

Kaohsiung Veterans General Hospital Nursing Department

Nursing Instruction Leaflet

Department	Department of Cardiology	No.: 7110002
Topic	Introduction of cardiac catheter, balloon angioplasty, and stent placement	Established on Sep. 17 th , 2012
Produced by	Adult Intensive Care Unit (AICU01 zone)	2 nd revision on Sep. 28 th , 2018

1. What is cardiac catheterization?

Cardiac catheterization is a special X-ray examination on heart. To make it simple, it is to put in a specifically-made thin and long catheter through catheter (usually via wrist (radial artery), elbow (brachial artery) or femoral artery) along with blood vessels and go into the heart. It will be injected with a contrast medium for development to measure the pressure at each chamber in the heart, arterial and venous oxygen saturation, and the level and location of coronary artery occlusion in order to assist diagnosing heart and coronary artery diseases.

2. Who shall receive cardiac catheterization?

Usually, it is patients who are suspected or confirmed suffering from coronary artery diseases, valvular heart disease, congenital heart disease, pulmonary hypertension, cardiomyopathy, chest pain with unknown reasons.

3. What is the purpose of cardiac catheterization?

- 1) Examination: To confirm the diagnosis of the disease and assess its severity & prognosis.
- 2) Assessing the degree of coronary artery stenosis and selecting the best treatment method, such as balloon angioplasty, stent placement or surgery.
- 3) Assessment before heart surgery.
- 4) Assessing pulmonary artery pressure on patients with pulmonary hypertension.

4. What is coronary artery balloon angioplasty and stent placement?

Coronary artery balloon angioplasty is a special cardiac catheter with small balloon on the rear end placed by the cardiologist via the thigh groin or radial artery along with the opposite direction of blood flow into the aorta. It then goes into the narrow parts along the coronary artery. When the balloon is pressurized, the prop-up force is able to expand the narrow parts in the blood vessel, enlarge the inner diameter of the blood vessel, increase the amount of blood flow, and achieve the purpose of treatment. During the execution of blood vessel balloon angioplasty, the doctor is also able to choose placing a balloon catheter with metal bracket, which is called “bracket”, in the narrow part of the blood vessel according to the patient’s condition to prevent the blood vessel from being blocked again and allow blood flow smoothly in the vessel. The bracket will be permanently left in the body, and it will be covered by the growth of dermoblast in the vessel in 1-3 months and never exposed in the vessel.

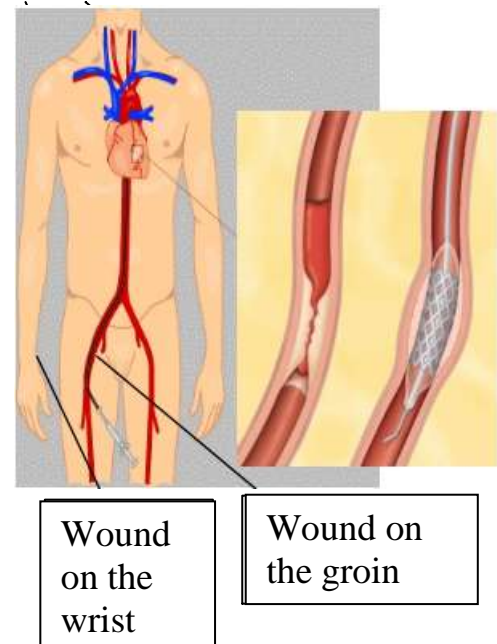


Image 1: Schematic diagram of wound (cited from internet <http://health.howstuffworks.com>)

5. What is the complication that might occur during cardiac catheter examination and its incidence rate?

Due to the use of anticoagulant as well as different ages and blood pressure, 1~3% of patients might have local bleeding; due to the different areas and sizes of the blockage, 3~5% of patients might have fatal ventricular arrhythmia; besides, 1~3% of patients might have acute embolism inside the vessel & around 1% of patients might have blood vessel or cardiac rupture, stroke, and contrast allergies; among them, the fatality rate of contrast allergies is around 0.001%~0.009%. The whole consolidated risk is around 10%.

6. What are the matters that I shall pay attention to before, during, and after cardiac catheter examination?
 - 1) Before examination:
 - a. Filling out consent forms for cardiac catheter examination and (or) balloon angioplasty and stent placement surgery.
 - b. If you used to be allergic to any medication or contrast medium, please do inform the doctor or the nurse.
 - c. If the examination is scheduled before noon at 12 o'clock, please do not eat or drink after dinner on the day before examination. If it is scheduled after 12 o'clock, you can have some liquid food as breakfast on the day of examination. Other than the medication appointed by the doctor, do not eat any food or take any medicine to avoid vomiting during examination.
 - d. Please change to a hospital gown in the morning of the examination day and ready for intravenous injection. The nurse will mark on your dorsum of foot to observe the situation of your pulse.
 - e. Please discharge urine and empty your bladder before examination.
 - 2) During examination:
 - a. After entering the cardiac catheterization room, we will install an ECG monitor for you, and the doctor will inject local anesthetic for you. During the process, you are conscious and able to watch the procedures from the TV screen next to you.
 - b. The doctor will sterilize your arm or groin with disinfectant, and you will feel ice-cold or slightly pricking. After disinfection, the doctor will cover your body with a piece of sheet. Please do not touch the sheet covered your body or move your limbs freely.
 - c. If you feel itchy on your nose or need to move your body in any reason, please tell medical personnel and they will try the best to make you feel comfort.
 - d. Please pay attention and cooperate with the action of oral instruction from the doctor. The common instruction include breathing in a large amount of air, holding your breath and staying still, and coughing hard. Deep inspiration makes the catheter going into the inner chamber of the heart more easily, holding the breath for several seconds after deep breath helps the clearness of the photos taken, and the coughing is helpful for discharging the contrast medium out of the heart as well as stabilize heart beat and blood pressure.
 - e. If you feel chest tightness and unwell, backache, bladder swelling, sense of sickness, or other discomfort, please tell the doctor immediately. When the contrast medium enters your heart, you might temporarily (several seconds) feel hot and flush, it is normal and do not panic.
 - f. After evaluating the result of coronary angiography, the doctor will explain to your family members the examination results and the related medical treatment methods, such as balloon angioplasty or stent placement. When the blockage in the blood vessel is severe, it might require a further assessment with Department of Cardiovascular Surgery to arrange coronary artery bypass grafting surgery.
 - 3) After examination:
 - a. If your wound is on the wrist:

(i) The doctor will remove the sheath after examination and stanch bleeding with an oppression hemostat for you.

(ii) After oppression hemostasis for an hour, loosen a grid on the oppression memostat every hour. It can be removed after oppression of 3 hours. If the wound is bleeding (oozing), remove the oppression hemostat, cover the wound with a gauze, and use your bare hands or a tourniquet continuing pressing the wound until the bleeding stops.

(iii) Do not bend or extend your wrist too much and avoid the affected limb exercising great force to prevent bleeding and hematoma from happening.

(iv) If your hands are in pain, feel numb, are cold, turn purple, become pale, are swelling or bleeding, please inform the medical personnel immediately.

b.If your wound is on groin:

(i) After completing the examination, the doctor will determine the treatment plan according to your conditions and arrange the time to remove the sheath.

(ii) The nurse will carry out blood test. When the clotting time is less than 150 seconds, he/ she will contact the chief doctor on duty at Department of Cardiology or a nurse practitioner to remove the sheath for you.

(iii) After the removal of the sheath, you must lie flat for 6 hours (sand bag compression for 4 hours and lying flat for 2 hours) to avoid bleeding or hematoma. If you choose to use self-funded hemostatic cotton, then the time for sand bag compression is 1 hour before lying flat for 1 hour.

(iv) The limbs near the examination area shall be kept straight as much as possible without bending. Before you cough or sneeze, please press the wound to avoid bleeding.

(v) If you need urinate or defecate during the bed rest, the nurse will assist you using bed pan (male patients can use urine condoms or a urinal) or diaper). If there is difficulty in urination, the doctor will evaluate whether an indwelling bladder catheter is required.

(vi) When you feel warm and wet on the inner side of thigh or find blood oozing on the gauze, press the wound with your hand first and then inform the medical personnel immediately. If you feel dizzy, sweating, cold on limbs, numb, and pain, you shall also inform the medical personnel immediately.

(vii) If your kidney function is normal, you can drink a huge amount of fluid within 24 hours to discharge the contrast medium smoothly.

(viii) Please inform the medical personnel at any time if you feel unwell and have any question. We will be more than happy to provide the solution.

Reference

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Note: It shall be review once every year.

The information and content of all the health education are only for reference. No medical behavior will be offer nor using it to replace the face-to-face diagnosis from the

doctor. If you have any question, please consult it with the outpatient doctor or the original hospitalized ward!

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