Patient information leaflet and consent form for ablation of the atrioventricular node.

What is atrial fibrillation/flutter?
Atrial fibrillation and flutter are the most common types of arrhythmia (heart rhythm problem). In atrial fibrillation the signals are chaotic and irregular, whereas in atrial flutter there is a more organized movement of electricity in a circuit around the atria. These conditions have important differences but are closely related, and both have the effect of over-riding the heart's natural pacemaker, which can therefore no longer control the rhythm of the heart. This can cause people to have an abnormal pulse, that may be fast and irregular and associated with a variety of symptoms as a result of inefficient heart function.

What is an AV node ablation?
An atrioventricular (AV) node ablation is a procedure used to treat atrial fibrillation/flutter that has not responded to medication and/or other ablation procedures. Rather than targeting the abnormal rhythm directly, it is the deliberate destruction of a special structure in the middle of the heart, the AV node, normally responsible for conducting signals from the top chambers of the heart to the bottom chambers. Damage to the AV node therefore prevents fast, abnormal signals driving the main pumping chambers of the heart in a fast and irregular manner.

In order to maintain the heart rate following this a pacemaker is required, normally implanted several weeks prior to the ablation.

The procedure
During the procedure, your doctor will use a special ablation catheter to deliver radiofrequency energy to heat up and destroy the AV node, blocking the pathway between the upper and lower chambers of your heart. This is advanced to the heart via a vein in the leg. Occasionally the catheter is advanced to the left side of the heart (approx. 7% - 1 in 14 patients), either by navigating the catheter through the heart via a small hole in the wall between the top chambers, or via the artery in the leg.

The ablation creates a permanent scar in the AV node, which stops the fast, irregular impulses reaching the ventricles. After the procedure, your underlying heart rate will be too slow, normally <40 beats per minute, and you will need a permanent pacemaker (PPM). The pacemaker will usually be implanted several weeks before your ablation procedure. There are several different types of PPM available, and the best type for you will depend on a number of factors. We have information leaflets on these different pacemakers, and will issue you with which is appropriate for you.

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 prevent rapid and irregular contraction of the ventricles. Your atria will still 'fibrillate'(beat too quickly and irregularly). During fibrillation, blood clots can form in the atria, therefore to prevent you being at an increased risk of stroke, your doctor will have already prescribed you a blood-thinning drug (anticoagulant).

You must continue to take your anticoagulant after the procedure.

The procedure is performed under a local anaesthetic, with sedation to make you a bit sleepy and 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. It normally takes less than an hour to perform the ablation procedure. Ablation time is normally less than 5 minutes.

What improvement can I expect after the procedure?
Some patients may not see an improvement in their symptoms, but normally a significant improvement is seen quite quickly, particularly if the fast heart rhythm has affected the strength of heart contraction. Positive effects will depend on your symptoms prior to the ablation but one would expect to see removal of symptoms of palpitation relating to rapid heart rates, and an improvement in symptoms such as breathlessness, dizziness and chest discomfort.

Risks of the procedure
An AV node ablation is generally very safe, however there are potential risks. Some of these are detailed below. Your individual risk of complications should be identified and fully explained by our doctors before you have your procedure.

It is important to remember that much of the risk of an AV node ablation is associated with having a pacemaker implanted rather than the ablation itself. Please see the specific consent forms regarding pacemaker implantation. 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 less than 2%. 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 uncommon, less than 1%.
Transient ischaemic attack (TIA) / cerebrovascular accident (CVA) – More commonly called a stroke, or mini-stroke, the brain cells in the part of the brain served by the affected blood vessel are damaged by 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 to go to the left side of the heart.
Death: This is extremely rare indeed and would be highly unexpected but is possible and is reported at <0.5%.
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.
Haemothorax/Pneumothorax: Occasionally we have difficulty gaining access through the blood vessels in the groin. In these cases we will access the blood vessels from the arms or shoulders. this has potential additional risks. If the vein under your collarbone is used the lung can be punctured by mistake. Air or blood 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 drain fluid from around the lung and reinflate the lung. The risk of this happening to you is less than 1% of the infrequent occasions the vein under the collar bone is used.

Success rates:
It can be difficult to predict sometimes whether the ablation will make you feel better until it is done and this should be discussed with you by your doctor on an individual basis before you sign your

consent form. If we see that rapid heart rates have caused dysfunction of your heart it's more likely to work. Ablation of the AV node itself is almost always successful with a low recurrence rate in the weeks and months after the procedure, approximately 95% success. If the procedure is unsuccessful in that conduction comes back, a repeat procedure to complete the ablation would normally be offered.

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

Other options
Often we suggest a pacemaker after other approaches have proved unsuccessful. These will include ablations directed specifically within the atria, antiarrhythmic drugs and and electrical cardioversions (DC shocks). These can all be reconsidered but normally this has already been done by the point an AV node ablation is considered.

Persisting on current treatment is an option, and whether that is right for you will depend on your own situation and preference. It is important to remember that following pacemaker implantation, it might be that additional rate controlling medications have been used to good effect, and that the ablation may no longer be required by the time you come for your ablation.

Before admission
You will be instructed on what medications you will need to stop prior to the procedure. Generally medications are continued. Blood thinning medications (Edoxaban, apixaban, rivaroxaban, dabigatran) will often be omitted on the morning of the procedure. If you are taking warfarin, this would be continued, though we would aim for your INR to between 2.0 and 3.0, and be stable in the weeks prior to the procedure. A record of this should be kept in your yellow warfarin book.

Other specific instructions will be on your admission letter.

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 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 be given a hospital gown to wear. 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. Your groin will be shaved and 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 advance a flexible wire (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 directly onto the node and ablate it to create a scar. You may feel a slight burning sensation or heaviness in your chest during this part of the procedure, but it is normally very well tolerated with very little discomfort.

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 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.

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 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. Normally drugs used to slow the heart such as Digoxin will be discontinued. Anti-arrhythmic drugs such as amiodarone, sotalol, or flecainide would also have been discontinued by this stage. Beta-blockers are often used to slow the heart prior to an AV node ablation and might be discontinued but there are other reasons these drugs might be continued in some patients.

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 device follow up centre appropriate to, normally at your local hospital.

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. 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 doctor will write a letter to your GP detailing your hospital stay and treatment.

Will I need further appointments?
Normally you will be followed up by your local Cardiologist who will keep in contact with us if necessary.

Useful Contacts

If you need any more information or have any queries please contact

Arrhythmia Nurse Specialist at GJNH 0797018734 or
Cardiac Day Unit on 0141 951 5201

Further support and information are available from the:

British Heart Foundation
Lyndon Place
2096 Coventry Road
Birmingham,
B26 3YU
0300 330 3322
www.bhf.org

Arrhythmia Alliance
PO Box 3697
Stratford-Upon-Avon Warwickshire,
CV37 8YL
e-mail: info@heartrhythmcharity.org.uk
01789 450 787
www.heartrhythmcharity.org.uk

File Copy

CONSENT FORM
PROCEDURE SPECIFIC PATIENT AGREEMENT

Name

Date of Birth

CHI

AV node ablation

STATEMENT OF HEALTH PROFESSIONAL (to be filled in by health professional with appropriate knowledge of proposed procedure)

I have explained the procedure to the patient. In particular, I have explained the intended benefits:

- *To regularize the rate and rhythm of ventricular contraction to treat symptoms of atrial arrhythmias.*

The overall significant complication rate is approximately 2% (2 in 100 cases) in addition to the risks associated with having a pacemaker.

Risks of specific events:

- *Mild bruising is common and requires no intervention.*
- *Significant haematoma requiring treatment or prolonging hospitalization (<1%)*
- *Damage to Blood Vessel (Pseudoaneuryms, fistula) occurs in <1%.*
- *Dangerous heart rhythms <0.6%*
- *Blood clots in leg or lung <0.3%*
- *Stroke <0.2%*
- *Damage to pacemaker leads <0.25%*
- *Death <0.3%*

Any extra procedures which may become necessary during the procedure:

Blood transfusion (required very infrequently)
Pericardial access
Cardiac surgery

Other procedure (please specify):

I have also discussed what the procedure is likely to involve, the benefits and risks of any available alternative treatments (including no treatment) and any particular concerns of this patient.

The patient has had the information leaflet for this procedure and/or discussed it with a health professional and has had sufficient time to make an informed decision.

I am satisfied that this patient has the capacity to provide his/her consent to the procedure.

This procedure will involve: ☐ General and/or regional anaesthesia ☐ Local anaesthesia ☐ Sedation

Health Professional signature: Date:

Name (PRINT): Job title:

STATEMENT OF INTERPRETER (where appropriate)

I have interpreted the information above to the patient to the best of my ability and in a way in which I believe he/she can understand.

Interpreter signature: Name (PRINT): Date:

File Copy

AV node ablation

Name

Date of Birth

CHI

Please read this form carefully. If your treatment has been planned in advance, you should already have a copy of the patient information leaflet which describes the benefits and risks of the proposed treatment. If not, you will be given a copy now. If you have any further questions, do ask - we are here to help you. You have the right to change your mind at any time, including after you have signed this form.

STATEMENT OF PATIENT

I agree to the procedure or course of treatment described on this form.

I understand that you cannot give me a guarantee that a particular person will perform the procedure. The person will, however, have appropriate experience.

I understand that I will have the opportunity to discuss the details of anaesthesia with an anaesthetist before the procedure, unless the urgency of my situation prevents this. (This only applies to patients having general or regional anaesthesia).

I understand that any procedure in addition to those described on this form will only be carried out if it is necessary to save my life or to prevent serious harm to my health.

I understand that tissue samples will only be taken in relation to the procedure explained to me. No samples will be taken for quality control, clinical education or research purposes.

I have been told about additional procedures which may become necessary during my treatment. I have listed below any procedures **which I do not wish to be carried out** without further discussion.

I have received a copy of the Consent Form and Patient Information leaflet: Catheter Ablation for Ventricular tachycardia which forms part of this document.

Patient signature: Name (PRINT): Date:

A **witness** should sign below if this patient is unable to sign but has indicated his or her consent. Young people / children may also like a parent to sign here.

Witness signature: Name (PRINT): Date:

CONFIRMATION OF CONSENT (**to be completed by health professional when the patient is admitted for the procedure, if the patient has signed the form in advance**).

On behalf of the team treating the patient, I have confirmed with the patient that they have no further questions and wish the procedure to go ahead.

Health Professional signature: Date:

Name (PRINT): Job title:

Important notes (tick if applicable):

See advance decision to refuse treatment. Patient has withdrawn consent (ask patient to sign/date here)

Patient signature: Name (PRINT): Date: