

Patient information factsheet

Atrioventricular (AV) node ablation

Your doctor has recommended you have the above procedure to help with your atrial fibrillation (heart rhythm problem).

This factsheet has been written to help you understand what is involved. If there is anything you do not understand, or you are unsure why you need this treatment, please ask a member of your healthcare team who will be happy to explain further.

To help you understand this factsheet please refer to our “how the heart works” factsheet first. This is available on: www.uhs.nhs.uk or ask a member of your healthcare team.

What is atrioventricular (AV) node ablation?

It is a procedure used to treat atrial fibrillation that has not responded to medication.

An AV node ablation and insertion of a permanent pacemaker aims to regulate your heart rate and provide relief from the symptoms you have been experiencing.

What is atrial fibrillation?

The type of rhythm disturbance you have is called atrial fibrillation. It is one of the most common types of arrhythmia (heart rhythm problem).

It occurs when abnormal electrical impulses suddenly start firing in the atria (upper chambers of the heart). These impulses override the heart's natural pacemaker, which can no longer control the rhythm of the heart. This causes you to have a highly irregular pulse rate.

The procedure

The AV node ablation procedure stops the fast, irregular impulses from the atria reaching the ventricles (lower chambers).

During the procedure, your doctor will use a special ablation catheter to deliver radiofrequency energy (heat) to block the pathway between the upper and lower chambers of your heart (the AV node). This creates a scar, which stops the fast, irregular impulses reaching the ventricles.

After the procedure, your underlying heart rate will be too slow, and you will need a permanent pacemaker. This will usually be implanted six weeks before your ablation procedure. (A pacemaker is a small battery-operated device that sends out electrical signals to start a heartbeat when your heart is beating too slowly).

It is important to remember that an AV node ablation will not fix your underlying arrhythmia or convert atrial fibrillation to sinus rhythm ('normal' heart rhythm). It will only control the number of impulses reaching the ventricles, and your atria will still 'fibrillate', (beat too quickly and irregularly). During this time the atria are unable to completely empty all of the blood

Patient information factsheet

they receive into the ventricles. This can cause blood to pool and potentially, clots can form. Therefore, to prevent you being at an increased risk of stroke your doctor will prescribe you a blood-thinning drug (anticoagulant) called warfarin, or an alternative.

You must continue to take your anticoagulant after the procedure.

The procedure is performed under a local anaesthetic, with sedation, which will help you to relax. X-ray screening will be used so if you think you may be pregnant you should let us know before the procedure.

What improvement can I expect after the procedure?

Some patients may not see an improvement in their symptoms and in a few cases may become more unwell after the procedure. It is important to note that an AV node ablation cannot be reversed.

If you have any questions about the procedure or the intended results, please speak to a member of your healthcare team.

Risks of the procedure

AV node ablation is safe. However as with any procedure, there are potential risks. Your individual risk of complications will be identified and fully explained by our doctors before you have your procedure. If you are known to have underlying coronary heart disease the procedural risks are slightly increased.

The risks outlined below can be treated and are rarely life-threatening.

- **Bruising and bleeding:** this is common in the groin after the procedure. However, this usually disappears within a week and does not cause a problem.
- **Blood vessel damage:** occasionally the catheter electrodes can damage the blood vessels when being moved into position within the heart. The risk of this happening is between 3 and 5%. Serious injury to the blood vessels requiring a surgical procedure to repair the damage is extremely rare.
- **Pulmonary embolism, or deep vein thrombosis (DVT):** the risk of developing blood clots in the legs (DVT) or heart that travel to the lungs (pulmonary embolism) is extremely rare, less than 1%.
- **Transient ischaemic attack (TIA) / cerebrovascular accident (CVA) - commonly called a stroke:** the brain cells in the part of the brain served by the affected blood vessel die of lack of oxygen and nutrients due to a blockage. Symptoms can be slurred speech, limb/ facial weakness and loss of memory or recall depending on the area of the brain affected. The difference between a TIA and CVA is the duration of your symptoms (less than 48 hours is usually classified as a TIA). This is rare, less than 1%.
- **Cardiac tamponade:** during placement, the catheters may puncture the heart muscle causing blood to collect around the heart. If this happens the doctor may need to insert a drain to remove it. The risk of this happening to you is less than 1%. This risk increases slightly if your doctor needs to make a transseptal puncture.
- **Death:** this is extremely rare but with any procedure there is always a small risk.
- **Damage to pacemaker leads:** Most likely you will have a pacemaker implanted in you before the AV node ablation procedure. During the ablation procedure, these leads may get displaced or damaged. This is a rare complication (less than 1%) but if this happens you will need another operation on the pacemaker to correct the lead problem. The type of pacemaker dictates the exact operation needed and your doctor will explain it to you.

Patient information factsheet

Additional risks

Occasionally we have difficulty gaining access through the blood vessels in the groin. In this case we will access the blood vessels through the chest wall. To do this we make a small incision in the chest wall to pass catheter electrodes through the blood vessels into the heart, this has potential additional risks:

- **Pneumothorax** (if the vein under your collarbone is used): very occasionally, the catheter electrodes can puncture the lung wall. Air leaks out of the lungs and collects in the space between the lung and chest wall, resulting in partial or complete collapse of the lung. If this happens the doctor may need to insert a drain to reinflate your lungs. The risk of this happening to you is less than 1%.
- **Haemothorax** (if the vein under your collarbone is used): the catheter electrodes can sometimes damage the chest wall causing blood to collect in the chest cavity. If this happens the doctor may need to insert a chest drain. This is extremely rare and the risk of it happening to you is less than 1%.

Success rates

On rare occasions the ablation procedure is not successful. Your doctor will discuss the success rate with you on an individual basis before you sign your consent form. If the procedure is unsuccessful it may be possible to repeat it at a later date.

Please refer to the separate pacemaker factsheet for associated risks related to pacemaker implantation.

Before admission

If you are taking medication to control your heart rhythm, the admission coordinator may advise you to stop taking your tablets five days before your procedure. This is to allow your doctor to make a better assessment of your heart rhythm. Stopping your tablets may cause your symptoms to return.

- If you are taking warfarin (blood thinner), regular blood tests will be needed for at least four weeks before the procedure, usually at your doctor's surgery. We ask that you keep your INR between 2.0 and 3.0. A record of this should be kept in your yellow warfarin book. We also request that you check your INR three days before your admission to confirm it is in range to enable the procedure to go ahead.
- If you are taking an alternative anticoagulant (for example, Dabigatran, Rivaroxaban, Apixaban or Edoxaban) then you will be given an individual management plan to follow.
- You will be advised not to eat or drink before your procedure, specific instructions will be on your admission letter.

If you have any questions please talk to the CRM admissions coordinator about the medicines that you are currently taking. Contact details are the last page of this factsheet.

The above advice should be followed unless your admission letter advises otherwise.

Before the procedure

On your arrival to the ward a nurse will talk to you and your family about your hospital admission and answer any questions you may have. You will have blood tests taken and an electrocardiogram (ECG) recorded. A doctor will also see you to explain the procedure, and ask you to sign a consent form. If you have any worries or concerns please do not be afraid to ask questions. It is important to tell your nurse or doctor if you have any allergies or have had a previous reaction to drugs or other tests. If you are having the procedure done under a

Patient information factsheet

general anaesthetic, you will also talk to an anaesthetist.

A doctor or nurse will insert a small needle into a vein in your hand (cannula) in order to give you drugs during the procedure. You will also be asked to shave your groin and upper chest and be given a hospital gown to wear.

You will be advised not to eat for six hours before your procedure. If you are diabetic your nurse will discuss your tablets/insulin dose with you, because not eating may affect your blood sugar levels.

The procedure could take a couple of hours. You may wish to let your family know so they do not worry.

During the procedure

You will be taken to the catheter lab where a nurse will stay with you to reassure you throughout the procedure. There is a lot of equipment in the room, which is used to monitor your heart rhythm. You will be awake during the procedure, but to help you relax your doctor will give you a short-acting sedative.

The doctor will inject a local anaesthetic into your groin to numb your leg. This may sting a little and you may feel some mild discomfort. When the local anaesthetic has taken effect, the doctor will insert a small tube (sheath) into your groin. You should not feel any pain, but if you do please let your doctor know. Through the sheath the doctor will gently thread several flexible wires (catheter electrodes) into your heart under x-ray screening. You should not feel any pain during this part of the procedure.

Once the ablation catheter is in place the doctor will locate the AV node and deliver a small amount of radiofrequency energy (heat energy) directly onto the node and ablate (destroy) it to create a scar. You may feel a slight burning sensation or heaviness in your chest during this part of the procedure.

It is important to remember that in the case of an AV node ablation the creation of scar tissue will block the heart's normal conduction system (scar tissue cannot transmit electrical impulses). This is why you will need to have a pacemaker fitted.

If you experience any symptoms during the procedure, for example chest pain, dizziness or shortness of breath, please tell your nurse or doctor.

After the procedure is completed the catheter and IV line will be removed. Firm pressure will be applied to your groin where the catheter was inserted to stop you from bleeding.

Before you leave the catheter lab, the technicians (physiologists) will check the pacemaker and re-programme it as necessary

After the procedure

After the procedure you will be moved to the recovery area where you will be monitored for a short time. On returning to the ward you will need to rest for a few hours. You may feel a little sleepy until your sedative has worn off. The nurse will record an ECG, check your blood pressure, pulse and feel your foot pulses. The nurse will also check your groin for any bleeding. It is important that you stay in bed and avoid bending your affected leg for approximately two hours after the catheters have been removed. This is to prevent any

Patient information factsheet

bleeding from the puncture site. After this time you will be able to get up if there are no complications. You will be able to eat and drink normally as soon as you are back on the ward. The nurse will remove the small needle in your hand.

Results

Your doctor will usually discuss the results and treatment plan with you and your family after the procedure and x-ray.

Going home

You will normally be able to go home the same day. It is important to ask a family member or friend to collect you and drive you home.

If you are being discharged home the same day as your procedure, we would advise you to have someone stay with you for the night. If you don't have anyone who is able to stay with you overnight, please contact us via the number in your admission letter to discuss further.

Before you are discharged your doctor or CRM nurse will advise you regarding the medicines you will need to take or stop and your follow-up care.

It is essential that you continue your usual blood-thinning medication. It is important to understand that you will be still in atrial fibrillation, therefore there is a risk of a stroke if blood thinners are not taken.

You will have a small dressing on your puncture site that can be removed the next day. It is important to keep the area clean and dry until it has healed. If you notice any swelling, redness or oozing please let your GP know.

If you have any concerns regarding your pacemaker site please contact the CRM nurses – see the Contact us section below.

Resuming normal activities

You can resume your normal daily activities when you leave hospital. After the AV node ablation, unless your job requires you to lift heavy objects, you can return to work in a day or two.

Driving

After successful catheter ablation the DVLA instructions state that you are you are not allowed to drive for at least two days, but we recommend that you don't drive for one week. If you hold a Group 2 PSV licence (lorries/buses) you are not allowed to drive for six weeks and need to inform the DVLA.

Follow-up care

The cardiac rhythm management (CRM) team will give you specific follow-up instructions when you leave hospital. The doctor will write a letter to your GP detailing your hospital stay and treatment.

Cancellations

Unfortunately we do sometimes have to cancel procedures. If this happens to you, we will always try to explain the reason. We fully appreciate that this is a stressful time for you and your family and we will do our best to provide you with a new date that is convenient for you as soon as possible.

Patient information factsheet

Who will perform my procedure?

Your procedure will be performed by a specially trained doctor with appropriate experience (although we aren't able to guarantee that you will be treated by a particular member of staff). If the doctor is undertaking training on this procedure they will be supervised by an appropriately qualified colleague

Contact us

If you have any questions regarding your procedure please call: **023 8120 8436** to speak to a cardiac rhythm management (CRM) clinical nurse specialist.

You can also email: **uhs.crmnurses@nhs.net**

If you have a query relating your admission date please contact the cardiac rhythm management coordinator on: **023 8120 8772**.

Useful links

The following websites also provide useful information:

www.bhf.org.uk

www.heartrhythmcharity.org.uk

An online version of this factsheet is available on our website **www.uhs.nhs.uk**.

Navigate to: Our services > Blood, heart and circulation > Cardiac rhythm management > Useful information and resources.

For a translation of this document, or a version in another format such as easy read, large print, Braille or audio, please telephone **0800 484 0135** or email **patientsupporthub@uhs.nhs.uk**

For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit **www.uhs.nhs.uk/additionalsupport**