

Living with kidney failure – the options?

Information sheet – Treating kidney failure

Kidney failure can be treated in several ways.

Dialysis

There are two kinds of dialysis – **haemodialysis**, where the blood is ‘cleaned’ outside the body using a dialysis machine, and **peritoneal dialysis**, where the ‘cleaning’ is done inside the body.

A **dialysis machine** works in a similar way to real kidneys. The person’s blood flows on one side of a very thin membrane. On the other side a watery solution called a dialysate flows. Waste substances like urea diffuse across the membrane into the dialysate because they are at a higher concentration in the blood than in the dialysate. The ‘clean’ blood returns to the body. To prevent useful substances like glucose diffusing out of the blood the dialysate has glucose and salts dissolved in it. As well as cleaning the blood, the dialysis machine also removes excess water. The blood has to pass many times through the machine to get rid of all the waste substances. This is why it takes about four hours for a session of haemodialysis, which needs to be repeated three times a week. Haemodialysis costs about £35,000 per person per year. People on haemodialysis need to follow a special diet low in protein and salts.

Peritoneal dialysis uses the thin membrane that surrounds the outside of the organs in the abdomen (the peritoneum) for dialysis. Dialysis fluid is put into the peritoneal cavity through a soft tube, which is inserted permanently into the person’s abdomen. The peritoneum has many tiny blood capillaries. Waste products from the blood diffuse into the dialysis fluid. The fluid is left in the body for four to six hours, while it absorbs the waste products from the blood. The fluid is then drained out of the body. This process needs to be repeated four times a day. Peritoneal dialysis happens throughout the day, at home or at work, while the person goes about his or her daily life. It costs about £17,500 per person per year.

Transplants

A healthy kidney from a donor is transplanted into the body. The kidney may come from a live donor or from a person who has just died. To be of use the kidney must be removed from the body within an hour of death and used within 12 hours. After a kidney transplant, dialysis is no longer required and the person can eat a normal healthy diet. However, the person needs to take drugs to prevent their body rejecting the kidney. Some of these drugs have side effects. A transplant costs about £40,000 and the drugs needed to prevent rejection of the kidney cost about £7000 per year.