

21. Peritoneal dialysis

A GUIDE FOR PATIENTS

Peritoneal dialysis is an alternative method of providing renal replacement therapy to treat people who suffer from end-stage renal failure.

There are two main types of peritoneal dialysis. Continuous ambulatory peritoneal dialysis (CAPD) or Automated peritoneal dialysis (APD).

Peritoneal dialysis

Peritoneal dialysis is an other method of providing renal replacement therapy to treat people with end-stage renal failure.

In this form of dialysis a membrane called the **peritoneal membrane**, which surrounds the abdominal cavity and envelopes the intestine, is used as a type of '**natural peritoneal dialysis filter**' across which dialysis can occur.

No direct access to blood is necessary. The **dialysate fluid** (used to remove impurities or excess fluid) is poured into the abdominal cavity through plastic tubing called a **Tenckhoff catheter**. The Tenckhoff catheter is inserted through the skin of the abdomen at a point slightly below and to the side of the umbilicus ('belly button'). To prevent bacteria from gaining easy access to the abdominal cavity, the catheter is tunnelled under the skin for approximately 10 centimetres. The operation to put the Tenckhoff catheter into position is performed by a surgeon under general anaesthetic in an operating theatre and takes approximately thirty minutes.

There are two main types of peritoneal dialysis. **Continuous ambulatory peritoneal dialysis (CAPD)** or **Automated peritoneal dialysis (APD)** is the other option.

Continuous ambulatory peritoneal dialysis or CAPD

Between 2 and 3 litres of special (peritoneal dialysate) fluid are poured into the abdominal cavity through the peritoneal catheter at a time. This fluid volume is called the dwell. This fluid remains in the abdominal cavity for 4 to 6 hours at a time and this is called the dwell time. It is then drained out and another 2 to 3 litres of fresh peritoneal dialysate fluid put in its place.

This 'drain out - pour in' cycle is repeated 4 times each day, every day of the week. Each circle is called an exchange. At night, dwell of 2-3 litres of dialysate fluid is left in the abdominal cavity and drained out in the morning.

Peritoneal dialysate fluid is provided in special bags at appropriate volumes and delivered to the patients and/or workplace. Each 'drain out - pour in' **exchange** takes approximately 30 minutes to perform. This is the time it takes for the fluid to drain out of the abdominal cavity and for a similar volume to pour back in.

Peritoneal dialysis is very gentle and is particularly useful for children, smaller people and elderly people. It is easy, fast to learn and patients can do it at home or at work. People who have undergone extensive abdominal surgery are not able to have this form of treatment. Visual impairment may also pose problems with this form of dialysis, but with special equipment this problem can be overcome.

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DRAIN



FILL



Used Solution

1. Connect to a disposable tubing and bag set and drain the used solution (about 10-20 min).

New Solution

2. Fill with the new solution (about 10 min).

DWELL



Remove Tubing Set

3. Throw away the used solution and disposable tubing set.

Continue normal activity

4. The patient is left wearing only a short tubing set. Solution stays in your peritoneal cavity for 4-8 hours.

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Peritoneal dialysis continued...

Automated peritoneal dialysis or APD

The second form of peritoneal dialysis is called **automated peritoneal dialysis** or **APD**. In this form of peritoneal dialysis, a special machine called a **cycler** is used to do the exchanges. At night, the person requiring dialysis connects him/herself to a system of several bags of peritoneal dialysis fluid attached to a cycler machine. The patient remains connected to the machine overnight and the cycler performs the exchanges automatically while the person sleeps. A **daytime dwell** is then poured into the abdominal cavity, which is drained later in the day. One further bag exchange is usually required during the day.

A few important points regarding peritoneal dialysis:

- > Peritoneal dialysis is well tolerated. The weight of the dialysate fluid within the abdominal cavity does not cause any discomfort.
- > This form of treatment allows a great level of independence from the renal unit, with only occasional visits for the purpose of follow-up.
- > Training for peritoneal dialysis is performed by very highly trained, specialised nurses who are sympathetic to your needs.
- > The main problem with peritoneal dialysis is infection. Meticulous care must be exercised at all times during exchanges hence the need for intensive training prior to starting this treatment. This training is not difficult and most people learn very quickly. Tenckhoff catheters used for peritoneal dialysis are also prone to blockage. It is very important to inform the dialysis unit immediately at the first sign of trouble.

Because people on dialysis no longer pass urine, careful restriction of fluid intake is necessary to avoid shortness of breath occurring due to build-up of fluid on the lungs.

BEDTIME**OVERNIGHT****MORNING**

1. Before going to bed, the patient connects up the tubing of the APD machine.

2. The machine performs exchanges during sleep (8-10 hours dialysing).

3. In the morning, the patient disconnects from the machine.