What is radiofrequency catheter ablation?

Radiofrequency catheter ablation is a procedure to treat an abnormal heart rhythm (arrhythmia). Specialized catheters and mapping equipment are used to carry out the two parts of the procedure: the electrophysiology (EP) study and the ablation. An ablation catheter is a thin, flexible tube that is able to detect electrical signals from the heart and transmit energy to the heart muscle. The catheter is inserted into a large vein in the leg and advanced to the heart. X-rays and the electrical signals from the heart are used to guide the position of the catheter. Once the catheters are in place, they are used to stimulate the heart to trigger the abnormal rhythm. This EP study creates a map of an individual's heart rhythm including any abnormal rhythm pathways that may exist. Once the abnormal pathway has been located, energy can be delivered through the ablation catheter to ablate (destroy) the arrhythmia pathway.

Before considering catheter ablation...

1. It is necessary to determine whether or not there is an arrhythmia that can be triggered during the EP study. This is done by obtaining an ECG, telephone transmitter or a Holter monitor of your heart rhythm while you are having symptoms.
2. An ultrasound (echocardiogram) of the heart is done to confirm that the anatomy and function of the heart are suitable for the procedure.
3. Your physician must be aware of any other medical conditions such as allergies, bleeding disorders or abnormal anesthetic reactions that you or members of your family have experienced.
4. Very young infants and individuals who are morbidly obese or pregnant face a higher risk of complications from this procedure. For these individuals, radiofrequency ablation is considered only when medically necessary and other measures have failed.

Why would I have an ablation procedure performed?

Some arrhythmias are treated either with medication or ablation. Ablation therapy is a safe procedure that has a high success rate for curing certain types of arrhythmias. If the ablation procedure is successful, long term medications to treat the arrhythmia are no longer necessary. If the arrhythmia is cured, long term medical follow-up is not required. For certain conditions, a successful ablation can improve insurability and remove activity and career restrictions. The decision to have an ablation is usually a decision made by you and your family, in consultation with your cardiologist.

What will happen during the procedure? Will I feel anything?

The EP study is performed in a specialized procedure room called an electrophysiology lab or “EP lab”. Radiofrequency catheter ablation usually takes 3 to 4 hours to carry out. The procedure can be longer or shorter depending on the complexity of the arrhythmia and other individual factors. Shortly before the procedure starts an intravenous line is started, usually in the hand. You will be asked to lie down on a narrow movable bed that can be positioned under the x-ray machine. Usually, medications are given through the intravenous line to sedate you into a deep sleep for the duration of the procedure. For some people (e.g. a child under 10 years old) or procedural approaches, a general anesthetic may be required. To minimize any discomfort you may have from the catheter placement, a local anesthetic is also used. When the procedure is complete, you will recover in a special observation room before being transferred to your hospital room, or being discharged.
How do I prepare for this specialized procedure?

Fasting, no liquid or food intake, is usually required starting at midnight the night before the procedure. If you are taking medication to treat your arrhythmia, discuss with your physician if, and when, this should be stopped prior to the procedure.

What will happen following the procedure?

After the procedure is complete, a light dressing is applied over the catheter access sites and it is important to lie quite still for a few hours to minimize any bleeding. It is not unusual to experience mild discomfort in your leg where the catheters were placed and/or some chest pain from the ablation for a few days following the procedure. After the procedure, specific instructions will be provided about resuming normal activities and when to return to school or work.

How successful is radiofrequency catheter ablation?

Radiofrequency catheter ablation has a 90% to 95% success rate for curing most types of arrhythmias, although this will vary slightly depending on the type of condition being treated. Generally, the procedure is safe and individuals are ready for discharge the same day or the following day after a short period of observation in the hospital.

What are some of the possible complications of this procedure?

Some of the complications of this procedure are very serious and include a 1:5000 risk of death, 1:1000 risk of a stroke or heart attack or cardiac puncture, and a 1:100 risk of requiring a permanent pacemaker. For example, this means that if one hundred individuals had this procedure performed one of them would require a permanent pacemaker. A pacemaker is a miniature computer and battery that is implanted under the skin and attached to the heart. A pacemaker becomes necessary following ablation if the normal electrical system of the heart is damaged during the procedure. Although a general risk of 1:100 is given, the risk may be higher or lower and depends on what type of arrhythmia is being treated. Cardiac puncture may require emergency treatment, including going to the operating room. More common adverse effects include chest pain, bleeding at the catheter access sites, and nausea and vomiting. About one in ten people will need to go through the procedure a second time because the problem can recur even if initially it appeared to be successfully treated in the EP lab.

Will I need to take any medications following this procedure?

Generally, it is recommended that you take Aspirin for one month after the procedure to prevent blood clots from forming in the areas where ablation was performed. If you were on a medication to treat your arrhythmia prior to the ablation procedure and the ablation was successful, it may be necessary to wean this medication slowly before it is stopped. After the ablation procedure it is important to clarify with your cardiologist when and how to resume any heart medications.

Radiofrequency Ablation Procedure Websites:


http://www.uptodate.com/patients/content/topic.do?topicKey=hrt_dis/9779

http://www.hrsonline.org/