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Catheter Ablation for Atrial Fibrillation

Patient Information sheet

Dr KISTLER has recommended you to have an ablation procedure for atrial fibrillation. The following information sheet is designed to help you understand what to expect during the procedure.

If after reading this information sheet there is any aspect that you do not understand - please do not hesitate to ask Dr Kistler for further information or explanation.

Normal heart rhythm

During normal rhythm, an electrical impulse originates from the normal pacemaker of the heart (sinus node) and travels through the upper chambers of the heart (the right and left atria) to cross over a bridge (AV node) to the pumping chambers (ventricles), causing a heartbeat. This is normal sinus rhythm.

Atrial fibrillation (AF) is a heart rhythm disorder with rapid, irregular, and chaotic electrical activity in the atria. The atrial electrical signals bombard the AV node, and some pass through the AV node to the ventricles, producing a rapid, irregular rate and often causing symptoms of palpitations, shortness of breath, or fatigue. AF affects more than 2 million people in the United States alone; it is seen progressively more frequently as a person ages.

Atrial fibrillation – Treatments options

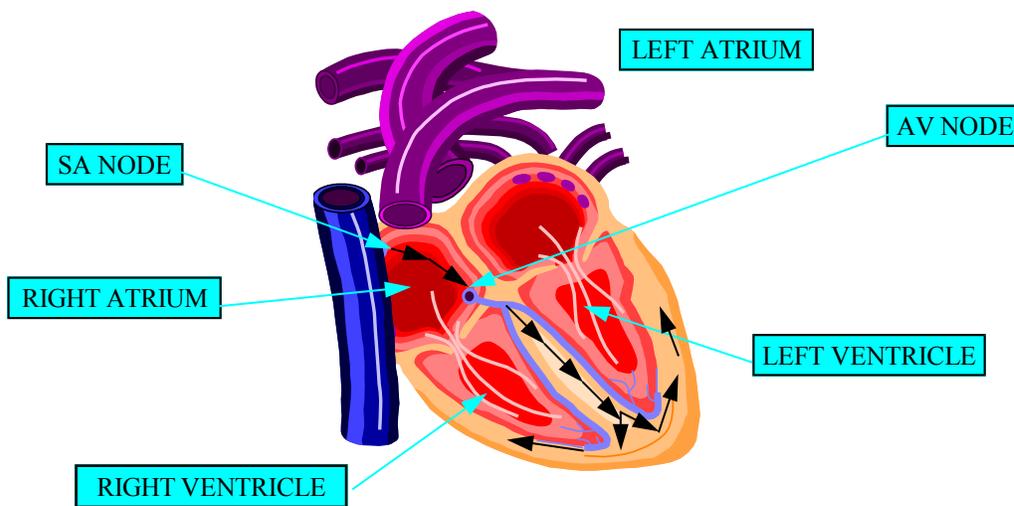
There are 3 major treatment considerations for AF.

Firstly stroke protection: in some people, AF promotes formation of blood clots in the atrium that can travel to the brain and cause a stroke. Daily administration of warfarin, an anticoagulant medication that reduces blood clotting or some newer agents such as Pradaxa or Xarelto may be used to prevent these clots.

Second, medications may be used to slow the heart rate, thus improving symptoms and preventing development of heart failure.

Third is whether to attempt to keep the heart in normal rhythm, a sometimes controversial issue that requires an individualized approach. Medications that alter the electrical properties of the heart often are used to try to maintain sinus rhythm, but they frequently are ineffective or cause unpleasant side effects.

Catheter ablation has been used to treat heart rhythm disorders for more than 20 years. A long, thin tube called a catheter is inserted into a blood vessel, typically in the groin, and guided through the blood vessels into the heart. When the tip of the catheter is placed against the part of the heart causing the arrhythmia, radiofrequency electrical current is applied through the catheter to produce a small burn about 6 to 8 mm in diameter. Catheter ablation is very effective when the abnormal area is small, but in AF, there are many electrical waves throughout the atria. However, AF is often “triggered” by rapid electrical activity originating from small areas typically located around the pulmonary veins that drain blood from the lungs back to the left atrium (Figure). Catheter ablation involves encirclement of the pulmonary veins (Figure) to electrically isolate all of the potential triggers around the veins, as well as the electrical “substrate” that allows AF to continue once it starts. With further study, it has become clear that the electrical abnormalities that promote AF can be different for different people and that some people require more ablation lesions than others.



What happens prior to your procedure?

You will receive a letter outlining the date of your procedure and date and time of your admission to the hospital admission.

MEDICATIONS

In some cases a letter asking you to cease taking your medication is enclosed. This generally refers only to the medication you are taking for your abnormal heart rhythm and this should be stopped 5 days prior to your procedure.

If you are taking anti-coagulation (blood thinning) medication such as Warfarin then you will need to then this should be continued with a blood test (INR) performed the day prior and the result faxed thru to my office (95001464).

The newer anticoagulants such as Pradaxa and Xarelto should be *stopped 48 hours* prior to the procedure.

- ❖ You will need to have a **CT or MRI scan** of your chest the day prior to the procedure. Dr Kistler will organize this and uses the scan to guide the catheters around your heart so that the procedure is tailored to your own anatomy.

You will be required to fast for at least six hours before the study.

DO NOT EAT OR DRINK AFTER MIDNIGHT, except for sips of water to help you swallow your pills.

What happens during the procedure?

You will be transferred to the Electrophysiology Laboratory (EP lab) from your ward. Usually before leaving your ward you will be given a light sedative and your groin will be shaved.

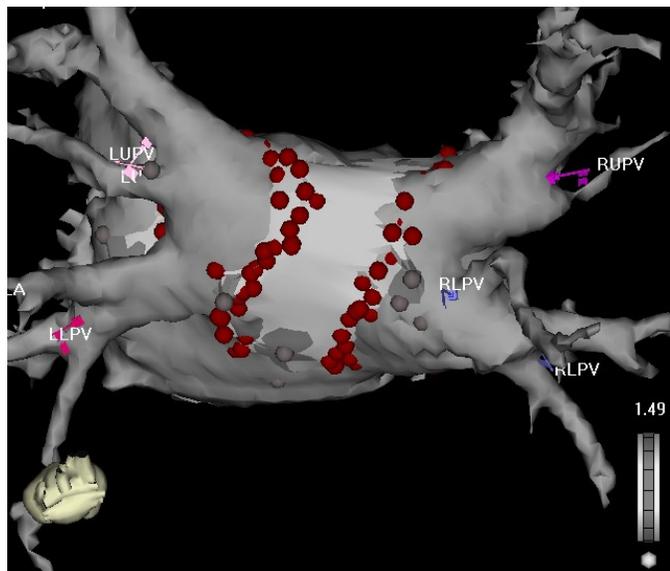
The EP lab has a patient table, X-Ray tube, ECG monitors and various equipment. The staff in the lab will all be dressed in hospital theatre clothes and during the procedure will be wearing hats and masks. Many ECG monitoring electrodes will be attached to your chest area and patches to your chest and back. These patches may momentarily feel cool on your skin.

A nurse or doctor will insert an intravenous line usually into the back of your hand. This is needed as a reliable way to give you medications during the study without further injections. You will also be given further sedation if and as required. You will also have a blood-pressure cuff attached to your arm, which will automatically inflate at various times throughout the procedure.

The oxygen level of your blood will also be measured during the procedure and a small plastic device will be fitted on your finger for this purpose. Your groin area and possibly your neck arm will be washed with an antiseptic cleansing liquid and you will be covered with sterile sheets leaving these areas exposed.

The procedure is generally performed under general anaesthetic via tubes positioned in the groin and sometimes the neck.

Most ablation (brown dots in picture) is performed in the **left atrium** (see picture) which requires 2 tubes to be passed from the groin through the right side of the heart into the left atrium. This is called a transseptal puncture. One tube acts as a port for the ablation catheter and second is for a circular mapping catheter to map electrical activity.



What is radiofrequency ablation (RFA)?

Radiofrequency is a low power, high frequency energy that causes a tiny region of the heart near the tip of the catheter to increase in temperature, thus ablating a small area of tissue.

Radiofrequency energy has been used for decades by surgeons to cut tissue or to stop bleeding. For the treatment of palpitations, a much lower power of radio-frequency is used.

Are there alternatives to AF ablation?

Before the advent of AF ablation patients had two options to control their palpitations.

1. Life-long medication, which works well in some patients, but requires the patient to take daily medication. There is also the possibility of side-effects from these drugs.
2. The alternative is to have a pacemaker implanted and ablation of the AV node which is the main connection between the top (atria) and bottom (ventricles) chambers of the heart. This does not cure the fibrillation but prevents the ventricles from being overstimulated and is very effective at reducing symptoms. As a result the heart relies on the pacemaker for electrical conduction.

What risks are involved in Atrial Fibrillation Ablation?

Although most people undergoing EP/ RF studies do not experience any complications, you should be aware of the following risks.

- ❖ *Local bleeding or haematoma* (blood collection) - this may occur at the catheter insertion site in the groin or neck.
- ❖ Perforation of the heart wall when gaining access to the left side of the heart. This may require the temporary placement of a drain tube into the sac around the heart and rarely requires open heart surgery.
- ❖ Stroke
- ❖ Narrowing of the lung veins: now very uncommon with new technology
- ❖ Connection between the back of heart and food pipe a rare recently reported complication estimated at between 1 in 1000 and 1 in 10,000 – the earliest symptoms are an unexplained fever between 1 week and 6 weeks after the ablation
- ❖ Gastroparesis – rarely the nerve supply to the stomach may be affected by the ablation resulting in paralysis of the stomach with a feeling of abdominal fullness, nausea and weight loss

- ❖ Phrenic nerve injury - rarely the nerve supply to the diaphragm may be affected resulting in breathlessness

The combined risk of a major complication as listed above is between 1 and 2%.

Please do not hesitate to discuss any aspect of the procedure including potential complications with your doctor or Dr Kistler prior to your procedure.

What to expect after your procedure.

After your procedure you will be transferred back to your ward where you will have to lie flat for 4 hours depending.

Throat discomfort and a sharp chest pain on breathing are common in the first few days

Most patients stay in hospital for 2 nights and their heart rhythm monitored during this time.

The majority of patients have 7 days away from work. You may not drive for 3-5 days following the ablation.

You will be on Warfarin or equivalent for at least 2 months following the procedure.

If you develop a fever after discharge from hospital in the first 8 weeks you should present to an emergency department or LMO and ask them to contact Dr Kistler immediately. You should NOT have a gastroscopy.

Palpitations or recurrent AF are NOT uncommon in the first 8 weeks following the ablation and do NOT indicate that the ablation has not been successful. Usually symptoms are controlled with medication and settle.

Valuable websites

www.atrialfibrillation.org.uk

www.hrsonline.org