

What I tell my patients about peritoneal dialysis

Peritoneal dialysis (PD) is a treatment that patients with kidney failure can learn to do for themselves at home, allowing them to remain as independent as possible from the hospital. It utilises the natural lining of the inside of your abdomen, called the peritoneum, to remove the toxins that accumulate in patients with advanced kidney disease, hence the name peritoneal dialysis.

A small flexible plastic tube called a peritoneal dialysis catheter is placed in your lower abdomen by a small operation and remains there for the whole duration of dialysis therapy. A special fluid (called dialysate) is passed into your abdomen through this catheter and allowed to remain there for a few hours (dwell). During dwell time, toxins from body tissues move into the dialysate fluid in the abdominal cavity, which is then drained away and replaced by fresh fluid (see Figure 1). This whole process is called an exchange.

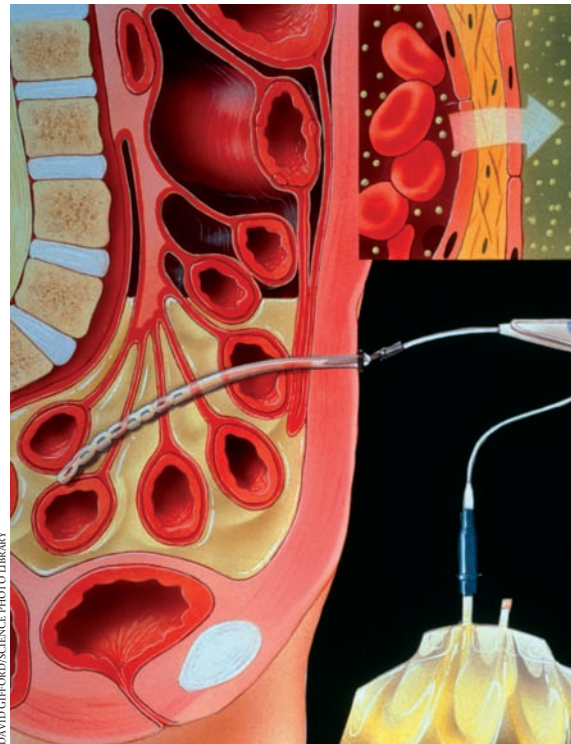
Common questions about peritoneal dialysis

How do I perform peritoneal dialysis?

There are two ways of performing peritoneal dialysis – referred to as APD or CAPD.

Automated peritoneal dialysis (APD) involves the use of a 'Cycler machine' to perform exchanges over a period of eight to nine hours every night, where you remain attached to the machine. Most patients become easily accustomed to the machine and find that it does not interfere with their sleep. One extra exchange is often needed during the day, which can easily fit into your daily routine.

Continuous ambulatory peritoneal dialysis (CAPD) involves performing the exchanges yourself via a tubing set. It takes about 30 minutes to perform each exchange and at completion, the tubing set is disconnected from the PD catheter, leaving you free to do all your usual activities. Most people do three or four exchanges over a 24-hour period, generally including one exchange that stays in overnight while the patient sleeps.



DAVID GIFFORD/SCIENCE PHOTO LIBRARY

Figure 1. A cross-section of the abdomen during continual ambulatory peritoneal dialysis. The detail at top right shows how the waste products in the blood diffuse across the peritoneal membrane to the dialysate

Why might I choose PD?

PD is a treatment that permits you to maintain your independence, allowing you to be in control of your treatment. The PD team will provide you with all the help and support you need. Some of the potential advantages of PD that you may wish to consider are listed in Box 1 (page 17).

Is peritoneal dialysis painful?

PD is generally not painful but sometimes can be a bit uncomfortable while draining the fluid in and out of the abdomen. This usually eases with time.

How long do I need to continue peritoneal dialysis for?

You probably have to continue with PD until:

- You receive a kidney transplant, or
- PD is no longer effective for you, or
- You have to change to haemodialysis for any reason.

Rajni Tejwani

MBBS MRCP
Specialist Registrar
in Nephrology and
General Internal
Medicine

Martin Wilkie

MD FRCP Consultant
Nephrologist

Badri M Shrestha

BSc MS FRCS
Consultant
Transplant and
General Surgeon,
Sheffield Kidney
Institute, Sheffield
Teaching Hospitals
NHS Foundation
Trust

Jane Beaumont

Continuous
ambulatory
peritoneal dialysis
patient, Sheffield



What do I need for peritoneal dialysis?

- A small operation to insert the peritoneal catheter in your abdomen
- At home: a clean room with hand-washing facilities nearby, bathroom scales, a table surface that can be cleaned with disinfectant wipes, comfortable seating and storage space to keep your supplies, space in your bedroom for the Cyclor machine if you choose APD
- A short period of training
- Motivation and discipline for your self-care and treatment.

What does the operation involve?

You will need a short period of hospitalisation for the peritoneal catheter to be inserted. We aim to do this near to the time when dialysis therapy needs to be initiated.

An average PD tube or a PD catheter is about 42 cm (16 inches) long and has the width of a pencil (see Figure 2). There are several types of tubes and smaller sizes can be used for smaller patients. Approximately half of the tube lies inside and half outside your abdomen. The outside tube can be easily covered by your clothing. The place where it comes out from your abdomen is called the 'exit site'. The catheter is connected to the dialysis system via an extension tube. During the dwell time, the tip of the extension tube is protected with a disinfection cap, which prevents the entry of germs into the peritoneal cavity.

Before the operation, you will be examined by a surgeon to make sure that the procedure is appropriate. You will be given all the information about what to expect during your inpatient stay.

Before the operation you need to:

- Arrange for four weeks off work
- Make arrangements to travel to and from hospital

- Start taking some laxatives a few days before the operation
- Sign a consent form when the details of the procedure, including risks and benefits, have been explained to you.

What happens during the operation itself?

There are several possible techniques for inserting the catheter and you should discuss this with your renal team. The operation is performed under either local or general anaesthetic and takes about half an hour. You will be given a dose of antibiotic before the operation. The PD catheter is inserted through a short incision below your belly button and the end of the catheter is brought out of the skin to one side at the exit site. The surgeon will then check that the PD fluid is easy to run in and out of your abdomen via the tube. The operation site will then be covered with a dressing and you will be brought back to the ward.

Before you go home, the nurse will give you advice about:

- Looking after your dressing and PD tube
- Pain control
- Preventing infections
- Avoiding constipation
- What to do in case of emergency.

After the operation:

- The dressing should remain undisturbed for five days
- Usually there are no sutures to be removed
- The tube should always be taped to your abdomen to avoid any pulling or damage to the exit site
- Do not shower or have baths until advised by your renal nurse
- Avoid wearing tight or restrictive clothing and belts near the dressing
- Take prescribed laxatives

Figure 2.
A patient's
peritoneal
dialysis
catheter





- Avoid lifting heavy objects or using the banister to pull yourself up stairs
- Avoid driving for the first two weeks or until you are able to make an emergency stop comfortably
- Sex is best avoided for the first four to six weeks
- You will be advised about your dressing change, blood test and training schedule by the peritoneal dialysis nurses.

Are there any potential complications?

Complications related to PD catheter insertion are rare, but include:

- Bleeding
- Infection
- Fluid leaks
- Catheter not working
- Damage to an internal organ.

How do I learn to do peritoneal dialysis?

Training usually starts two weeks after the operation and lasts for a few days. It includes hand hygiene, exit site care and how to perform exchange in an appropriate manner. You will be informed about potential problems to look for and numbers to contact your nurse. Usually, you will be performing four exchanges a day. Soon you will be reassessed and your regime can be tailored according to your needs.

What are the problems associated with peritoneal dialysis?

Common problems

Constipation

Constipation is quite common in patients on PD but most patients do manage to find their 'magic remedy' formula after a trial of various laxatives.

Exit site infections

As the PD tube is your 'lifeline' to perform dialysis, it is important to look after it well. Examine the appearance of skin at the exit site when changing the dressing. Sometimes the exit site gets infected and requires antibiotics. The following symptoms are suggestive of exit site infection:

- Any ooze/discharge of fluid, pus or blood
- Redness around the area
- Pain and discomfort
- Fever.

Peritoneal dialysis peritonitis

Sometimes the infection can reach the peritoneal cavity and cause what is called PD peritonitis. This can present as abdominal pain and/or change in bowel habit but most commonly as cloudy fluid on drainage. You should immediately contact

Box 1. Potential advantages of peritoneal dialysis

- There is no need to travel to hospital three times per week for dialysis.
- There is no need to have an arteriovenous fistula or insert needles for dialysis.
- There is a greater likelihood of continuing to pass urine for longer.
- There is generally less restriction with diet and fluid intake compared with haemodialysis (HD).
- It is easier to travel for leisure and work since PD can be performed away from home.
- PD is generally a 'gentler' treatment than HD, with less dramatic blood pressure swings during treatment.

your PD nurse or your treatment centre on getting these symptoms. Usually the infection settles by injecting antibiotics along with peritoneal fluid. Sometimes it can get serious or, in certain types of infection, the PD tube needs to be removed. After this you might need to be switched to haemodialysis temporarily or permanently.

Poor drainage

Problems related to poor drainage of fluid are mostly due to constipation. Sometimes, the catheter might need replacing if there are mechanical problems with it, such as flipped or blocked catheters.

Abdominal hernias

Up to a quarter of patients on PD can develop hernias, which can be repaired without disruption of dialysis by using small volume and shorter dwells if the repair is small. After repair of large hernias, patients are temporarily switched to haemodialysis for about four to six weeks.

Other rare complications

With time on PD, changes can occur to the peritoneal membrane. This may lead to problems with removal of fluid on dialysis, or a rare condition known as encapsulating peritoneal sclerosis (EPS) which is currently the subject of a national study. It appears that the chances of this happening can be reduced by careful management of risk factors such as infections.

What impact will PD have on my life?

Daily routine

PD could fragment your daily routine as you have to spend time doing dialysis every day. Many



patients manage to fit this easily into their schedule, though. There will be arrangements in place to deliver supplies at home, which you should be able to collect and check. You will have to follow special hygiene rules to reduce the chances of getting infection.

Emotional

It is normal to experience a variety of emotions at various stages after your diagnosis and treatment. Once you start to adapt to your disease and become familiar with treatment, you will start to feel better. Some of the emotions could be related to body image, as your stomach may look bigger and you need larger size clothes. But remember, there is always support around you when you need it.

Work

It is quite possible to work when you are on PD. Your employer will need to provide you with somewhere suitable to dialyse and to store your PD bags. You can continue to travel in relation to work as long as you can perform your dialysis exchange in time and in an adequate manner.

Sex life

Loss of interest in sex and potency problems that come with kidney failure might disappear in some, but not all, patients. Having a small tube

and a dressing on your abdomen could be inhibiting in the beginning. However, this problem can be overcome with an understanding partner.

Pregnancy can rarely occur in female patients who are on peritoneal dialysis. The outlook might not be as favourable as in normal pregnancies for both the mother and the baby. It would be advisable for women of childbearing age to use some form of contraception and to always discuss with their doctor before considering pregnancy.

Social impact

Involving in social activities will help you to detach yourself from disease preoccupations and help you to keep motivated.

Sport

Any regular exercise will help to keep you healthy.

Holidays

Advanced careful planning is all that is required before going on a holiday. You could take your dialysis equipment and supplies with you or they could be delivered to your holiday destination. Do not forget to take your medical records and medications with you.

Skiing on low difficulty slopes, hiking and going on seaside holidays are fine, but swimming is not recommended in seawater, due to the risk of catheter-related infections.

What if I need another operation on my abdomen?

Peritoneal dialysis is suspended for three to six weeks after another abdominal operation. During this time, mostly haemodialysis via a semi-permanent plastic tube in neck veins or low volume 'cycling' peritoneal dialysis via a machine can be performed.

What if I get a kidney transplant?

It is usual practice to leave the PD catheter in place for two to three months after the transplantation till stable kidney function is established. If the kidney unfortunately does not work, peritoneal dialysis could be resumed or haemodialysis might be needed ■

Key points

- Peritoneal dialysis (PD) uses the peritoneum (lining of the abdomen) to perform the filtering function of damaged kidneys.
- PD helps to maintain your independence and autonomy to look after yourself and reduces the number of regular hospital visits needed.
- An arteriovenous fistula is not needed; rather, PD catheter insertion is required.
- Steps should be taken to prevent PD-related infections (for example, exit site infections and PD peritonitis), since these can be serious.
- PD patients can generally travel on holiday quite easily, both in the UK and abroad.



What I tell my patients about ... is a patient information service specifically designed for renal units to use with their patients. You can now view this, and all of the previous *What I tell my patients about ...* articles online and download them free of charge via www.bjrm.co.uk

Supported by Shire