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Hypertension and renal denervation (RDN)

This leaflet explains how renal denervation (RDN) is used as add-on treatment for the management of hypertension (high blood pressure). Please feel free to ask your doctor any questions you have about the enclosed information.

What is hypertension?

Hypertension or high blood pressure is a chronic medical condition in which blood pressure (BP) in the arteries is constantly raised above safe values.

If your blood pressure is frequently above 140 over 90, you most likely have hypertension.

The latest European Society of Hypertension guidelines define hypertension as a systolic BP of greater than or equal to 140mmHg and a diastolic BP of greater than or equal to 90mmHg when taken in a clinic or GP surgery.

Why is hypertension concerning?

Hypertension often has no presenting signs or symptoms. Yet, it is the leading preventable cause of heart disease and death, and the greatest contributor to the number of deaths due to heart disease worldwide.

The association between hypertension and cardiovascular (heart and blood vessel) events (including stroke, heart attack, sudden death, health failure, and end-stage kidney disease) has been well established for some time.

The relationship between blood pressure and the risk of cardiovascular events can affect all ages and ethnic groups.

Strong evidence supports that lowering your blood pressure can prevent cardiovascular events.

What are the treatment options for hypertension?

Treatment options include the following:

- Making lifestyle changes – eating a healthy diet, exercising regularly, managing your weight, limiting alcohol, reducing caffeine and stopping smoking.
- If lifestyle changes aren't enough, your doctor may prescribe medication to help control your blood pressure (pharmacotherapy) – often a combination of different drugs.
- Renal denervation (RDN) therapy – this treatment is used for patients where blood pressure remains constantly high despite making lifestyle changes and taking medication. This condition is known as ‘resistant hypertension’

What is resistant hypertension?

It is when you have continuously high blood pressure despite making lifestyle changes and trying more than three different blood pressure medications at full dose.

What is renal denervation (RDN) and what are the benefits of having the procedure?

Although hypertension may have many different causes, nerve signals from the brain to the kidneys play an important role in regulating blood pressure.

RDN is a minimally invasive procedure designed to reduce high blood pressure by destroying overactive nerves in the kidney, slowing down these signals.

Radiofrequency (RF) energy is used to disrupt the overactive sympathetic signalling between the kidneys and the brain, to reduce high blood pressure.

Is RDN right for me?

You are being considered for RDN after being reviewed by a consultant cardiologist and / or renal doctor because you are considered to have resistant hypertension.

What happens during the procedure?

The procedure is carried out under local anaesthetic, in the Jim Shahi Unit. You will get pain relief both before and during the procedure to minimise any discomfort. The procedure takes approximately one hour. During this time, and for a few hours after, you will need to lie flat, but will be awake throughout. You may feel a little sleepy during the procedure due to the pain relief medication.

The procedure is performed via the artery at the top of the leg. A thin tube is passed into the arteries supplying the kidneys. A specialist catheter is then advanced through the tube and the radiofrequency energy is delivered to the renal nerves. There will be no noise but it can be a little uncomfortable for the few seconds that the energy is delivered. Because of this, we will give you pain relief and sedation beforehand to make the procedure as comfortable as possible.

We use X-rays to ensure that the catheter is in the correct position.

At the end of the procedure, the catheter is removed via the wound in your groin and we often close the small incision in the artery with a plug that dissolves away on its own over the following two months.

What are the risks associated with RDN?

The procedure is generally safe, but like all interventional procedures, there is a small risk of complication (1% - 1 in every 100). These risks include damage to the artery at the top of the leg (including bleeding), damage to the artery supplying the kidney, deterioration in kidney function and failure of the procedure to address the problem.

How do I prepare for RDN?

If you are taking warfarin (or other anticoagulation), you must stop taking it five days before your procedure. Please speak to your cardiologist about this and discuss whether you need an alternative blood-thinning medication during that time. Do not stop taking warfarin tablets until you have discussed this with your doctors. You must not eat or drink for a minimum of 6 hours prior to your procedure.

What happens after the procedure?

Following your procedure, staff will regularly monitor the puncture site in your groin and check on your heart rate and blood pressure. You will need to lie flat for a few hours.

When can I go home?

The procedure is performed as a day case procedure and you will be able to go home the same day; approximately 6 hours after your procedure. If there are any concerns after the procedure, you will be admitted to a ward overnight.

You will not be able to drive immediately after the procedure, so where possible, relatives or friends should drive you home. **Please do not travel home by yourself or take public transport.**

Recovering after RDN

When you leave hospital, give yourself a week or so to get your strength back before returning to everyday activities. Avoid anything strenuous, such as lifting heaving objects, shopping, excessive pulling or pushing. You can start with regular walks and increase their length on a daily basis. You do not have to avoid climbing stairs – just take them slowly and steadily at first.

Is there anything I need to watch out for at home?

If you notice that your leg wound becomes red, inflamed or oozing, please contact your GP immediately as these may be signs of infection.

Also, if your wound starts to swell or bleed or you feel more breathless than before, seek help immediately. You can call the Jim Shahi Unit (0118 322 6502) or the Coronary Care Unit (0118 322 6528).

When will I be able to drive again?

You are able to drive one week following your procedure.

What about travelling by plane?

It is safe to fly to any destination one week after the procedure, provided that you have not had any complications and that you are not the pilot.

When can I return to work?

This will depend on many factors, such as the overall state of your health and the type of work you do. Please discuss in more detail with your doctor.

Will I have to come back to hospital for a follow-up?

Yes. This will depend on your specific clinical condition but will be within a few weeks of your procedure to evaluate your recovery, response to treatment and decide upon a further management plan.

Please do not hesitate to speak to one of your doctors or ward nursing staff if you have any questions or concerns.

Useful contact information

Jim Shahi Unit (JSU):	0118 322 6502 (Mon - Fri, 8am - 6pm)
Cardiac Care Unit:	0118 322 6684 (Mon - Sun, 6pm - 8am)
Clinical Admin Team (CAT 11) (bookings):	0118 322 6676 (Mon - Fri, 8am - 5pm)
British Heart Foundation:	www.bhf.org.uk

This leaflet is printed privately for the Cardiac Fund. It was set up in 1976 for the purpose of providing cardiac services that would otherwise not be available through National Health resources. Our Cardiac Laboratory was equipped through the fund and many other areas in the Department have also benefited from equipment and staff training.

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