

Cardiac Catheterization - Coronary Angiography

Introduction

Sometimes people have serious problems with their heart and the arteries that go into it. An angiogram, or heart catheterization, helps health care providers look at the blood vessels of the heart. Long hollow tubes are inserted into the groin or wrist and threaded up to the heart. Contrast dye is injected and x-ray pictures are taken of the heart's arteries.

If your health care provider recommends a coronary angiogram, the decision whether or not to have the procedure is also yours.

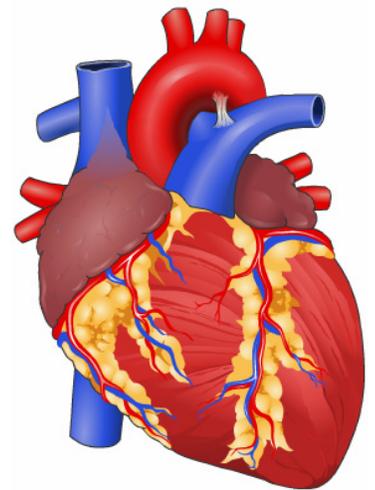
This reference summary will help you understand better the benefits and risks of this procedure.

Anatomy

The heart is the most essential muscle in the body.

Its main function is to pump the blood to the lungs and to the rest of the body.

Since the heart is living tissue, it needs blood like the rest of the body. The heart also pumps blood to itself through many blood vessels that go directly to the heart muscles. These are known as coronary arteries.



Symptoms and Their Causes

Cholesterol and calcium deposits accumulate in the coronary arteries forming a 'plaque' that narrows the artery. Blood clots can also narrow or block the arteries.

Narrowed arteries do not let enough blood go through. This causes blood flow to decrease, which could cause heart attacks.

A normal blood vessel has a wide opening for blood to flow through.

A blood vessel clogged with plaque is narrow, letting less blood flow through it.

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Blockages can cause chest pain, arm pain or shortness of breath.

If blood flow is reduced enough by cholesterol and calcium deposits, the heart will not be able to keep up with exertion. If the condition worsens or the coronary artery becomes blocked, the heart can be damaged.

An angiogram is a test that helps show plaque or blood clots in the coronary arteries and helps detect any narrowing or blockage.

Other tests such as EKGs or heart tracings can cause the health care provider to suspect blockage in the coronary arteries. However, these tests do not show the blood vessels. A coronary angiogram is a reliable test that shows the blood vessels of the heart.

Procedure

Your health care provider may ask you not to eat or drink for several hours before the procedure. If your procedure is in the morning, this usually means no food or drink after midnight the night before. Check with your health care provider for specific instructions.

During an angiogram, the health care provider inspects the coronary arteries for blockage.

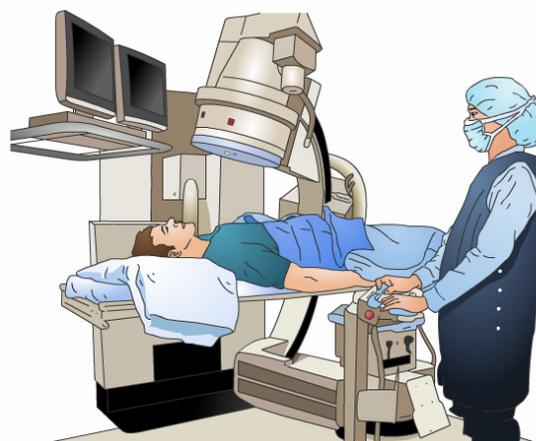
Cardiac catheterization can also measure the strength of your heart's pumping ability.

The angiogram may be done on an outpatient basis, meaning you will be able to go home after the test is completed.

This procedure is done while you are awake. Your health care provider may give you medication through an IV to help you relax. You will be asked to lie down on an x-ray table. The room may be slightly cold.

During the procedure, your heart rate, blood pressure, and vital signs are continuously monitored. Let your health care provider know if you feel discomfort at any time during the procedure.

The wrist or groin area is then disinfected and made numb with a local anesthetic. This may cause some discomfort.



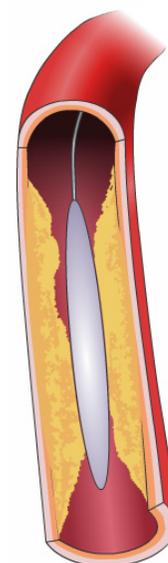
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A catheter is then inserted through the skin into an artery in the wrist or leg and threaded all the way up to the heart arteries. Whether the catheter is placed in your wrist or leg will depend on your health care provider's preference and the state of your arteries. You should not feel any discomfort.

Dye is then injected into the arteries and x-rays are taken. You should stay very still during the x-rays to allow good, sharp pictures to be taken.

If a blockage is found, the health care provider may open it using either a balloon or another device. The procedure that uses the balloon is called angioplasty. If a balloon is used to stretch the artery open, you may feel some temporary discomfort.

Your health care provider may also use a stent. A stent is a small metal tube that helps keep a blood vessel in the heart open. It stays in your artery permanently. It may be coated with medication.



Balloon Angioplasty

After the angiogram and the angioplasty, if it is needed, the catheter is taken out. In order to prevent bleeding from the groin puncture site, you will be instructed to lie flat and not bend your leg.

You should not drive right after the procedure. Ask someone to drive you home. Ask your health care provider when you can drive again.

Risks and Complications

This procedure is safe. There are, however, several possible risks and complications. These are unlikely but possible. You need to know about them just in case they happen. By being informed you may be able to help your health care provider detect complications early.

X-rays are used during this procedure. The amount of radiation during this test is deemed safe. However, this same amount could be dangerous for unborn children. It is therefore very important to make sure you are not pregnant prior to an elective radiological test.

The coronary angiogram can, rarely, lead to a heart attack, requiring an unforeseen angioplasty or even open heart surgery.

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The catheter placed in the artery can rarely injure that artery or other arteries of the body. This may cause decreased blood flow to the leg or arm involved, which may require an operation to reestablish blood flow.

The insertion can also cause injury to a nerve in the arm or leg depending on where the initial puncture was done.

Some people have allergies to the iodine dye used in this test. Make sure to tell your health care provider about your allergies and about any possible reactions to any sort of dye used on you in the past.

In some people dye can cause kidney failure. Let your health care provider know if you have a kidney problem. You might be at a somewhat higher risk.

Your health care provider may instruct you to stop taking your Glucophage[®] (metformin) before the exam and not to begin using it again until 48 hours after your test. This is done to decrease the chances of kidney problems.

It is important that you inform your health care providers about all the medications you are taking.

After the Angiogram

After the catheter is removed from your groin, you will be instructed to lie flat and not bend your leg to prevent bleeding. If the catheter was placed in your wrist, you should not bend your wrist. A band may be applied to keep steady pressure on it for an hour or longer.

Depending on the test results, you will need to stay for a few hours or longer. If a blockage was found, you may need to stay in the hospital overnight.

Your health care providers will give you discharge instructions after the procedure. Bring a family member or friend to take notes. You may be sleepy and forget the instructions.

Blood clots can collect around the stent, if you had one placed, after the procedure. To prevent blood clots, your health care provider may prescribe a blood thinner. Ask your health care provider how long you should take the medication. Do not stop taking the



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medication without first discussing the risks with your health care provider.

Your health care provider will give you a number to call in case you have questions. Make sure to call this number in case of any new symptoms such as redness, fever or numbness, weakness, swelling or bleeding at the puncture site.

Ask your health care provider to notify you with the results of any lab work done. You will also need to schedule follow up appointments.

You should go to the nearest emergency room if you have chest pain, difficulty breathing, arm pain, or an irregular heartbeat.

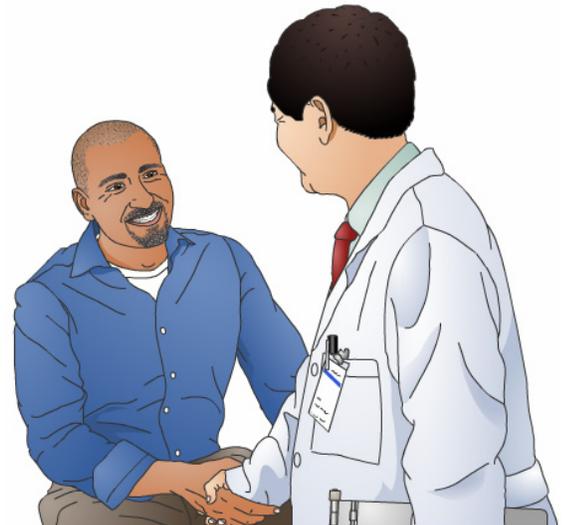


Summary

A coronary angiogram helps your health care providers look at the blood vessels of the heart. In this procedure, the health care provider injects dye into the coronary arteries so that they can be x-rayed. An angiogram is the best way to find out if arteries are blocked or restricted by plaque.

If a coronary artery is blocked, your health care provider may recommend a coronary angioplasty. A coronary angioplasty is a procedure that allows your health care provider to open narrowed arteries of the heart. Sometimes a stent is placed.

Coronary angiograms are very safe. Risks and complications are very rare. Knowing about them will help you detect them early if they happen.



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