



# Coronary Angiography and Catheterization in Patients with Coronary Artery Disease

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## DESCRIPTION

Despite major breakthroughs in identification and care, atherosclerotic coronary artery disease continues to be a primary cause of illness and death worldwide. Although invasive coronary angiography is still the gold standard for diagnosing coronary artery disease, it is an invasive procedure with a tiny risk of significant consequences. Current diagnostic techniques aim to adopt an effective, safe, non-invasive strategy for diagnosing and risk stratifying patients in order to enhance therapeutic outcomes. Angiography is an imaging procedure that employs X-rays to examine the blood arteries in your body. Angiograms are the X-rays produced by an angiography; this test is used to look for narrow, obstructed, swollen, or deformed arteries or veins in the brain, heart, abdomen, and legs, among other places.

An X-ray of the heart's arteries is called a coronary angiography. This might help you figure out how well your heart is operating by displaying the amount and severity of any cardiac problems. The possibility of delivering such a precise non-invasive anatomical examination of the coronary arteries has grown as Coronary Computed Tomography Angiography (CCTA) has increased temporal and spatial resolution. Questions have lately been raised about CCTA's diagnostic accuracy, as well as its clinical use and effectiveness in improving patient outcomes.

Cardiac catheterization is a procedure that is commonly used to diagnose and treat a variety of heart conditions. Cardiac catheterization can be performed to determine the amount of blood the heart pumps out per minute (cardiac output), as well as to discover and biopsy heart malignancies (for example, a myxoma). This is the sole means to directly monitor blood pressure in each chamber of the heart as well as in the major blood arteries that connect the heart to the lungs. Through a needle puncture in the neck, arm, or groin/upper thigh, a thin catheter (a tiny, flexible, hollow plastic tube) is introduced into an artery or vein. To numb the insertion site, a local anaesthetic is used. The catheter is subsequently put *via* major blood channels into the heart chambers and/or coronary arteries.

The surgery takes 40 to 60 minutes and takes place at a hospital. A coronary angiography and angioplasty, like any other medical operation, comes with both dangers and advantages. Discuss the risks and advantages with your doctor, nurse, or other health professional, as well as any concerns you may have.

Minor complication possibilities include:

- Bleeding under the skin at the incision site - this should go away within a few days, but if you are worried, contact your doctor.
- Bruising- a bruise from the catheter is usual for a few weeks.
- Allergy to the contrast dye used, resulting in symptoms such as a rash - any allergies you may have should be discussed with your cardiologist before to the surgery.

Serious problems are rare, although they can include:

- The catheter may cause damage to an artery in the arm or groin, reducing blood circulation to the limb.
- Angina pectoris
- Stroke
- The contrast dye has caused renal damage.
- If the process is extended, X-ray radiation might cause tissue damage.
- Death due to severe bleeding.

Ventriculography is a kind of angiography that involves taking x-rays while a radiopaque contrast substance is injected into the heart's left or right ventricle through a catheter. It is carried out during a cardiac catheterization procedure. Doctors can examine the motion of the left or right ventricle and hence assess the heart's pumping function using this treatment. Doctors can determine the ejection fraction based on the heart's capacity to pump blood (the percentage of blood pumped out by the left ventricle with each heartbeat). The heart's pumping ability is used to evaluate how much of the heart has been damaged.

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