Oxford University Hospitals
NHS Foundation Trust

Chronic Kidney Disease due to Diabetes (Diabetic Nephropathy)

Patient information

Oxford Kidney Unit

If you have been told you have chronic kidney disease (CKD) due to diabetic nephropathy this leaflet is for you. If you have any questions after reading this leaflet, please speak to your kidney doctor or your pre-dialysis nurse.

What is diabetic nephropathy?

Diabetic nephropathy is a kidney disease that develops because of the long term effects of diabetes.

Blood entering the kidneys is filtered through a series of coils of small blood vessels, which look like balls of wool under a microscope. This filter is called the glomerulus.

Over time, diabetes can cause permanent damage to this filtering system. As the glomerulus is damaged, it leaks proteins, such as albumin. These proteins can then be detected in the urine. This damage is more likely to occur if your blood glucose is not well controlled.

About one in five people with diabetes develop kidney disease. Diabetes is the leading cause of kidney failure.

How will I know if I have diabetic nephropathy?

A raised level of protein in the urine is the first sign that your kidneys are damaged. The amount of protein in your urine can be assessed in two ways:

- by sending a urine sample to the laboratory for analysis
- by dipping a special test strip into a sample of your urine.

If you have diabetes you should have your urine tested and a blood test to check your kidney function at least once a year. The amount of protein in your urine, along with the results of the blood test, will be used to see how much damage there is to your kidneys.

What are the risk factors for Type 2 diabetes and chronic kidney disease?

You may be at a higher risk of developing chronic kidney disease if you:

- are African-Caribbean, Black African and South Asian and over the age of 25
- have a blood relative who has diabetes
- have high blood pressure
- are overweight, especially around your middle
- smoke
- have other complications from diabetes, such as retinopathy
- poor control of blood glucose levels
- have protein in your urine.

Diabetes may affect other organs in your body. Please ask your diabetic team for more information.

How much kidney damage do I have?

Your doctor will use a 'staging' system to assess how much protein is being lost in your urine. This staging tells us how much kidney damage you have.

- **A1** means hardly any protein in your urine
- **A2** means there is a small amount of protein in your urine
- **A3** is a large amount of protein in your urine

Your doctor will also assess how well your kidneys are working, by estimating your glomerular filtration rate (eGFR). eGFR is a measurement of how many millilitres (ml) of blood is cleaned by your kidneys each minute (measured in ml/min). The normal eGFR in young fit people is 80-100 ml/min. It falls with age; older healthy people often have an eGFR of around 40-80ml/min.

Calculating your eGFR involves taking a blood sample and measuring the levels of a waste product called creatinine. It also takes into account your age, gender and ethnic group.

Stage	Kidney function as eGFR	Description
Stage 1 A1-3	More than 90ml/min	Normal kidney function
Stage 2 A1-3	60-89ml/min	Normal to mildly reduced kidney function
Stage 3A A1-3	45-59ml/min	Mild reduction
Stage 3B A1-3	30-44ml/min	Moderate reduction
Stage 4 A1-3	15-29ml/min	Severely reduced kidney function, but many people remain well
Stage 5	Less than 15ml/min	Severely reduced kidney function, when dialysis or a kidney transplant may be considered

What can I do to look after my health?

Over time, if your blood glucose levels remain high this can seriously damage your heart, your eyes, your feet and your kidneys. These are known as the complications of diabetes.

The following recommendations can help you to look after your kidneys, as well as your general health. These are the most important things you can do to prevent your kidney disease getting worse. If you are finding this difficult please speak to your diabetic team.

Monitor your blood glucose

If you are a Type 1 diabetic, or Type 2 on insulin, you should aim for blood glucose readings of:

- 5 to 7mmol/l when you wake up and before you've eaten
- 4 to 7mmol/l before meals at other times of the day

Your diabetic team will test your blood for an HbA1c level; this measures your average blood sugar level from the last two to three months. Keeping your HbA1c level at 48mmol/mol may slow down the amount of damage to your kidneys. Your diabetic team may suggest a different level.

Measure your blood pressure

Your blood pressure should be less than 130/80. However, your GP or diabetic doctor may suggest a target level that is specific for you. You will probably need to be prescribed blood pressure medication and some water tablets.

If you have protein in your urine, it is advisable to take a medication called an ACE inhibitor (ramipril, or lisinopril), or an ARB (losartan or candesartan). These are also used to treat high blood pressure and are both good for your kidneys and heart.

If you are not already taking one, your doctor may recommend a medicine called a statin (such as simvastatin, atorvastatin, rosuvastatin), which lowers cholesterol and helps to protect against heart attacks and strokes.

Diet

Eat a healthy diet and reduce the amount of salt, fat and sugar you eat. If you need advice about your diet, please ask to speak to the renal unit dietitians.

Keep active

Activities such as gardening, walking, dancing and swimming are all good forms of exercise.

Smoking

If you smoke, you should stop.

Here for Health – Health Improvement Advice Centre

Oxford University Hospital health improvement advice centre, offering a range of tailored support for healthy living and wellbeing, including giving up smoking, reducing alcohol consumption, becoming more active and weight management.

Please ask your renal team about a referral, or drop in for advice at the centre in Blue Outpatients on Level 2 of the John Radcliffe Hospital.

Tel: **01865 221 429**

Email: hereforhealth@ouh.nhs.uk

Website: www.ouh.nhs.uk/hereforhealth

If you don't live in Oxford, there will be other similar services in your area.

Eye care

It is important that your eyes are examined by an eye screening service at least every year. If there are any concerns about your eyes they should be examined every 3 to 6 months. Your GP will let you know where to go to have your eyes screened.

Make sure you come for all of your healthcare appointments. This includes your foot care assessment, appointments for eye screening, reviews with your GP or diabetic team and any specialist clinics.

Will my kidneys get worse?

Over time, the amount of protein that leaks from your kidneys may increase. This usually happens over a long period of time. If you have been asked to see a renal specialist you will already have protein in your urine and damage to your kidneys. Your kidney team will talk to you about the amount of damage to your kidneys and what happens next.

Who can I contact for more information?

Oxford Pre-Dialysis Team

Tel: **01865 226 158**
01865 223 796

(8.00am to 6.00pm, Monday to Friday)
Please leave a message on the answerphone.

Renal Dietitians

Tel: **01865 225 061**

(8.00am to 4.30pm, Monday to Friday)
Please leave a message on the answerphone.

Useful information

Oxford Kidney unit

Useful information about Oxford Kidney Unit for patients and relatives.

Website: www.ouh.nhs.uk/oku

Diabetes UK

Useful information about diabetes and support groups.

Website: www.diabetes.org.uk/kidneys

NHS website

Information about diabetes for both patients and families.

Website: www.nhs.uk/conditions/diabetes

If you need an interpreter or would like this information leaflet in another format, such as Easy Read, large print, Braille, audio, electronically or another language, please speak to the department where you are being seen. You will find their contact details on your appointment letter.

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