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Taking blood samples with X-ray guidance for hormone level testing (adrenal venous sampling)

Radiology Department

Information for Patients

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Introduction

This leaflet is about a test called adrenal venous sampling (AVS).

Please read all of this leaflet. It has important information and instructions. It tells you how we do the test and the possible risks. This will help you to decide if you want to have the test.

What is adrenal venous sampling (AVS)?

Some of the organs in your body make chemicals called **hormones**. These travel in your blood and affect how your body works.

The **adrenal glands** are just above your kidneys. They make a hormone called **aldosterone**. This helps control blood pressure. Too much aldosterone can cause high blood pressure.

Adrenal venous sampling is a test to find out if 1 of your adrenal glands is making too much aldosterone. We put a thin tube (catheter), about 2 to 3 mm wide, into veins near to the adrenal glands. We take blood samples and send them for testing. The results should show how your adrenal glands are working. This will help your doctor to treat your health problem.

Why do I need AVS?

Your doctor has referred you for the AVS test because:

- You have high blood pressure that cannot be controlled by medicines.
- Your health problem could be caused by primary aldosteronism (Conn's syndrome) or low potassium levels.
- If we find out if 1 of your adrenal glands is causing the problem, your doctor can decide how to treat it. This may include medicines or surgery.

Pre-assessment appointment

Before the day of your test, we will ask you to come to an interventional radiology pre-assessment. At this appointment:

- you will see a nurse from our team.
- we will ask you questions about your health. Please bring your medicines to your appointment.
- we will do some blood tests and swabs to check your health.

What if I take blood pressure medicines?

You may need to stop taking blood pressure medicines 4 to 6 weeks before your test. These can include:

- spironolactone
- eplerenone
- amiloride

The doctor who referred you for this test will tell you what to do.

What if I take blood thinners?

If you take medicine that thins the blood (anticoagulants or antiplatelets) you may need to stop taking it or take a different one for a few days.

We will talk to you about this at your pre-assessment. We will ask you what blood thinning medicine you are taking, how much you take (the dose), and what you are taking it for.

Common examples of these drugs include warfarin, clopidogrel (Plavix®), apixiban (Eliquis), edoxaban (Lixiana), rivaroxaban (Xarelto), ticagrelor (Brilinta), dalteparin, enoxaparin and heparin.

Important information before you have X-rays with contrast liquid:

We use a dye called contrast in this test. It has iodine in it. Your kidneys remove iodine from your body. It comes out in your pee (urine). If you have kidney dialysis, this will remove the iodine.

Please tell the X-ray staff when you arrive if you:

- **are allergic to iodine or rubber (latex)**, or have any other allergies or have asthma.
- **have had a reaction in the past to a contrast liquid** injected into a vein (intravenous contrast). This is the dye used for kidney X-rays, CT scanning and X-rays of your heart and blood vessels.
- have any **kidney problems** or are on **kidney dialysis**.
- **have diabetes.**
- think there is any chance that you **may be pregnant.**

Asking for your permission (consent)

The doctor who referred you should have talked to you about the reasons for this test and any other options.

You have been referred to a doctor who specialises in imaging and X-ray treatments (an interventional radiologist) for this test. They will check that you understand why the test is being done, the potential risks and the chances of success.

You will sign a consent form to confirm this. This may be on an iPad or a paper form. **You should feel that you know enough before you sign the consent form.**

If after talking to the Radiologist you do not want to have the test then you can decide to say no. We will talk to you about your options.

If the Radiologist feels that your health problem has changed they will talk to you about if the test is still needed. They may ask for the doctor who wanted you to have the test to talk to you and review your condition.

How do I get ready for my test?

The test is usually done as a day case. You should follow the information sent to you about the appointment.

Transport home:

- Arrange for someone to take you home afterwards. You cannot drive or use public transport.

On the day of your test:

- **Before 6am - have a light breakfast.** This could be a piece of toast or a small bowl of cereal and a cup of water, tea or coffee.
- **Keep on drinking until 1 hour before your appointment time** - this is important.
- **Stop drinking 1 hour before your appointment time.**
- **Take all your usual morning medicines, but do not take any that we have told you not to take.** Bring all your usual medicines with you.
- At the hospital, we will ask you to put on a hospital gown and disposable pants before your test.

Who will do the test?

- A doctor who specialises in imaging and X-ray treatments (an interventional radiologist) will do the test.
- A radiographer will move and control the special X-ray equipment.
- A nurse and maybe a healthcare assistant will work with the radiologist and care for you.
- A student may also be in the room to learn. If you do not want this, please tell us.

What happens during the test?

- We will do your test in the Radiology Department.
- You will lie down flat on your back on the X-ray table.
- Everything will be kept clean (sterile). We clean your skin at the top of one of your legs (groin) with antiseptic. This may feel cold. We will cover some of your body with sterile sheets.
- We inject some local anaesthetic into the skin over a vein at the top of your leg (groin). This may sting to start with. This soon wears off and the skin should then feel numb.
- We will put a very thin plastic tube, called a catheter, into the vein.
- We will inject a colourless liquid that shows up on X-rays (contrast) through the catheter. The contrast may give you a warm feeling for a few seconds.
- We will take X-ray pictures to see your blood vessels. This helps us to get the catheter in the right position.
- We will take samples of blood through the catheter.
- We will take the catheter out at the end of the test. We will then press firmly on the skin entry point for a few minutes. This is to help stop any bleeding.

What happens after my test?

- Nurses will do **routine checks**, such as taking your pulse and blood pressure. This is to make sure that there are no problems.
- A nurse will also look at the skin entry point to make sure there is no bleeding from it.
- You will **rest for about 2 hours** in the department before you go home.

How long will it take?

Every patient is different. It is not always easy to know how difficult or how straight forward the test will be. It usually takes **about 1 to 3 hours**.

What aftercare instructions do I follow?

The nurse will give you important instructions about your aftercare, such as how to look after yourself at home.

- **Do not drive for 48 hours (2 days)** after the test. You should relax and take things easy for the rest of the day.
- **If we put a dressing on your skin,** you can take this off 24 hours (1 day) after the test.
- **If you have any pain** this can be eased by taking your usual painkiller. If your usual painkiller is aspirin it is recommended that you take something else. If your usual painkiller does not work you should see your GP or pharmacist.
- It is recommended that you **do not do any strenuous exercise or heavy lifting for 48 hours (2 days)** after the test. If your job involves strenuous exercise or heavy lifting, you should ask for light duties.

Checking your wound site

The skin entry point (puncture site) will heal very quickly. It does not usually need a dressing. You should expect to have some bruising and tenderness in the groin area. This should get better after a few days.

Are there any risks and complications?

As with any procedure there is a risk of complications. Below are the most common risks and complications. The chance of these happening is different for each person. We will talk to you about your risks before you sign the consent form.

- **Bruising and pain.** Some bruising and tenderness is to be expected around the area we put the needle in.
- **Unsuccessful test.** The adrenal veins can be difficult to get to. The risk of the test being unsuccessful (non-diagnostic) is up to 5 in 10 tests (50%). During your test, we do real-time checks on the samples we collect. This is to try and reduce the risk of non-diagnostic samples as much as possible.
- **Infection**. There is a small risk of infection. We do the test under sterile conditions to keep the risk as low as we can.
- **Blood clots, internal bleeding or damage to the adrenal veins.** The risk is very low.
- **Reaction to contrast.** Some patients may be allergic to the contrast. You could get symptoms such as feeling or being sick (nausea or vomiting), or a rash. Any side effects usually happen within 20 minutes. If you get any of these symptoms at the hospital, tell the doctor, nurse or other staff looking after you. If you start to get symptoms at home you should contact your GP or call 111.

What are the risks from exposure to radiation in this X-ray test?

The main risk from exposure to X-rays is a higher risk of getting a cancer in the future. This risk is thought to be very small.

We are all exposed to natural background radiation every day of our lives. This comes from the sun, the food we eat, and the ground. Each test that uses X-rays gives a dose on top of this natural background radiation.

The risks of radiation are slightly higher for an unborn child. We must ask all patients age 10 to 15 years registered female and all patients aged 16 to 55 years about their periods and/or chance of being pregnant.

The benefits of having this test are likely to outweigh any possible risks. The risks of not having the test could be greater. We try to keep your exposure to X-rays as low as possible.

How do I get my results?

You will not get the results straight away. We will send your blood samples for testing.

Your test results will go to the doctor who referred you for this test. They will talk you about your results at a follow-up appointment.

The report of your X-ray test will go on the NHS App after an inbuilt delay. Your GP or hospital doctor may have your report before you. These reports are medically technical reports. They are written for the referrer to help to make a diagnosis and pick treatment options. If you have any questions or concerns, please talk to your referring clinician.

What if I need to talk to someone?

Before the test:

If you have any questions or concerns, or cannot make the appointment, please call:

Radiology department

Tel: **0116 258 8765**

Choose: **option 7**

Lines open: Monday to Friday 9am to 5pm, but not on bank holidays.

After the test:

If you need help or advice, you can:

- contact your GP, or
- call the NHS helpline on **111**

Health information and support is available at www.nhs.uk or call 111 for non-emergency medical advice
Visit www.uhleicester.nhs.uk for maps and information about visiting Leicester's Hospitals.
To give feedback about this information sheet, contact uhl-tr.informationforpatientsmailbox@nhs.net

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If you would like this information in another language or format such as EasyRead
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We are a research hospital and you may be asked to take part in research

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