Haemodialysis
Who is this leaflet for?
Your doctor has told you that your kidneys are not working properly. One of the many functions of the kidneys is to remove waste products from your body. If your kidneys fail, waste products will build up in your body. Having discussed the treatment options available with your consultant and the chronic kidney disease clinical nurse specialist, you may have opted for haemodialysis. Before you commence dialysis, it is important that you are well prepared. You will be referred for fistula formation. This leaflet explains haemodialysis and the lifestyle changes associated with this treatment. It will also consider home haemodialysis.

You may not find all the answers to your questions here, but the information should be of help when you next speak to your doctor or one of the Renal Team. You can use the booklet to inform your family, friends, colleagues and employer about what it means to be on dialysis.

What is haemodialysis?
Healthy kidneys have several functions in the body – the most well known is to produce urine and to filter waste products. When kidneys start to fail, filtration is reduced and this causes toxins to build up in the body along with excess fluid. In haemodialysis, a dialysis machine and a special filter called an artificial kidney, or a dialyser, are used to clean your blood.
How is haemodialysis carried out?

During a haemodialysis treatment, blood is pumped in an extracorporeal (outside the body) circuit through the dialyser and back to the body again via a blood access. The blood access must function efficiently in order to ensure successful haemodialysis treatment. A blood flow rate through the dialyser of about 200-400mls per minute is required to clean the blood properly. To enable such a large flow of blood out of the body, it is necessary to have access to a blood vessel with a large diameter. This can be achieved by creating what is called a fistula. The other forms of access include a vascular access graft and a central venous catheter.

When a patient comes to dialysis, a nurse will check the blood pressure and weight. The weight gain will tell us how much excess fluid needs to be removed during the treatment. The patient is then ‘put on the machine’. Two needles are inserted into the enlarged vein (fistula) and secured with adhesive tape to prevent them from slipping out. Although the needles need to be fairly large to allow enough blood to flow through, insertion becomes less painful after a while. There are a number of ointments and sprays that can be used to numb the areas to be punctured.

How does haemodialysis work?

In haemodialysis, a dialysis machine and a special filter called an artificial kidney (dialyser) are used to clean your blood. The dialyser has two parts, one for your blood and one for a washing fluid called dialysate. A thin membrane separates these two parts. Blood cells, protein and other important things remain in your blood because they are too big to pass through the membrane. Smaller waste products in the blood, such as urea, creatinine, potassium and extra fluid pass through the membrane and are washed away. The waste products pass through the membrane into a dialysis solution (dialysate), then out of the machine. The ‘clean’ blood is carried on through and returned safely to your body. As well as cleaning your blood, the dialysis machine also removes excess water. This part of the process is called ultrafiltration and can be done separately without dialysis. It takes about 4 hours (perhaps more) to complete a full session of haemodialysis, which needs to be done 3 times a week.
How is blood access obtained?

If you decide to have haemodialysis, the first step usually involves creating an arteriovenous fistula (AV fistula). This is a surgically modified blood vessel created by connecting an artery to a vein. The fistula will usually be created in your wrist or upper arm.

Creating a fistula by joining a vein and an artery together makes the blood vessel larger and stronger. This makes it easier to transfer your blood into the dialysis machine and back again.

The construction of the fistula is undertaken in the operating theatre, usually under local anaesthetic. However, there are occasions when you may require a general anaesthetic. After the fistula has been constructed it begins to mature. This usually takes between six to eight weeks depending on the initial size of the blood vessels. Even before the fistula becomes usable, the rush of blood through its new path can be felt. This sensation is called a ‘thrill’. It is a ripping or buzzing sensation that is felt when the soft pads of the fingers are placed over the skin. The fistula should be felt daily and if there is no thrill you should immediately contact the renal unit.
Exercising your access

When you have had a fistula created in your arm, some simple exercises can help to encourage your fistula to develop more quickly. Making a fist or squeezing a rubber ball or handgrip with the hand of your access arm several times a day may increase blood flow to the fistula.

How do I take care of my fistula?

There are important guidelines you must follow:

- Do not allow your blood pressure to be measured on your fistula arm.
- Do not allow blood to be drawn or a drip installed in the fistula arm.
- Do not wear a watch or tight clothing with elastic or restrictive bands on the fistula arm.
- Do not sleep on top of the fistula arm.
- Be careful when using any sharp object or equipment.
- Do not carry anything too heavy with your access arm. You should also never carry a bag with the handles hanging over your access.

With proper care and attention a fistula can last for many years and is one of the safest forms of access.
How often is haemodialysis treatment required?
Treatment is needed three times a week for around four hours each time. From time to time various blood tests are taken to determine whether the frequency and duration of treatment are adequate and adjustments may be made on the basis of these measurements. Every effort is made to ensure that your dialysis treatment is individually tailored to your needs.

There is considerably more flexibility with home haemodialysis but this treatment needs be undertaken at least four times per week.

How will I feel during a dialysis session?
A dialysis treatment is not usually painful and is normally uncomplicated. The nursing staff can insert some local anaesthetic into your fistula to help minimise any discomfort. New fistulas are delicate and can sometimes ‘blow’ when they are needled. This means that some blood has leaked out of the vein around the needle site and has moved into the surrounding tissues. This can be uncomfortable and may lead to bruising, but is nothing to worry about.

You can read, have a chat, watch TV, use your laptop or just take a nap while your blood is being purified.

Are there any possible complications?
You may experience some discomfort from the removal of waste products and excess fluid during a haemodialysis treatment. You may get a headache and sometimes cramps occur. You may feel ‘washed out’ following the treatment.

If a lot of fluid needs to be removed, your blood pressure can drop. This may cause dizziness and in some cases nausea and vomiting. If this happens, symptoms can be reversed by tilting your chair and decreasing the fluid removal rate. To avoid these kinds of unpleasant complications, it is important that you stick to your fluid allowance.

Do I need to follow a special diet?
Yes, you will usually need to adjust your diet. The major change is usually a reduction in foods high in potassium, phosphate and sodium (salt). The dietician will give you individual guidance about how to achieve you dietary
needs. Your dietary intake is monitored regularly by the renal dietician to ensure an adequate calorie intake, which is an important part of maintaining a good quality of life and good health. However, if you are overweight it is possible to work towards losing weight and achieving an ideal body weight working within the restrictions of a renal diet.

One of the major restrictions that you may find difficult is reducing your fluid intake. In the early stages of haemodialysis you may still pass some urine but, as time progresses, the volume will decrease. In between dialysis sessions fluid tends to accumulate and if severe, shortness of breath may occur. Over prolonged periods this is not beneficial to your well-being. Fluid intake is assessed for each patient, but a rough guide for fluid intake is 750 ml per day.

**Where can I have dialysis?**

You can do haemodialysis at a dialysis centre where a nurse or technician performs the tasks required during the treatment. In-centre haemodialysis is usually done three times a week for four hours each session. In-centre treatments are done at a pre-scheduled time.

You can also do haemodialysis at home where you are the one doing your treatment. At home, you may be better able to fit your treatments into your daily schedule. Studies show that the more you know about your treatment and the more you do on your own, the better you are likely to do on dialysis.

**What about haemodialysis at home?**

Many patients find that travelling to and from a dialysis centre is both inconvenient and time-consuming. An alternative is to have a dialysis machine at home. Usually after a suitable period of training for both the patient and their helper (spouse, relative or friend) and some adaptations to the home, dialysis can be undertaken at home. The dialysis schedule can be adapted to the patients’ lifestyle and it does not have to interfere with work.

Home haemodialysis gives the patient flexibility, freedom, independence and control.
Some points to consider with home haemodialysis include:

- home haemodialysis gives you flexibility, freedom, independence and control
- you and your partner will need to be trained
- home therapy will impact on family life
- home therapy requires space for machine and supplies
- minor modifications are needed to plumbing and electrical circuits in the home to accommodate equipment.

**How will home haemodialysis (HHD) affect my lifestyle?**

Dialysis can have a big impact on people's lives, and quality of life whilst on dialysis is an important consideration for many patients. Home dialysis offers many lifestyle benefits which may not be possible for people who choose to have their dialysis in a hospital three times a week. People on dialysis at home are more able to fit their treatment around their life.

With home HD there is no need to travel to hospital three times a week. Being independent from hospital means more time at home with family, more opportunities to socialise with friends and pursue hobbies. Home dialysis also gives the flexibility to continue to work or attend school or college.

**What about medication?**

Alongside diet and dialysis, most patients will need to take a number of medicines. Before dialysis starts, you may be taking prescribed medications such as antihypertensive therapy (to lower your blood pressure) and diuretics (to encourage your kidneys to produce more urine). Tablets known as ‘phosphate binders’ are also needed before meals to help prevent you absorbing too much phosphate from your diet.

Your kidneys help you to use vitamins properly to keep your bones healthy, and you may need to take supplements of vitamin D or calcium. You may also receive injections with the hormone erythropoietin. This hormone is produced by healthy kidneys and helps to prevent anaemia. However, as with the diet, your medication will be tailored to your specific needs.
Living with haemodialysis
Coping with kidney failure isn't just about managing your physical symptoms with treatment. It is a major life change that can cause a great deal of stress and can give rise to a range of emotional reactions, including:

- anxiety
- depression
- feelings of frustration and anger about the illness.

Emotional wellbeing
Talking about your emotional wellbeing is as important as looking after your health. Please do not be afraid to discuss your worries or concerns with the staff at your unit. They will be familiar with the kind of problems you may encounter and will be supportive. They may also be able to offer practical solutions to some of your difficulties.

Sport and exercise
Being a dialysis patient does not mean that you have to give up sport, exercise and other leisure activities. On the contrary, it is important that you live a reasonably active life to keep you in shape and make you healthier. Good forms of exercise include walking, cycling and swimming.

Sex
Having a kidney disorder can lead to a decline in sex drive. This may be the result of physical factors but may also have a psychological cause. When the level of waste products in your blood has been reduced, you will feel better, which usually results in an improved sex drive.

Travel
Being on dialysis does not mean that you have to give up travelling. Usually all that is required is to make contact, well in advance, with a dialysis unit at or close to your holiday destination to arrange holiday dialysis. Please ensure that you book your dialysis before you book your holiday. Ask the Renal Unit staff for help in organizing your trip.
Making the most of life on dialysis

Dialysis is part of your life and learning is the key word for making the best of this new life situation. You will have to learn to understand your condition and what it means to be on dialysis. You will need to learn to eat and drink the right things, to take the correct medication and to exercise in an appropriate manner. If you learn and use this knowledge, you will not allow the dialysis to dominate your life.

Science, technology and medical knowledge regarding kidney disorders and their treatment is increasing all the time. Research is being done into ways to improve the quality of life for dialysis patients. Even though you have the ultimate responsibility for your life, there are other people who play a supporting role, including nurses, doctors, dieticians and social workers.

We also have a Renal Patient Support Group, where you can meet other patients and get support, advice and information.

Any questions?

If you have any queries or need further information please contact:

Geraldine Hyslop, Chronic Kidney Disease CNS 01872 252065
Barbara Sharma, Home therapy CNS 01872 252863
Andrea Sullivan, Home Therapy CNS 01872 252863
Frank Sciuto, Specialist Practitioner 01872 252081
Grenville Ward 01872 252010
The Renal Unit 01872 252887

Further information

Further information and support is available from:

www.renalpatients.co.uk
www.kidney.org.uk
If you would like this leaflet in large print, braille, audio version or in another language, please contact the Patient Advice and Liaison Service (PALS) on 01872 252793