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PATIENT INFORMATION SHEET

Electrophysiology Study (EPS) and/or Ablation

What is it?

An Electrophysiology study (EPS) is a test we do on the heart's electrical system to help diagnose electrical conditions which can trigger heart arrhythmias. Electrical defects in the heart can cause palpitations, disturbed consciousness ('syncope') and in extreme cases sudden death.

During these procedures, we may, if appropriate, go on to treat the condition by performing an ablation. This means using either high frequency electrical energy (RF ablation) to burn tissue using heat, or use intense cold (cryoablation).

The cardiologist performing the test has had special training in these types of procedures (Electrophysiologist or 'EP'). Many of these procedures require heavy sedation or a general anaesthetic delivered by an anaesthetist as part of the team treating you. The test needs the assistance of specially trained technical and nursing staff.

Risks of the procedure

This will be explained to you by the EP specialist before the test is done. The risks of the procedure depend on the type of test and whether or not an ablation is planned.

Preparation and precautions for the test

You must have nothing to eat or drink for at least six hours before your procedure. It is very important that you check with your cardiologist and EP as to what medications are continued and which are stopped. The following drugs are among those it may be critical to continue or stop depending on which procedure you are having done.

Betablockers: Atenolol (Tenormin, Noten), metoprolol (Betaloc, Minax), carvedilol (Dilatrend, Kredex, Dilasig), bisoprolol (Bicor), sotalol (Sotacor, Sotahexal), labetalol (Presalol, Trandate), pindolol (Visken, Barbloc), propranolol (Inderal)

Calcium antagonists: Verapamil (Isoptin, Cordilox), diltiazem (Cardizem, Vasocardol, Diltahexal), nifedipine (Adalat, Adefin) amlodipine (Norvasc, Amlo, Caduet, Exforge), lercanidipine (Zanidip, Zan-Extra)

Anti-arrhythmic drugs: Amiodarone (Aratac, Cordarone), sotalol, flecainide (Tambocor), Digoxin (Lanoxin, Sigmaxin).

Anticoagulants and Antiplatelet drugs: (warfarin, dabigatran) are often stopped a number of days before the procedure, in consultation with your treating cardiologist. Anti-platelet drugs such as aspirin are usually continued but other drugs such as clopidogrel or prasugrel may be stopped.

If you take diabetic medication you need to bring your tablets and insulin with you but withhold all medication the morning of your procedure. In the case of metformin (Diabex, Diaformin) this is generally stopped 24 hours before and 48 hours after your procedure.

How is it done?

This test is done as a day stay procedure in hospital by an Electrophysiologist who will explain the procedure to you before it is done. You will need to change into a hospital gown; a plastic tube or 'cannula' will be inserted in a vein and a blood sample taken. You may be given a sedative medication as a tablet or in the cannula; you may also be given a general anaesthetic depending on what is planned during the procedure.

The Electrophysiology laboratory (EP lab or 'cath lab') is a specialised x-ray room where your test is performed. It's a sterile area, so everyone in the room will wear gowns, masks, and caps. You will lie flat on your back during the procedure and your condition will be monitored closely, including ECG, pulse rate, blood pressure, breathing rate, and oxygen level. The EP Specialist monitors the image of the catheters being moved through the main blood vessels to the heart and inside the heart displayed on video monitors.

The catheter site will be cleansed with antiseptic soap, sterile towels and a sheet will be placed around this area. Usually this means both groin areas. Local anaesthetic will be injected into the skin and the cardiologist will make a small cut in the skin at the insertion site before putting one or more plastic tubes into the blood vessels (veins or arteries), advancing them towards the heart and into particular areas in the heart. These catheters have multiple metal contacts on them which allow the heart's electrical activity to be studied using a variety of standardised tests. A key part of these procedures is to actually try to trigger heart arrhythmias in those who have had them during daily life and who are at risk because of structural heart disease.

We also place large electrical contacts on the front and back of the chest to allow the doctor to give the heart an electrical shock (cardioversion) if there is a change in the heart's

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rhythm which needs to be treated during the procedure.

Some EP procedures are done with ultrasound guidance using a special cardiac ultrasound probe attached to an endoscope (transoesophageal echo or TOE) which is passed down the throat into the oesophagus or stomach and allows the EP to examine the heart using ultrasound during the procedure.

When is an ablation done?

There are many heart arrhythmias which can be cured by finding areas of the heart which are essential parts of the arrhythmia circuit but not important to the heart's function. A carefully directed burst of high frequency electrical energy (radiofrequency ablation or RFA) or intense cold (cryoablation) causes permanent damage to the circuit tissue, curing the condition. Naturally it is possible that the burn can heal later and allow the arrhythmia to recur but part of every procedure is to try to re-start the arrhythmia after an ablation.

Aftercare

You will have frequent observations of your pulse, blood pressure and checks made of the blood vessel puncture site by the nursing staff.

Many EP studies only need a puncture in a large vein and in this case bruising is common but bleeding uncommon and easily controlled by local pressure. In some cases the artery in the groin is punctured as part of the procedure and in that case it is important to keep your leg straight for the duration of the monitoring period.

If the heart was given an electrical shock during the procedure, there may be some redness of the skin where the electrodes were placed on the chest.

The timing of discharge from hospital varies depending on the length of the procedure, whether or not an ablation was done, and whether you had a general anaesthetic as part of the test.

After discharge from hospital you should not drive for 48 hours after the procedure. The plastic dressing can be removed from the puncture site the day after the procedure.

Follow-up appointments will be arranged with either the EP Specialist or your cardiologist.

The test results will generally be discussed with you at your follow up appointment with the EP doctor or your cardiologist.

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