Heart catheterization for adults with congenital heart disease

What is a heart catheterization?

It is a procedure that provides details about your heart function and circulation. It helps your doctor make a diagnosis and choose proper treatment. It can be used to:

1. Assess the pumping function of the heart
2. Study the structure and function of heart valves
3. Study the structure and function of the blood vessels of the body and lungs
4. Measure pressures and oxygen content in the chambers of the heart and lungs
5. Look for coronary artery disease
6. Perform interventions to fix problems with the heart or blood vessels

How the heart works

The heart is made up of strong muscle tissue. Its main function is to pump blood to the body and lungs. The heart is a hollow organ. It has four chambers, two on the right side and two on the left side. The upper chambers are called the right and left atrium. The lower chambers on each side are called ventricles. All four chambers work together to pump the blood and bring vital nutrients and oxygen throughout the body.

The main pumping chamber is the left ventricle. This chamber pumps blood enriched with oxygen to all parts of the body. The right ventricle pumps blood to the lungs where it picks up fresh oxygen.

There are 4 valves in the heart. These valves allow blood to move in only one direction and prevent it from backing up into the chamber it has just left.

- Mitral valve is between the left atrium and the left ventricle
- Tricuspid valve is between the right atrium and the right ventricle
- Pulmonary valve is between the right ventricle and the pulmonary artery (goes to lungs)
- Aortic valve is between the left ventricle and the aorta (main artery in the body)

How is a heart catheterization done?

A thin flexible tube (catheter) is passed to your heart and lungs through an artery or vein in your groin. To make the heart chambers and vessels visible on x-ray, dye is injected through the tube into the heart chambers and blood vessels. An x-ray camera films the heart and its vessels as they pump blood. These x-ray images can be viewed right away so treatment decisions can be made quickly.

Note:
Be sure to tell your doctor or nurse if you are allergic to x-ray dye (contrast) or any medications.
The atrial and ventricular septum separate the right from the left side of the heart. These septum keep blood enriched with oxygen pumping to the body, and deoxygenated venous blood pumping to the lungs.
Before your heart catheterization

The night before

You will receive detailed instruction from the cardiology team before the procedure to prepare for the catheterization. These include when and where to go to check into the hospital, list of medicines that are needed, and when to stop eating before the procedure.

Diet instructions

1. Do not eat or drink anything after midnight.
2. If your catheterization is scheduled for late morning or later, you will be told if you can have a liquid breakfast.

Catheterizations are scheduled throughout the day. If you are an outpatient, please arrive at the time you were told to do so. If you are an inpatient, your nurse will tell you the time.

1. You will be asked to change into a hospital gown (without snaps). You may want to wear socks to the cath lab as the room is kept very cool.

2. Take your medicine as instructed.
3. You may wear your glasses.
4. All nail polish must be removed.
5. Remove watches, earrings, necklaces or medic alert bracelets.

Before leaving for the cath lab

1. A doctor or nurse explains the procedure, its purpose, benefits and risks.
2. You are asked to sign a consent form.
3. Most cardiac catheterizations in patients with congenital heart disease are done with anesthesia. You will meet the anesthesia doctor before the procedure and they will be in the cath lab for the entire procedure monitoring you. With anesthesia you will be asleep for the procedure and should not have pain or anxiety.
4. An IV (intravenous) line may be started in your hand or arm.
5. You are asked to empty your bladder.
6. Staff will take you to the cath lab on a cart.
7. Family members and guests are brought to the cath lab waiting room.
**In the cath lab**

It is cool in the lab. You are helped onto the table. You lie flat so that the x-ray machine can rotate around the upper part of your body. ECG patches (electrodes) are placed on your shoulders, chest, arms, and legs. These patches are hooked to equipment that monitors your heart.

**Points of insertion**

Your groin will be the main spot used for the heart catheterization. In rare instances, upper body blood vessels are used. Your doctor will decide which spot to use. The right groin is most often used in our laboratory. The area will be shaved if needed, and cleaned to remove any bacteria on the skin.

Since heart catheterization is done using sterile technique, the doctors in the lab will be wearing sterile gowns, hats, masks, and gloves. You will be covered from your chest to feet with a sterile sheet.
Placing the catheters

The doctor makes tiny incisions in your skin. A small hollow tube (a sheath) is placed through the incisions into an artery and vein. Catheters are then passed through the sheath to your heart and lungs. Pressure and oxygen readings are then made in your heart and lungs. Pictures of the heart and blood vessels can be made with the catheters, contrast dye and the x-ray cameras.

After heart catheterization

The doctor will discuss results of the procedure with you and your family right after the procedure is finished. Your treatment after the catheterization depends on the type of heart problems that you have, and what was done during the catheterization.

After your heart catheterization, you will return to a room to recover. You will be on bed rest from two to several hours. This depends on what you had done. The staff will keep you comfortable with the use of medicines and position changes.

- If you had a diagnostic catheterization often you are discharged home 4 to 6 hours after the procedure.
- If you had an interventional catheterization often you are observed overnight in the hospital.

Before discharge from the hospital the medical team will review the following information with you:

1. How to care for the wounds.
2. Pain management.
3. New medicines.
4. When to call your cardiologist.
5. When to follow up with your primary doctor and cardiologist.

Phone numbers

UW/AFCH Pediatric and Adult Congenital Cardiology Clinic: 608-263-6420

After hours, nights, weekends, holidays, this number will give you the paging operator. Ask for the pediatric cardiologist on call. Give the operator your name and phone number with the area code. The doctor will call you back.

If you live out of the area, please call 1-800-323-8942 and ask for the pediatric cardiology clinic.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright ©11/2016. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#7497