

Radiofrequency ablation

Radiofrequency ablation is a procedure that is used for the treatment of certain types of fast heartbeats. It is used more often for the treatment of supraventricular tachyarrhythmias (the fast heart rhythms that originate in the upper part of the heart). These rhythms originate when there is a small part of the heart muscle that is irritated and begins to send very fast electric signals that cause the rest of the heart to contract. It can also appear when there is a short circuit between the upper chambers of the heart (called atria) and the lower chambers (called ventricles). This short circuit allows the electrical signals to quickly make a loop between the atria and the ventricles and force them to contract before they normally would.

Radiofrequency ablation is performed guiding a catheter with an electrode at the end up to the area of the heart muscle where there is an additional conduction path. Radiofrequency ablation is the preferred treatment for many types of fast heartbeats. In general, it has a success rate of over 90 per cent for most of the rhythm problems for which it is indicated. Like any procedure, it implies risks. The doctor or nurse will explain the risks to you before the procedure. In general radiofrequency ablation includes few risks.

Preparation:

- Radiofrequency ablation is generally performed on an outpatient basis. It is carried out at a hospital in a specialized procedures room called catheterization laboratory.
- Wear comfortable clothes when you go to the hospital. You must put on a hospital gown for the procedure.
- Leave all money, jewelry and other valuables at home. If you wear false teeth, eyeglasses or hearing aids, you must wear them during the procedure to be able to communicate.
- The doctor or nurse will give you instructions about what you can eat or drink before the procedure. In general, you must plan not to eat or drink anything after midnight on the night before the catheterization.
- Ask the doctor what medications you should take on the day of the examination. You may be told to stop using certain medications, such as Coumadin (warfarin, an anticoagulant) or products with aspirin. If you are told to take your medications, take them with small sips of water.
- If you have diabetes, ask the doctor how you need to adjust your medications on the day of the examination.

What to expect:

- When you arrive, you will have to complete additional medical information. You will have to know the name of all the medications you take and whether you are allergic to anything. Some medications can increase the risk of suffering complications due to the catheterization. These include aspirin and related medications, Coumadin (warfarin), Plavix (clopidogrel), diuretics and insulin. Take a list of your medications (including over-the-counter drugs and supplements) and the doses.

- You will have to change and put on a hospital gown.
- A nurse will place an intravenous line in your arm so that liquids and medications can be administered to you during the procedure.
- The heart catheterization room will be cool and have very little light. The air must be kept cool not to damage the equipment that is used in the procedure.
- You will have to lie down on a special table that is hard. You will see a large camera and several television monitors.
- The nurse will clean your skin on the place (arm or groin) where the catheter is inserted (a thin plastic tube). It is possible that the nurse may shave the place where the catheter is inserted.
- Sterile cloths will be used to cover the place of the insertion and prevent it from becoming infected. It is important for you to keep your arms and hands on the sides, under the sterile cloths.
- Electrodes (small flat adhesive patches) will be placed on your chest. The electrodes are connected to an electrocardiography (electrocardiogram) monitor, which will monitor the heart rate and rhythm during the procedure.
- A mild sedative tends to be applied intravenously for you to relax, but you will be awake throughout the procedure.
- The doctor will use a local anesthetic to numb the place where the catheter will be inserted. A plastic introducer (a short and hollow tube that is used to guide the catheter up to the blood vessel) will be inserted in a blood vessel in the arm or groin. It is possible that a small incision may have to be made to insert the introducer through the skin. A catheter will be introduced through the introducer and will be threaded up to the heart. It is possible that you may feel pressure when the introducer or catheter is inserted, but you should not feel pain. Tell the nurse or the doctor if it hurts.
- The catheter is guided up to the heart through the blood vessels by the use of a procedure known as fluoroscopy (X-rays in real time). The catheter has an electrode at the tip, which allows for measuring the electric signals from the heart when it is pressed against the heart muscle. This way the cardiologist can trace the heart's internal electrical system and determine the place in the electrical system where the problem appears that is causing the abnormal heart rhythm. Once the place of the abnormal heart cells is identified, the doctor places the catheter there and applies a painless burst of radiofrequency energy on these abnormal cells. This way carefully chosen cells are destroyed and prevented from continuing to generate the abnormal rhythm.

After the procedure:

- The catheters and the introducer will be removed.

- If the catheter is inserted into your arm: your incision will be bandaged. You will remain under observation for a few hours to check whether any symptom or side effect of the procedure appears. You will be given instructions about how to care for your arm when you return home. Tell the nurse if you think you are bleeding (if the place feels warm and moist) or if you feel tingling or numbness in the fingers.
- If you had the catheter inserted in the groin: the incision will be closed applying pressure directly to the place where the catheter was inserted. A suture may also be used to close the small incision in the skin in the place where the catheter was inserted. You must lie flat and keep your leg straight to keep the place where the catheter was inserted from bleeding. A sterile bandage will be placed on your groin to protect it against infections. The nurse will examine your bandage periodically, but tell the nurse if you think that you are bleeding (you feel the place warm and moist) or if you feel tingling, numbness or coldness in the toes.
- The doctor will tell you if you can return home or have to spend the night admitted. Usually, you will be monitored for several hours after the procedure. The treatment, including medications, diet and future procedures, will be explained to you before you return home. How to care for the wound, what activities you can do and what the subsequent treatment will be will also be explained to you.