CARE OF THE HEMODIALYSIS PATIENT IN THE REHABILITATION SETTING

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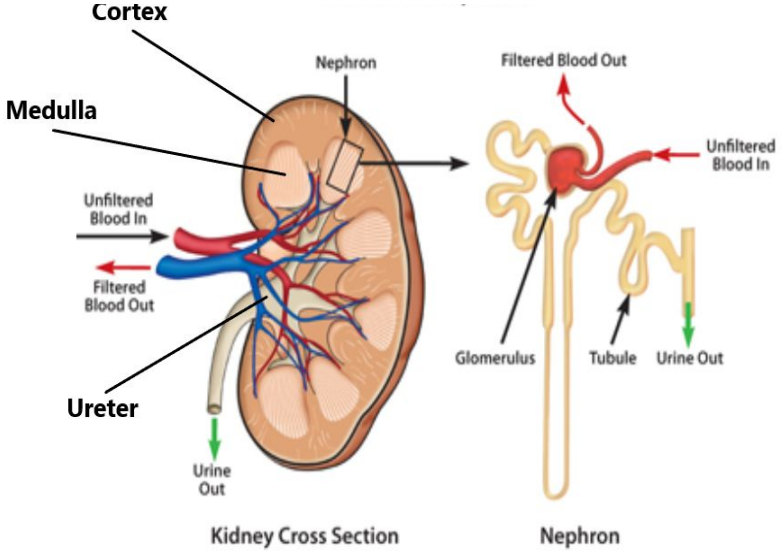
Learning Objectives:

1. Describe the process of hemodialysis and how it works to filter blood
2. List three types of Dialysis Accesses and how to assess them
3. Describe complications of hemodialysis, how to prevent and to detect them.
4. Discuss medication administration in the hemodialysis patient.

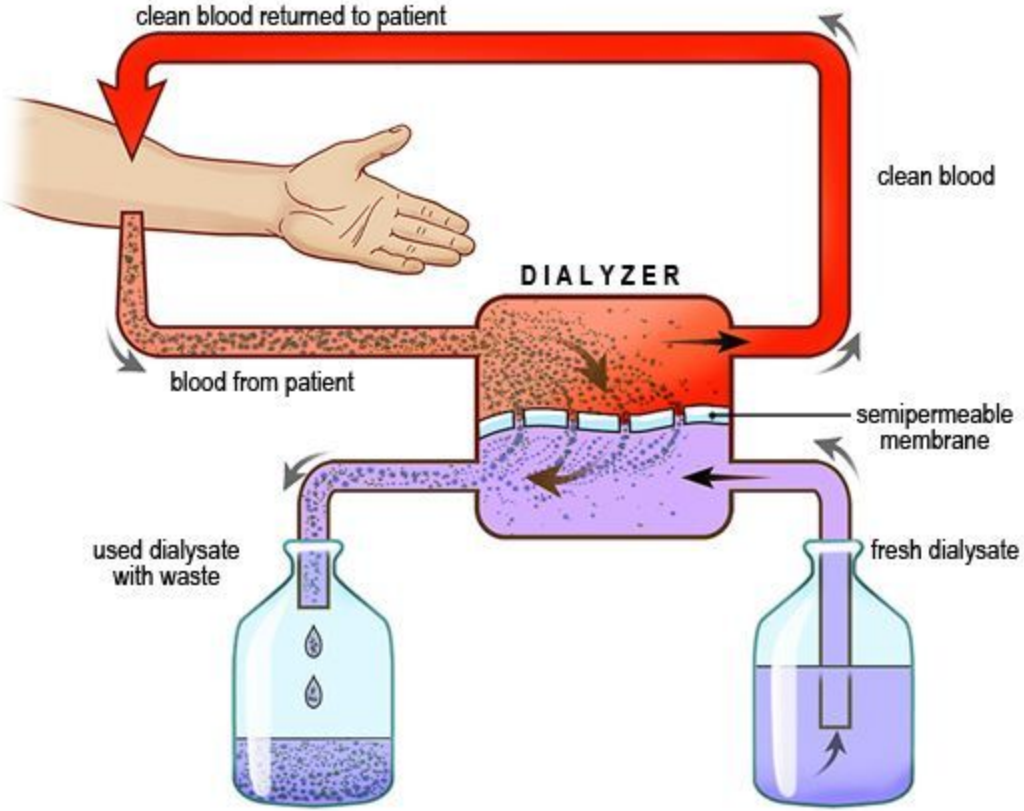
How the kidneys work:



- Hemodialysis simulates what the kidneys do for the body
- Blood flows through the kidney via the renal artery
- The blood is then filtered through the nephron by the glomeruli removing waste and fluids
- Once filtered, the blood flows back to the body through the renal vein
- The kidney filters up to 150 quarts of blood a day but only 1 to 2 quarts actually becomes urine.

Functions of the Kidneys:

- They remove waste products from the body
- They balance fluids within the body
- They regulate blood pressure by release the hormone renin- angiotensin
- They produce an active form of vitamin D that promotes strong, healthy bones
- They control the production of red blood cells through erythropoietin(EPO)
- They control the acid-base balance in our body


clean blood returned to patient
clean blood
DIALYZER
blood from patient
semipermeable membrane
used dialysate with waste
fresh dialysate

Hemodialysis Machine and Materials

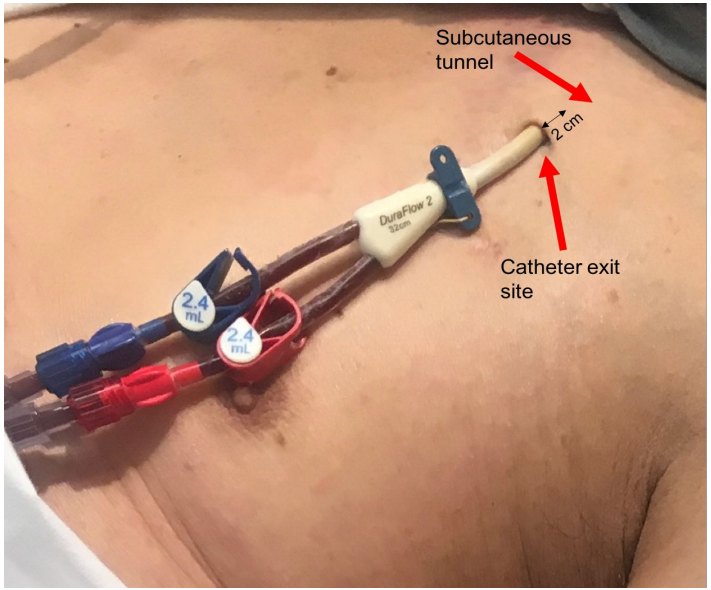
- Tablo (the dialysis machine)
- Dialyzer (artificial kidney)
- Dialysate bath (acid and base)
- Dialysis quality water (RO) reverse osmosis water
- Dialysis lines

The 3 Types of Dialysis Accesses

- Central Venous Catheter (CVC)
- AV Fistula
- AV Graft

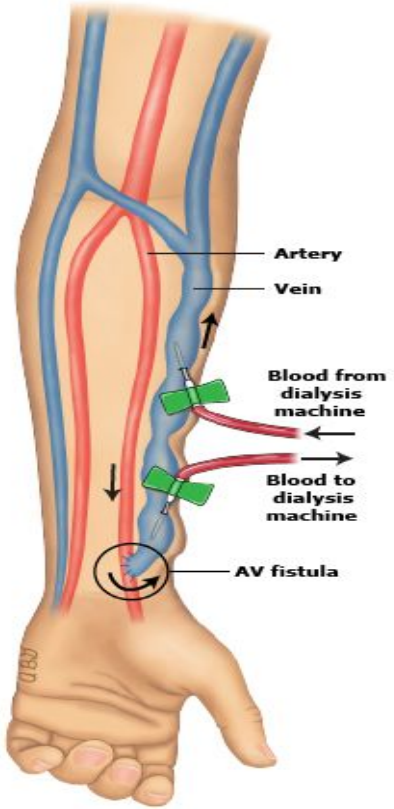
Central Venous Catheter (CVC)

- Generally placed in the subclavian or internal jugular artery, but sometimes can be placed in the groin
- Can be used immediately after placement which allows the patient to receive emergency treatment or used while waiting for the patient's AV fistula or graft to mature
- The CVC is the least favorite of the three accesses due to the high risk of infections and complications that can cause early terminations of treatments as well as complications that can result in acute care transfers



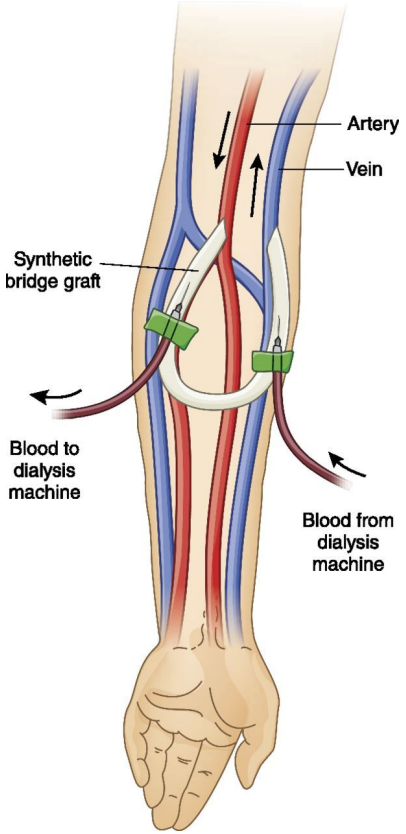
AV Fistula:

- Considered the “Gold Standard” of dialysis accesses
- Has the longest maturity time (8-10 weeks)
- Created by a vascular surgeon by connecting an artery and vein together (typically in the arm or leg)
- Preferred because they last longer, have no synthetic material, have low risk of infection, and are less prone to clotting



AV Graft:

- Second preferred access for hemodialysis
- Connected by a hollow, synthetic tube
- Can be placed in the arm or leg
- Shorter maturity time than the AV Fistula
- Can be used for 2 to 4 weeks
- Works well for patients with small or weak veins
- Runs the risk of clotting



Assessing the Accesses: AV Graft and AV Fistula

- Always check the access for the bruit and thrill to ensure it is working properly
- Remove the pressure dressing once bleeding has completed
- Take note of any swelling or new pseudoaneurysms

COMPLICATIONS OF HEMODIALYSIS - HOW TO PREVENT AND DETECT THEM

COMMON COMPLICATIONS:

- Hypotension/ Hypertension
- Electrolyte Imbalances
- Muscle Cramping
- Anemia
- Fluid Overload
- Shortness Of Breath
- Sleeping Difficulty
- Itching
- Hemolysis
- Water contamination
- Access Site Complications
- Bone disease

MEDICATION ADMINISTRATION - HEMODIALYSIS PATIENTS

- Always ask yourself What can I give? What can't I give?
- Always check with the Nephrologist, Physician, and Pharmacist before administering medications
- Talk with your patient about their medication routine to assess for patient teaching opportunities
- Remember every HD patient's needs are unique
- Always follow your facilities' policies and procedure
- Whenever possible, coordinate with your HD team to administer IV drugs during HD treatments
- Always remember Phosphorus Binders - these medications must be given with food