



PACIFIC COAST CARDIOLOGY & RESEARCH

PATIENT PRE-TEST INSTRUCTIONS:

Cardiac Catheterization

1. Nothing to eat for 8 hours prior to the exam.
2. You will not be able to drive for 24 hours after the procedure.
3. Be sure to make arrangements in advance for someone to pick you up after the test.

***YOU SHOULD NOT STOP ANY MEDICATIONS WITHOUT CONTACTING YOUR PRESCRIBING DOCTOR. USE THE FOLLOWING LIST IN ORDER TO SPEAK WITH YOUR DOCTOR:

Commonly Used Beta Blockers: Blocadren (timolol), Coreg (carvedilol), Inderal (propranolol), Lopressor (metoprolol), Tenormin (atenolol), Toprol –XL (metoprolol), Trandate (labetalol), Visken (pindolol), Bystolic.

Caffeinated Food and Beverages: Coffee including “decaffeinated”, teas, cocoa and any food containing cocoa (chocolate), and soft drinks.

Cardiac Catheterization and Coronary Interventional Procedures

What is atherosclerosis?

Atherosclerosis (sometimes called “hardening” or “clogging” of the arteries) is the buildup of cholesterol and fatty deposits (called plaque) on the inner walls of the arteries that restrict blood flow to the heart. Atherosclerosis can affect the arteries in the heart, legs, brain, kidneys and other organs.

Atherosclerotic heart disease (coronary artery disease) is the narrowing or blockage of the coronary (heart) arteries. Your coronary arteries are shaped like hollow tubes through which blood can flow freely. Normally, the walls of the coronary arteries are smooth and elastic. Atherosclerosis occurs when the normal lining of the arteries deteriorates, the walls of the arteries thicken and deposits of fat and plaque build-up on the coronary artery walls, blocking or limiting the flow of oxygen-rich blood to the heart muscle.

Without adequate blood, the heart becomes starved of oxygen and the vital nutrients it needs to work properly. This can cause chest pain called angina. When one or more of the coronary arteries are completely blocked, a heart attack (injury to the heart muscle) may occur.

What is a cardiac catheterization?

Cardiac catheterization (also called cardiac cath or coronary angiogram) is an invasive imaging procedure that allows your doctor to evaluate your heart function. Cardiac catheterization is used to:

Coronary artery disease is the narrowing or blockage of the coronary (heart) arteries, as shown in the top illustration. After an interventional procedure, the coronary artery is opened, increasing blood flow to the heart.

- Evaluate or confirm the presence of coronary artery disease, valve disease or disease of the aorta

- Evaluate heart muscle function

- Determine the need for further treatment (such as an interventional procedure or coronary artery bypass graft, or CABG, surgery)

During a cardiac catheterization, a long, narrow tube called a catheter is inserted through a plastic introducer sheath (a short, hollow tube that is inserted into a blood vessel in your arm or leg). The catheter is guided through the blood vessel to the coronary arteries with the aid of a special x-ray machine. Learn more about cardiac catheterization.

Contrast material is injected through the catheter and x-ray movies are created as the contrast material moves through the heart's chambers, valves and major vessels. This part of the procedure is called a coronary angiogram (or coronary angiography). The digital photographs of the contrast material are used to identify the site of the narrowing or blockage in the coronary artery. Additional imaging procedures, called intra-vascular ultrasound (IVUS) and fractional flow reserve (FFR), may be performed along with cardiac catheterization in some cases to obtain detailed images of the walls of the blood vessels. Both of these imaging procedures are currently only available in specialized hospitals and research centers.

With IVUS, a miniature sound-probe (transducer) is positioned on the tip of a coronary catheter. The catheter is threaded through the coronary arteries and, using high-frequency sound waves, produces detailed images of the inside walls of the arteries. IVUS produces an accurate picture of the location and extent of plaque.

With FFR, a special wire is threaded through the artery and a vasodilator medication is given. This test is functionally performing a very high quality stress test for a short segment of the artery. What is an interventional procedure?

What is an Interventional Procedure?

An interventional procedure is a non-surgical treatment used to open narrowed coronary arteries to improve blood flow to the heart. An interventional procedure can be performed during a diagnostic cardiac catheterization when a blockage is identified, or it may be scheduled after a catheterization has confirmed the presence of coronary artery disease.

An interventional procedure starts out the same way as a cardiac catheterization. Once the catheter is in place, one of these interventional procedures is performed to open the artery: balloon angioplasty, stent placement, rotablation, or cutting balloon.

Balloon Angioplasty

A procedure in which a small balloon at the tip of the catheter is inserted near the blocked or narrowed area of the coronary artery. The technical name for balloon angioplasty is percutaneous transluminal coronary angioplasty (PTCA) or percutaneous coronary intervention (PCI). When the balloon is inflated, the fatty plaque or blockage is compressed against the artery walls and the diameter of the blood vessel is widened (dilated) to increase blood flow to the heart. This procedure is sometimes complicated by vessel recoil and restenosis.

Balloon Angioplasty with Stenting

In most cases, balloon angioplasty is performed in combination with the stenting procedure. A stent is a small, metal mesh tube that acts as a scaffold to provide support inside the coronary artery. A balloon catheter, placed over a guide wire, is used to insert the stent into the narrowed artery. Once in place, the balloon is inflated and the stent expands to the size of the artery and holds it open. The balloon is deflated and removed, and the stent stays in place permanently. During a period of several weeks, the artery heals around the stent. In this way, restenosis is diminished.

Angioplasty with stenting is most commonly recommended for patients who have a blockage in one or two coronary arteries. If there are blockages in more than two coronary arteries, coronary artery bypass graft surgery may be recommended.

Drug-eluting stents (DES)

Drug-eluting stents contain a medication that is actively released at the stent implantation site. Drug-eluting stents have a thin surface of medication to reduce the risk of restenosis.

Concern was raised in 2006 regarding the safety of drug-eluting stents due to the risk of blood clots forming on the stent, causing a heart attack. The Food and Drug Administration (FDA) continues to feel that DES, when used according to approved indications, are safe and effective. [Source: Update to FDA Statement on Coronary Drug-Eluting Stents (January 4, 2007)]

If you receive a drug-eluting stent, your doctor will prescribe certain medications for several months after your procedure to prevent the risk of clotting in the stent. It is extremely important to keep taking the medications as prescribed until your doctor tells you otherwise.

If you have concerns about drug-eluting stents, please talk with your physician.

Rotablation (Percutaneous Transluminal Rotational Atherectomy or PTR)

A special catheter with a diamond-coated tip is guided to the point of narrowing in the coronary artery. The tip spins around at a high speed and grinds away the plaque on the arterial walls. This process is repeated as needed to treat the blockage and improve blood flow. The

microscopic particles are washed safely away in your blood stream and filtered out by your liver and spleen.

Cutting Balloon

The cutting balloon catheter has a balloon tip with small blades. When the balloon is inflated, the blades are activated. The small blades score the plaque, then, the balloon compresses the fatty matter into the arterial wall. This type of balloon may be used to treat the build up of plaque within a previously placed stent (restenosis) or other types of blockages.

Are these procedures considered to be surgical procedures?

No. Cardiac catheterization and interventional procedures are not considered to be surgical procedures because there is no large incision used to open the chest, and the recovery time from catheterization is much shorter than that of surgery.

In some cases, surgery may be recommended afterward, depending on the results of the procedure.

Will I be awake during the procedure?

Yes. You will be given a mild sedative to relax you, but you will be awake and conscious during the entire procedure. The doctor will use a local anesthetic to numb the catheter insertion site.

Where are the procedures performed?

The catheterization and interventional procedures are performed in the Cardiac Catheterization Laboratory.

Who performs the procedures?

A trained cardiologist and a cardiovascular team of nurses and technicians perform cardiac catheterization and interventional procedures.

How long do the procedures take to perform?

The cardiac catheterization procedure itself generally takes 30 minutes, but the preparation and recovery time add several hours to your appointment time (5 to 9 hours or longer). Please plan on staying at the hospital all day for the procedure.

An interventional procedure usually takes from 90 to 120 minutes, but the preparation and recovery time add several hours. If you had previous coronary artery bypass graft (CABG) surgery, you can expect your interventional procedure to last longer. Please plan on staying at the hospital all day for the procedure and remaining in the hospital overnight.

What are the possible risks of the procedures?

If you need to have a cardiac catheterization or an interventional procedure, your cardiologist will discuss the specific risks and potential benefits of the recommended procedure with you.

Some of the possible risks of cardiac catheterization and interventional procedures include:

Allergic reaction to the medication or contrast material used during the procedure

Irregular heart rhythm

Irregular heart rhythm

Infection

Bleeding at the catheter insertion site

Continued chest pain or angina

Mild to moderate skin reactions (like sun-burn) from X-ray exposure

Kidney Failure

Heart attack, blood clots, stroke or death

Acute closure of coronary artery

Emergency coronary artery bypass graft (CABG) surgery

There may be other possible risks. When you meet with your doctor, please ask questions to make sure you understand why the procedure is recommended and what all of the potential risks are.

Does an interventional procedure cure coronary artery disease?

For most people, interventional procedures increase blood flow to the heart, diminish chest pain, and decrease the risk of a heart attack.

Although an interventional procedure opens up blocked arteries, it does not cure coronary artery disease. You will still need to reduce your risk factors and make certain lifestyle changes to prevent future disease development or progression.

To achieve the best results, you must be committed to leading a heart-healthy lifestyle. Your health care team can help you achieve your goals, but it is up to you to take your medications as prescribed, make dietary changes, quit smoking, exercise regularly, keep your follow-up appointments, and be an active member of the treatment team.

Preparing for the Procedure

Allergies

Please discuss all of your allergies with your doctor, especially those listed below:

IVP Dye/Contrast Agent Allergy, Iodine Allergy

Latex/Rubber Products Allergy

Medications

Discuss your medications with your physician - he may want to stop or adjust the doses several days prior to or on the day of the procedure, especially those listed below.

Anticoagulant Medication

Aspirin

Diabetes Medications

Blood Work, EKG, Chest X-ray

Ask your physician if all of the required pre-procedure tests have been completed or are scheduled before your cardiac catheterization procedure.

What to Bring

We recommend bringing a family member with you to wait with you before the procedure.

We recommend that you wear comfortable, easy-to-fold clothing.

You may be admitted to the hospital after the procedure, so pack toiletries and any other items you would like to make your stay more comfortable. Your family member can retrieve these items from your car when you need them. Please leave all valuables at home or with a family member.

A responsible adult must drive you home after the procedure. You will not be discharged unless there is someone available to drive you home.

Instructions after the Procedure

Going Home

A responsible adult must drive you home. You will not be discharged unless there is someone available to drive you home.

Please ask your doctor when you can resume driving.

Care for the Catheter Insertion Site

When you go home, there will be a bandage (dressing) over the catheter insertion site (also called the wound site). The morning after your procedure, you may take the dressing off. The easiest way to do this is when you are showering, get the tape and dressing wet and remove it.

After the bandage is removed, cover the area with a small adhesive bandage. It is normal for the catheter insertion site to be black and blue) for a couple of days. The site may also be

slightly swollen and pink, and there may be a small lump (about the size of a quarter) at the site.

Wash the catheter insertion site at least once daily with soap and water. Place soapy water on your hand or wash-cloth and gently wash the insertion site; do not rub.

Keep the area clean and dry when you are not showering.

Do not use creams, lotions or ointment on the wound site.

Wear loose clothes and loose underwear.

Do not take a bath, tub soak, go in a Jacuzzi, or swim in a pool or lake for one week after the procedure.

If stitches were placed to close the catheter insertion site, we will tell you how to care for the incision until the stitches are removed, usually after 1 week.

Activity Guidelines

Your doctor will tell you when you can resume activities. In general, you will need to take it easy for the first two days after you get home. You can expect to feel tired and weak the day after the procedure. Take walks around your house and plan to rest during the day.

Do not strain during bowel movements for the first 3 to 4 days after the procedure to prevent bleeding from the catheter insertion site.

Avoid heavy lifting (more than 10 pounds) and pushing or pulling heavy objects for the first 5 to 7 days after the procedure.

Do not participate in strenuous activities for 5 days after the procedure. This includes most sports: jogging, golfing, playing tennis, bowling.

You may climb stairs if needed, but walk up and down the stairs more slowly than usual.

Gradually increase your activities until you reach your normal activity level within one week after the procedure.

Ask your doctor when it is safe to resume sexual activity.

Driving

Your doctor will tell you when it is safe to resume driving. Most people are able to resume driving within 24 hours after going home.

Returning to Work

Most people are able to return to work within 1 to 2 weeks after an interventional procedure. If you had a heart attack, your recovery may be longer. Your doctor will provide specific guidelines about returning to work.

Medications

Please review your medications with your doctor before you go home. Ask your doctor if you should continue taking the medications you were taking before the procedure.

If you have diabetes, your doctor may adjust your diabetes medications for one to two days after your procedure. Please be sure to ask for specific directions about taking your diabetes medication after the procedure.

Depending on the results of your procedure, your doctor may prescribe new medication. Please make sure you understand what medications you should be taking after the procedure and how often to take them.

Fluid Guidelines

Be sure to drink eight to ten glasses of clear fluids (water is preferred) to flush the contrast material from your system.

Importance of a Heart-Healthy Lifestyle

It is important for you to be committed to leading a heart-healthy lifestyle. Your health care team can help you achieve your goals, but it is up to you to take your medications as prescribed, make dietary changes, quit smoking, exercise regularly, keep your follow-up appointments and be an active member of the treatment team.

Follow Up

Your cardiologist will contact your referring or primary care doctor by phone or fax to report the results of your procedure. Your doctor also will receive a written report from Pacific Coast Cardiology & Research in the mail that will include a general summary of your medical condition including the procedure you underwent, your prescribed medications and care plan.