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Education

Heart Catheterization

What is heart catheterization?

Heart (cardiac) catheterization is a procedure in which a very thin flexible tube is inserted through a blood vessel into the veins, arteries, and chambers of your heart. The tube is called a catheter. It is usually inserted through a blood vessel in the arm, groin, or neck.

Heart catheterization can:

- Allow x-ray pictures (angiograms) outlining the heart chambers or coronary arteries to be taken with use of a special dye.
- Record the blood pressure in the blood vessels in the lungs and the heart and in the chambers of the heart.
- Measure blood flow and oxygen content of blood in different parts of the heart.
- Take a tissue sample (biopsy) of the heart muscle using an instrument passed through the catheter.

Usually you do not need to stay in the hospital overnight for this procedure.

When is it used?

Some of the reasons heart catheterization may be done are:

- **Coronary artery disease:** If your coronary arteries are partly or completely blocked, you have an increased risk of a heart attack, especially if your symptoms have gotten worse recently. Cardiac catheterization and the injection of dye into the arteries is the best way to study the coronary arteries. The dye study shows the location and the amount of the blockage. The procedure may be done to see if you need coronary bypass surgery or coronary angioplasty.
- **Open-heart surgery:** Sometimes catheterization is needed before open-heart surgery. The surgeon needs to check for any conditions that may increase the risk of problems during surgery.
- **Artificial heart valves:** If you have an artificial heart valve, you may need catheterization so the health care provider can see how the valve and the rest of the heart are working.
- **Birth defects of the heart:** A child born with a heart problem may need to have catheterization in early childhood. The surgeon needs to know the structure of the child's heart and the exact location and extent of abnormalities.
- **Biopsy:** The tissue sample of heart muscle can be checked for inflammation or other problems.
- **Angioplasty:** Catheters can be used to open a narrowed heart valve or artery. Balloon angioplasty, for example, uses pressure from a balloon to widen an artery.
- **Stenting:** Catheters may also be used to remove plaque buildup and to place stents that hold open arterial walls.

How do I prepare for the procedure?

Follow the instructions your health care provider gives you. Eat a light meal the night before the procedure. You may be asked not to eat or drink anything for 12 hours before the procedure. Arrange for someone to drive you home afterward.

What happens during the procedure?

You are given a sedative, which will make you feel relaxed, but you will stay awake. You are also given a shot (a local anesthetic) to numb the area where the catheter is inserted.

The doctor will insert the catheter through a small cut in the skin. The catheter is passed through the blood vessels toward the heart. X-rays are used to follow the position of the catheter. You will not feel the catheter as it passes through your blood vessels.

The health care provider will direct the tip of the catheter to precise positions in the heart and its blood vessels. The catheter is attached to a device that measures blood flow and blood pressure in various places in the heart and blood vessels.

If pictures of the heart chambers, valves, or coronary arteries are needed, a special kind of liquid (called contrast or dye) is injected through the catheter. During this injection, moving x-ray pictures are recorded. This procedure is called angiography.

When the procedure is finished, the health care provider will remove the catheter and apply pressure over the area where the needle was inserted to control any bleeding. The procedure takes about an hour.

What happens after the procedure?

After the procedure you may be kept in an observation area for at least a few hours until any risk of bleeding is past. After that, you may go home. You should avoid strenuous activity for the rest of the day to prevent bleeding where the catheter was inserted.

Ask your health care provider for specific instructions on how to take care of yourself at home. Ask how and when you should expect to hear your test results. Make sure you know when you should come back for a checkup.

A bruise may appear near the puncture site and be uncomfortable for a few days.

What are the benefits and risks?

Heart catheterization is considered the most accurate way to gather the information your health care provider needs to diagnose and treat heart problems most effectively. The health care provider will study the x-ray moving pictures to see if your heart valves are normal, to check how well the heart is pumping, and to look for possible blockages in the coronary arteries. He or she will take note of the direction and the amount of blood flow through the heart. With the knowledge gained from the procedure, heart valves may be repaired or replaced before heart failure occurs. Heart attacks may be prevented or delayed by treating coronary artery blockages.

The risks include:

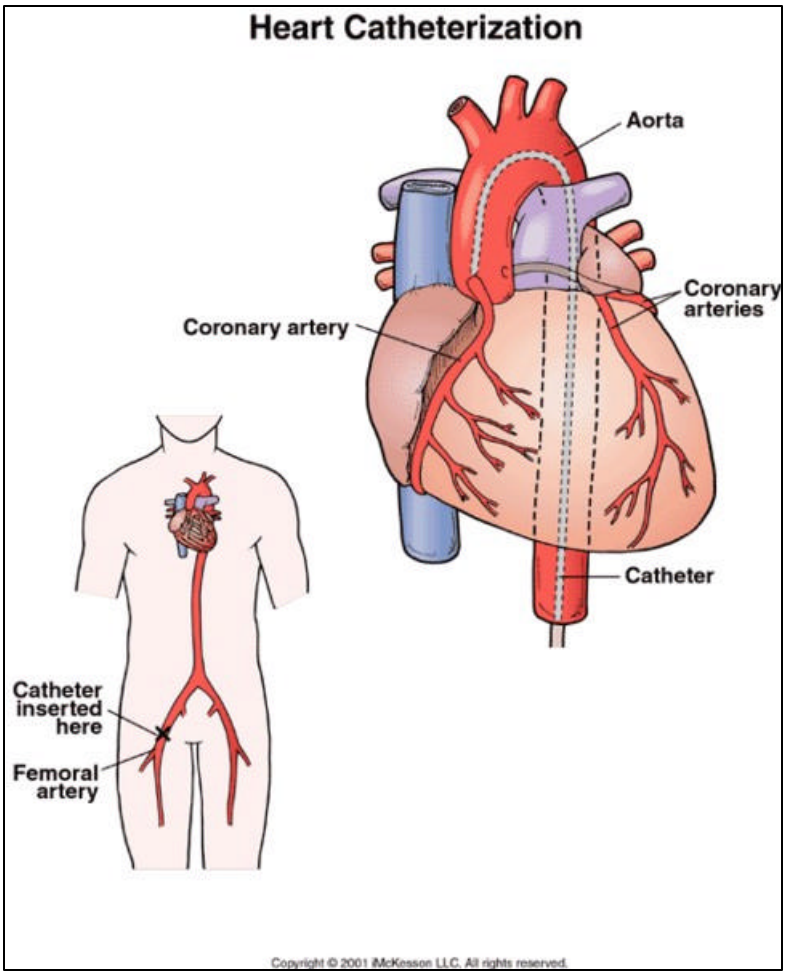
- You may feel some minor discomfort.
- In rare cases, you may have an allergic reaction to the drug used in the anesthesia.
- The procedure can cause irregular heart rhythms, which could require treatment.
- If the catheter is placed in an artery, a blood clot could form around the catheter.
- You may have an allergic reaction to the dye. (This reaction can be treated with medicine.) The dye could also damage the kidneys.
- The catheter could damage a blood vessel.
- While not common, a heart attack or stroke might be triggered by the procedure.

Complications from this procedure are rare. The risk of death is very low. People with diabetes or kidney disease may be at higher risk for kidney damage from the dye.

When should I call my health care provider?

Call your health care provider if you have:

- severe pain where the catheter was placed
- bleeding from the puncture site
- increased swelling and tenderness where the needle was inserted.


Heart Catheterization
Aorta
Coronary arteries
Coronary artery
Catheter
Catheter inserted here
Femoral artery
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