Electrophysiological Study and Radiofrequency Ablation (for supraventricular tachycardia, atrial flutter, atrioventricular node ablation)

Cardiology

Introduction

The aim of this booklet is to:

- Tell you more about this procedure which your doctor has already explained to you
- Help you to understand what will happen to you
- Explain the possible risks of the procedure
- Explain other alternatives if you do not wish to go ahead with the procedure
- Make sure you know as much as possible about the procedure before you agree to it and sign the consent form.

What is an electrophysiological study?

The heart has its own wiring system, similar to that found in a house/flat or any building. Normally, the rhythm of the heart is controlled by the natural pacemaker which generates electrical impulses. This pacemaker is situated in the upper portion of the right upper chamber. From here, electrical impulses spread, initially to both the upper chambers and then to the lower chambers of the heart, through its wiring system.

An abnormality in the wiring system (usually in the form of a 'short circuit' or an 'extra connection') causes an abnormal heart rhythm (called an 'arrhythmia') which is mostly perceived by patients as a fast heart beat, also called palpitations. Some patients can also have other symptoms e.g., fluttering / bumping / skipping of heart beats, light-headedness / dizziness or rarely, blackouts.

An electrophysiological study (EPS) is a test to look at the wiring system of the heart to determine the cause of the abnormal heart rhythm ('arrhythmia').

It involves inserting thin tubes in the groin through which fine wires are passed to the various chambers in the heart. Using these wires, electrical signals are recorded from inside the heart. It is like taking an internal heart trace or electrocardiogram (ECG). Frequently, the heart is stimulated to locate the 'short circuit' or 'extra connection'.

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- **Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available**
- **If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111**
- **Keep the environment clean and tidy**
- **Let's work together to keep infections out of our hospitals and care homes.**

This type of test is able to give more detailed information about the electrical system than a simple heart tracing (ECG) done from the outside.

What is an ablation?

Ablation is the application of energy to destroy tissue in an attempt to abolish the 'short circuit' or 'extra connection' which is the cause of the abnormal heart rhythm ('arrhythmia'). Most frequently, electrical energy ('radiofrequency') is used during an ablation procedure. However, other forms of energy can also be used e.g., extreme cooling ('cryo'). Ablation can be done at the same time as the electrophysiological study (EPS) or on a separate occasion.

Not all ablation procedures are the same. The area of the heart to be ablated depends on the type of heart rhythm abnormality that you have. This maybe different from other patients also undergoing an ablation procedure. Your doctor will discuss with you the type of ablation and energy to be used during your procedure.

An ablation procedure may involve an overnight stay.

Consent

We must seek your consent for any procedure or treatment beforehand. Your doctor will explain the risks, benefits and alternatives where relevant before they ask for your consent. If you are unsure about any aspect of the procedure or treatment proposed please do not hesitate to ask for more information.

What are the benefits of having an electrophysiological study and ablation?

- An electrophysiological study helps to determine the electrical abnormality in your heart which is the cause of your abnormal heart rhythm ('arrhythmia') or to determine the risk of you experiencing abnormal heart rhythms in future
- An ablation procedure will help to destroy the electrical 'short circuit' or 'extra connection' in the heart and help in improving your symptoms. A successful procedure therefore means that you are unlikely to get an abnormal heart rhythm again.

What are the risks of having an electrophysiological study and ablation?

- Electrophysiology study and ablation are safe procedures. However, as with any invasive procedure, they can be associated with a small degree of risk
- The commonest complication (5 in 100) which can occur with either type of procedure is that of bleeding or bruising around the area of tube insertion. A small lump may develop, called a haematoma, which should go down within a few days. Rarely (1 in 100) damage to the blood vessels can occur, which may require further treatment
- With either procedure, there is a less than 1 in 100 chance of collection of fluid in the sac which surrounds the heart. If it is found that the fluid is pressing on your heart, it may need to be removed urgently, by inserting a drain, for a few days. The drain is normally inserted from beneath the lower end of your breast bone.

Additional risks of an ablation procedure are a 1 in 100 chance of damage to the wiring system of the heart resulting in the need for a temporary or permanent pacemaker; a clot formation in the heart leading to a 'minor' (TIA - transient ischaemic attack) or 'major' stroke or occlusion of a blood vessel elsewhere in the body; need for shock treatment to restore the heart rhythm to normal ('cardioversion'); and excessive radiation or sedation. The need for cardioversion is higher (up to 5 in 100) if the ablation is being undertaken for atrial flutter. If a cardioversion does becomes necessary, for their comfort, patients are usually given additional sedation. Less frequently (1 in 1000) occurring risks are damage to the blood supply of the heart resulting in a heart attack ('myocardial infarction'); allergic reactions or death.

What are the alternatives if I decide not to have this procedure?

If you choose not to have the procedure, you may continue to have symptoms and may need to continue taking tablets (medical therapy). If your doctor has recommended an electrophysiology study with or without an ablation procedure, they will explain to you individually the reasons for this and your options if you choose not to have this procedure. Please take this opportunity to ask questions and discuss any concerns you may have.

What preparation is needed?

- You will be asked not to eat or drink for about 4 hours prior to the procedure
- Bring all your normal medications with you in their original containers
- Your doctor may ask you to stop some or all of your medication for 5 days prior to the procedure
- We need to know if you have any allergies
- The nurse will shave the site of the insertion of the tubes. You may wish to perform this yourself in the privacy of your home
- A doctor will ask you to confirm your consent after (s)he has had further discussion about the procedure with you. Please use this opportunity to raise any concerns you have
- You will be fitted with a wristband with accurate details about you on it. It ensures that staff can identify you correctly and give you the right care. It is important that you do not remove it until you go home
- Pre-procedure tests will include blood pressure, pulse, weight, height, heart tracing and blood tests
- We will provide you with a gown and disposable paper pants to change into and wear during the procedure. A small plastic tube will be inserted into a vein in your arm; this will allow us to give intravenous medication
- Avoid wearing jewellery, make-up and nail varnish; your wedding ring may be left on if you wish – we will cover it with a tape
- We advise you not to bring large sums of money or valuables with you. If this is unavoidable they should be handed in for safekeeping
- All patients are advised to come prepared for an overnight stay (dressing gown, slippers and overnight bag)
- Please tell us before the procedure if there is any possibility you may be pregnant, as we would want to avoid any exposure to X-rays. In selected cases we may want to carry out a pregnancy test.

Medications: What to do if you are diabetic?

- If your diabetes is diet controlled, do not have anything to eat or drink for 4 hours prior to the procedure
- If you take tablets to control your diabetes do not take them if you are not having breakfast. You may take them later after your procedure with food
- If your procedure is in the afternoon and you are having breakfast, take your normal tablets
- If you normally take metformin tablets do not take them on the day of the procedure and for a period of 48 hours following the procedure.

Diabetics on insulin should follow these instructions:

- If your procedure is in the morning: don't have any breakfast and don't take your usual morning insulin. We will try and ensure that you are first on the list
- You will be offered food and your usual morning insulin after the procedure
- If your procedure is in the afternoon: take half of your morning dose of mixed insulin (minimum 10 units) with breakfast. If you take insulin four times a day please take your usual morning dose
- Please ensure you bring your insulin, blood glucose monitoring equipment and a snack with you.

Further advice can be obtained from the Diabetes Outreach Team on 01902 695310.

If you take warfarin or phenindione, sinthrome or one of the newer anticoagulants e.g. apixaban, dabigatran, edoxaban or rivaroxaban, you should be informed individually what to do. If you are unsure, please contact your consultant's secretary or the waiting list team.

What happens during the procedure?

- The procedure is carried out in a room called the catheterisation laboratory
- The team involved will consist of doctor(s), nurse(s), cardiac physiologist(s) and radiographer(s) for taking X-rays
- You will be taken to the catheterisation laboratory on your bed and transferred to the X-ray table. You will be lying on your back with your head supported throughout the procedure
- Small adhesive electrodes will be attached to your body to monitor your heart rate and rhythm (ECG). Your blood pressure and oxygen levels will also be monitored throughout the procedure
- Additional patches maybe applied to your back and/or chest
- A sedative and pain killers will be delivered through the small plastic tube inserted into your arm to help you relax and make the procedure more comfortable for you. It is normal practice to also give you oxygen, using a face mask
- The skin over one or both groin/s will be cleaned with an antiseptic and you will be covered in sterile towels, only a small area around your groin will be left uncovered
- The skin and the tissues over the area will be 'frozen' with a local anaesthetic injection following which fine plastic tubes will be inserted into your groin
- During the procedure, you may be aware of bumping in your heart while the doctor undertakes tests of the electrical system of your heart to find out the 'extra connection' or 'short circuit'
- Your heart rate may also be speeded up by injecting medication through the plastic tube in your arm
- If you are undergoing an ablation procedure, you may experience a warm / cold sensation in your chest for the duration of the ablation
- After the procedure, the wires and tubes will be removed and pressure applied firmly to the groin for a few minutes. A special pressure device (Femostop) or a stitch ('Z' stitch) may be applied to the area through which the tube(s) has been passed to ensure that there is no further bleeding. The stitch or Femostop, if applied, will be removed before you go home
- A nurse or doctor will frequently check the groin to ensure that no bleeding or bruising occurs
- The procedure may take up to 2 hours or sometimes longer.

What happens after the procedure?

- You will be helped from the X-ray table back onto your bed
- You will return to the ward on your bed and remain on bed rest for up to 4 hours. On the ward, your heart rate, blood pressure and oxygen levels will be monitored. A repeat heart tracing will also be performed
- A watch will be kept on the groin sites from where the procedure was performed
- You will be allowed home once you are able to walk about and the dressing on your groin has been checked
- You will be given food and drink after the procedure
- Following the procedure most patients can go home the same day unless your consultant has indicated otherwise
- It is not unusual for patients to experience a few flutters / bumps / skipped beats for a few days / weeks after the procedure. In a vast majority of cases these symptoms subside on their own. If they are persistent or troublesome, contact your GP or the consultant who performed the procedure.

Going home advice?

If you are allowed to go home the same day, it is important that you have the company of a responsible adult overnight and access to a telephone line (land or mobile). Alternatively, it is advisable to have the telephone number of a neighbour, friend or relative who could help you in an emergency.

If this is not possible, please inform the waiting list clerk on 01902 694064 before the day of your procedure.

You should not drive for at least 2 days if you have had an ablation. If in doubt please clarify the driving instructions with your doctor.

Remove your dressing after 24 hours. A further dressing should not be required; if there is any discharge from your puncture site, contact your GP.

Bruising may be confined to a small area or extend as far as your knee and may take several weeks to disappear. Any bruising or discomfort should ease within a few days. If you notice your puncture site is hard, swollen, red or warm to touch, or if you develop a fever, contact your GP or contact us on the telephone numbers given at the end of the leaflet, so we can advise you.

If your puncture site starts to ooze a small amount of blood, lie or sit down and apply pressure for five to ten minutes. If slight oozing continues, call your GP.

If the bleeding is heavy and forceful (this is unusual), press hard over the puncture site, call for an ambulance and explain that you have had electrophysiological studies and/or an ablation.

If you have stopped your warfarin you will usually restart it on the day after your procedure or follow your doctor's instructions.

How to contact us:

Cardiac Catheter Suite (Ward B15)
Third Floor
Heart and Lung Centre
New Cross Hospital
Wolverhampton
West Midlands
WV10 0QP
Tel: 01902 694273

If you need to telephone for advice or information after you have been discharged, please use these numbers:

Heart and Lung Centre
New Cross Hospital
Cardiology Wards (Ward B14)
Telephone 01902 694330/ 694223

or

Russell's Hall Hospital
Coronary Care Unit 01384 244138
Secretary to Dr Forsey 01384 244178

Additional information is available from:

Wolverhampton Coronary Aftercare Support Group (WCASG)
Heart and Lung Centre,
New Cross Hospital,
Wolverhampton.
Email: wcasg@gmail.com
Tel: 01902 755695 Mobile: 07889 063647
Website: www.have-a-heart.net

Patient Advice & Liaison Service (PALS)
PALS Coordinator, Patient Liaison Centre
New Cross Hospital
Tel: 01902 695362 Mobile: 07880 601085
Email: rwh-tr.PALS@nhs.net

Age Concern Wolverhampton
Supportive discharge service for anyone aged 50 or over, based in New Cross Hospital
Tel: 01902 695780 or 07753 718929

Asian Support Link Worker
Based in New Cross Hospital
01902 695319
Email: satbinder.suman@nhs.net

British Cardiac Patient Association
15 Abbey Road
Bingham
Nottingham
NG13 8EE
Helpline: 01223 846845 (0900-1900 hours)
Website: www.bcpa.co.uk

British Heart Foundation
Greater London House
180 Hamspstead Road
London
NW1 7AW
Tel: 0300 3303311 (Monday - Friday 9am - 5pm)
Website: www.bhf.org.uk

DVLA
Drivers Medical Group
DVLA
Swansea
SA99 1TU
Tel: 0300 7906806
(Monday - Friday 8am - 5:30pm, Saturday 8am - 1pm)
Website: www.dvla.gov.uk

Walsall Cardiac Arrhythmia Service
Manor Hospital, Walsall
Consultant Cardiologist's: Dr R. Jaumdally and Dr A Hamaad
Cardiac Arrhythmia Nurse: Jayne Lewis
01922 721172 Ext 7690

Visit the link or scan the QR code to watch the 'Cath Lab Tour' video:

https://youtu.be/gf6gmrkMSnI

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。

Designed & Produced by the Department of Clinical Illustration,
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