Hemodialysis

Hemodialysis is done to take over the job of the kidneys when a patient's own kidneys are not working properly. The most important job of the kidneys is to get rid of wastes and unneeded fluid from the body. The kidneys can stop working because of a number of reasons. Even if the kidneys still make some urine, they may not be effective in getting the wastes out. This is called kidney (or renal) failure. Kidney failure may be temporary. In some diseases or with severe kidney injury, failure is permanent. Although doctors can sometimes make a good guess about the chances that a patient's kidneys will recover, it is almost never possible to say this with complete certainty. With hemodialysis, a patient is connected to a machine that washes the blood of waste; as such it takes the place of the kidneys. The patient is connected to the dialysis machine through a catheter placed in a large vein (see Information Sheet on Central Venous Catheterization). During hemodialysis the patient is usually connected to the machine for 3-4 hours each day or every other day. Some special forms of hemodialysis take place at a slower pace, involving most of the day.

Some patients only need hemodialysis for days or weeks, but others may require it for the rest of life. If the kidneys fail and hemodialysis is not done, the wastes continue to build up and poison the body. The patient falls into a deep sleep or coma, unless the heart stops first.

Common reasons for its use and benefits:

The main reason for hemodialysis is for kidney failure. Most commonly, a blood chemical or acid has risen to a dangerous level or the brain is being affected by increased waste. Removal of waste and excess fluid from the body maintains life. Sometimes hemodialysis is used to clear excessive medication or an overdosed drug from the body.

Risks:

Some of the risks of hemodialysis include:

- A low blood pressure (called hypotension) - Some extremely ill patients develop brief drops in the blood pressure during hemodialysis. Such drops can be life-threatening and can be a reason for stopping hemodialysis before it is completed. In a patient whose blood pressure is very low, hemodialysis can be very risky because it can cause the blood pressure to go even lower. Low blood pressure can be a reason not to undertake hemodialysis in a patient because the risk of death from low blood pressure may be greater than the benefits of washing waste products from the blood.
- Abnormalities of the heartbeat - While washing waste products from the blood, the heart may develop an abnormal heartbeat or rhythm. Abnormal heart rhythms can be life-threatening and may require emergency medications or even the passing of an electric shock through the chest wall to try to bring the heart back to its normal rhythm.

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Central venous catheterization - All risks of central venous catheterization apply to hemodialysis, since hemodialysis is done through a catheter placed in a large vein in the body (see Information Sheet on Central Venous Catheterization).

Maintenance of life - In some very sick patients, trying to keep the patient alive means that dying actually takes longer. Sometimes, the use of hemodialysis to take the place of the kidneys may increase the length of time that patients are uncomfortable in their final days. Very often, doctors cannot tell with accuracy whether or not hemodialysis will lead to a successful recovery and whether a patient will be able to go home after dialysis. When a patient is not showing any recovery or is continuing to get worse, a decision about continuing dialysis may come up (see Sections on Code Status and Withdrawal of Life-Sustaining Treatments).

Chronic dialysis - Since it is usually very difficult to know for sure whether or not the kidneys will recover, one risk of undertaking hemodialysis for new-onset kidney failure is that the kidneys will never recover and the patient will need dialysis for the rest of his or her life. This usually involves going to a dialysis center three times a week and getting hemodialysis for 3-4 hours each time. There are also some forms of dialysis which the patient can learn to do at home.