to see how narrow the artery is. If the coronary artery is too narrow, a balloon in the catheter is inflated to dilate the narrowed artery. This is called **angioplasty**. Arteries in about a third of the patients who have undergone this procedure will become narrow again. To fortify the vessel, a metal device called a stent may be placed inside the narrowed portion of a blood vessel, like a small pipe, to allow blood to flow through them.

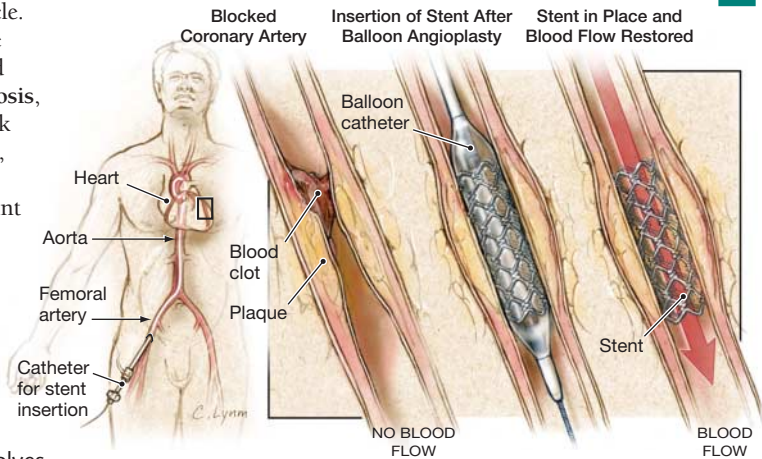
The surface of the stent may interact with blood, causing it to clot, which could obstruct blood flow to the heart muscle and cause a heart attack. Most clots are caused by **platelets**, cells on the blood that help blood clot (see *JAMA Patient Page*, October 10, 2012). Drugs that impede platelets from forming clots, like aspirin, are given to patients to reduce the risk of clots forming in the stents. Other drugs used for this purpose are prasugrel, ticagrelor, clopidogrel, and ticlopidine. If the stent is uncoated, then some medication to reduce platelet action is necessary throughout the patient's life. Some stents have coatings that slowly release medications to prevent blood clotting. These are called **drug-eluting stents**, and patients with them only need to take platelet-inhibiting medications for a short while after the stent is placed.

WHAT TO ASK YOUR PHYSICIAN

Heart catheterization, angioplasty, and stent placement can be performed in a variety of health care settings. Sometimes, narrowing of the coronary arteries is severe enough that angioplasty and stent placement will not be effective. Opening the chest and bypassing the blocked arteries with arteries found in the chest or veins taken from the legs may be necessary. This is called **coronary artery bypass graft (CABG)** surgery. This can only be performed at a major hospital. Because it is occasionally necessary to do this operation very soon after an angiogram is performed, it is best to have the angiogram and any stent placement performed at a hospital that offers a full range of services, including performance of CABG surgery.

Ask your doctor what kind of stent he plans to use and why. Find out how long you will need to take medications that reduce blood clotting.

Despite these advances in technology, the very best treatment for heart disease is to stop smoking, lose weight, and control diabetes, hypertension, and cholesterol levels.



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- Risk Factors for Heart Disease, May 27, 2009
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FOR MORE INFORMATION

- National Heart, Lung, and Blood Institute
www.nhlbi.nih.gov
- American Heart Association
www.heart.org
- Choosing Wisely—An initiative of the American Board of Internal Medicine to inform physicians and patients about unnecessary tests and improving medical care
choosingwisely.org

Sources: American Heart Association, Mayo Clinic

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