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HEMODIALYSIS (VASCULAR) ACCESS

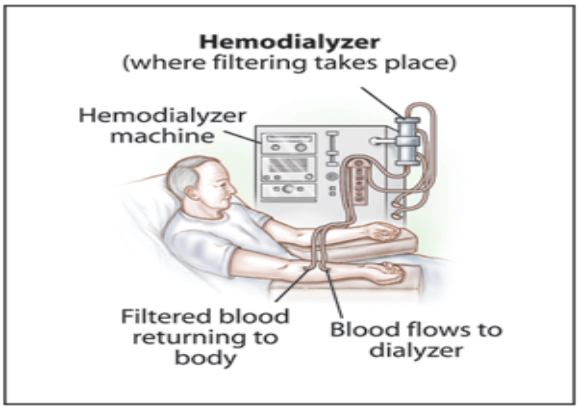
WHEN YOUR KIDNEYS FAIL

Healthy kidneys clean the blood by filtering out extra water and wastes. When your kidneys are not working well, as a result of disease of injury, wastes and excess fluids can build up in your blood and make you sick. When this happens, you need treatment to replace the work of your failed kidneys.

Treatment choices include hemodialysis, peritoneal dialysis, or kidney transplantation.

If you choose hemodialysis, creating a blood (vascular) access is necessary for rapid flow of blood through the artificial kidney that will be used to replace your kidney function.

HOW IT WORKS



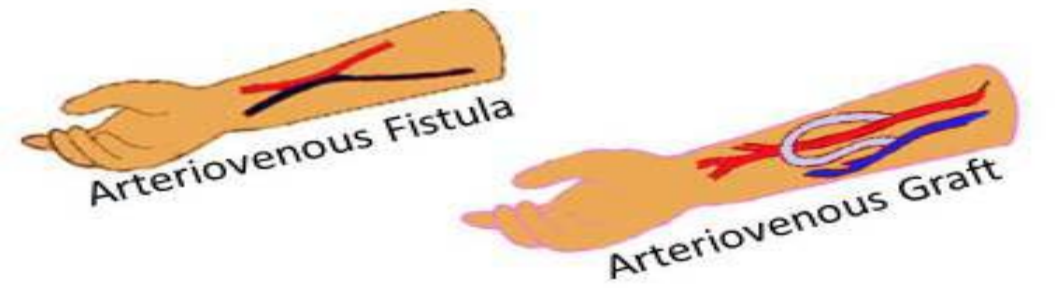
Hemodialysis uses a dialyzer, or a special filter, to clean your blood. The dialyzer connects to a machine. During treatment, your blood travels through tubes into the dialyzer. The dialyzer filters out wastes and extra fluids. Then the newly cleaned blood flows through another set of tubes and back into your body.

GETTING READY

Before your first treatment, an access to your bloodstream must be made. The access provides a way for the blood to be carried from your body to the dialysis machine and then back into your body. The access can be internal (inside your body---usually under your skin), or external (outside your body).

INTERNAL ACCESSES

There are two types of internal accesses: A-V fistula or graft



FISTULA

Connecting an artery with a vein creates a fistula. Since arterial blood has more pressure, over time, it will cause the vein to get bigger, stronger and become the actual access for dialysis.

Pros of a fistula:

1. Fistulas generally last longer.
   Fistulas have a lower risk of infection as your own veins are used
2. The surgery is simpler, requiring a smaller incision.
3. Fistulas have less rate of clotting.

Cons of a fistula:

1. Needle insertion in a fistula may be more difficult than a graft until it fully develops.
2. Full development or maturation takes 8-12 weeks from the time of surgery.

GRAFT

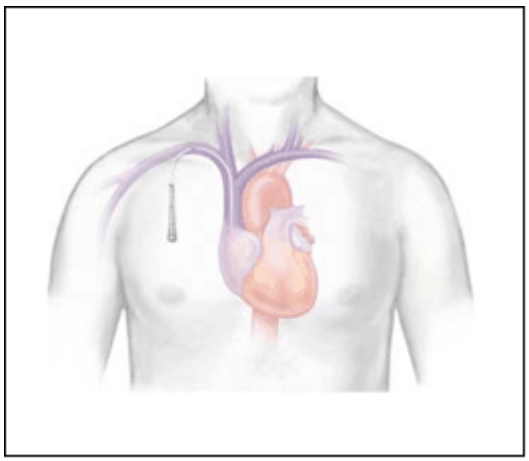
Connecting an artery to a vein with a rubber-like" tubing called Gortex" creates a graft. It is inserted under the skin during a minor surgery. The graft may be placed in either the upper or lower arm.

Pros of a graft:

1. It can be used in patients with poor veins.
2. It can be placed even if a fistula has failed.
3. It can be used in 4-6 weeks.
4. A good blood flow is immediate.

Cons of a graft:

1. The risk of infection is higher than a fistula because a graft is foreign material in your arm.
2. Grafts usually do not last as long as a fistula.
3. Grafts have a higher frequency of clotting compared to a fistula.



EXTERNAL ACCESSES

External accesses are called Central Venous Catheters. The purpose of the catheter is to provide a **temporary** vascular (blood) access for your dialysis. These catheters are placed by your Nephrologist at a dialysis unit or by a Radiologist in the X-ray department. These catheters are usually placed in large veins such as the internal jugular vein (located at the base of your neck on either side), or subclavian veins (under your collarbone on either side).
There is one type of catheter called a perm cath. This type of catheter has a special fabric area called a cuff. The purpose of the cuff is to secure the catheter into place and prevent migration of bacteria into the bloodstream, to reduce the risk of infection.

A local anesthetic called lidocaine will be given to you before the catheter is placed. A small incision is then made and the catheter will be tunneled under the skin into a comfortable position. Sutures will then be applied to further secure the catheter to your skin. A chest x-ray will be ordered to check the position of the catheter. There should be little or no bleeding after the procedure. Minor pain and swelling can be expected for 1-2 days after the procedure.

Pros of a catheter:

1. This can be used when no other access is available for emergency dialysis.

Cons of a catheter:

1. Blood flow is slower than from an internal access, so the blood will not be filtered as well, so dialysis treatment time could be longer.
2. There is a higher risk of blood stream infection, which may cause an infection in your heart or other organs. These infections could kill a person.
3. It can be pulled out accidentally with risk of blood loss, which could be fatal.
4. There is a high incidence of clotting and blood clots in the veins.

PREDIALYSIS
FREQUENTLY ASKED QUESTIONS

1. **What is an access?**

   An access links your arteries and veins to the dialyzer, thus providing the means to clean your blood.

2. **Why do I need an access?**

   A hemodialysis access such as a perm catheter, fistula or graft is needed to remove blood from your body, transfer it to the machine, then return the cleaned blood to you. Toxins and fluid that are normally removed by your kidneys are removed from your blood.

3. **Why do I need to get an access placed before I start dialysis?**
   You need an access placed so that you can start hemodialysis promptly when needed without the use of a central line.

4. **When do I need to get my access placed?**

   You need to have a permanent access such as a fistula or graft placed well in advance of starting dialysis. This access will take time to develop. You must talk to your nephrologists (kidney doctor) about permanent access placement early during your care. He or she will answer all of your questions and arrange for you to see a vascular surgeon.

5. **Are there any other access options or methods of dialysis?**

   The only permanent access options for hemodialysis are the fistula or graft. Another form of dialysis is called peritoneal dialysis and this requires a different type of access and a different way of dialyzing (cleaning the blood). Both methods are equally effective and have their own pros and cons. If you would like more information ask your physician, nurse practitioner or nurse.