DIABETES, KIDNEY DISEASE AND DIALYSIS

Dr. Srinath Tamirisa, M.D.



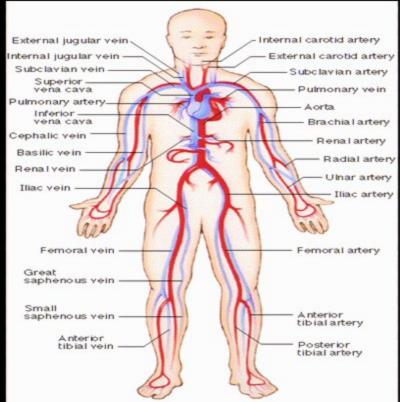
WHAT IS DIABETES

- Serious Disease
- Body does not make enough insulin (DM Type1)
- Body cannot use the insulin it makes (DM Type 2)
- Insulin is a hormone that contols the amount of body sugar (called Glucose)
- High Blood Sugar causes many problems

DIFFERENT TYPES OF DIABETES

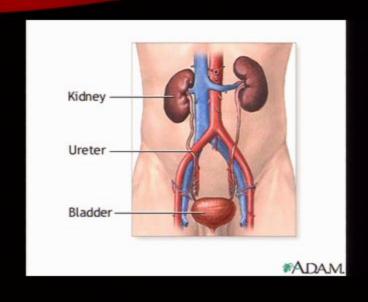
- Type 1 DM
- 1. Usually starts as a child or young adult
- 2. Has to be treated with insulin replacement (shots or pump)
- 5-10% of cases
- Type 2 DM
- · Most common form of diabetes
- 1. Partially preventable and brought about by poor diet and lack of exercise
- Could be Hereditary
- 3. Usually starts over the age of 40 but earlier as well
- Diet, exercise and special meal planning
- 5. May need insulin but start with oral pills

WHAT DOES HIGH LEVEL OF SUGAR DO ???



Hardening of arteries called ATHEROSCLEROSIS. Heart and Blood vessel disease

HOW DIABETES CAUSES KIDNEY DAMAGE



- · Keep body in balance
- Remove waste products from body
- Balance the body 's fluid and electrolytes
- Help keep blood pressure under control
- Keep bones healthy
- Help make red blood cells

WHAT IS CHRONIC KIDNEY DISEASE ???

- Means that the kidneys have been damaged
- Once they have been damaged, they cannot filter your blood or do other jobs as well as they should
- Treatment in the early stages can help kidneys from getting worse
- Phenomenal change in management after the introduction of MDRD calculation of Glomerular filtration rate (GFR)
- Your PCP will give you a creatinine value based on which your GFR will be calculated

STAGES OF CHRONIC KIDNEY DISEASE

Stages and Prevalence of CKD

Stage	Description At Increased Risk	GFR (ml/min/1.73 m²) ≥60 (CKD Risk Factors)	Prevalence (US Adults) N (1000's) %	
			>20,000	>10
1	Kidney Damage with Normal or ↑ GFR	≥90	5,900	3.3
2	Kidney Damage with Mild ↓ GFR	60-89	5,300	3.0
3	Moderate ↓ GFR	30-59	7,600	4.3
4	Severe ↓ GFR	15-29	400	0.2
5	Kidney Failure	<15 or Dialysis	300	0.1

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VARIABLES ARE CREATININE, AGE, SEX AND RACE

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SIGNS OF KIDNEY DISEASE IN PATIENTS WITH DIABETES

- Albumin /protein in urine
- High blood pressure
- Ankle and leg swelling, leg cramps
- Going to the bathroom more often at night
- High levels of BUN and creatinine in blood
- Less need for insulin or antidiabetic meds
- Morning sickness, nausea and vomiting
- Weakness, paleness and anemia
- Itching

WHAT CAN BE DONE TO KEEP MY KIDNEYS WORKING AS LONG AS POSSIBLE ???

- Your doctor will plan your treatment
- Refer to a nephrologist

WHAT CAN BE DONE TO KEEP MY KIDNEYS WORKING AS LONG AS POSSIBLE ???

- · Limiting how much protein you eat
- 1. Enough protein for good health but avoid overeating
- Less protein can prolong kidney life
- Treating complications of kidney disease
- Anemia
- Edema and water retention
- Bone disease
- 4. Nutrition
- Hyperuricemia
- Metabolic acidosis
- HTN management
- 8. Limiting protein leakage in urine and helping heart health

WHAT CAN BE DONE TO KEEP MY KIDNEYS WORKING AS LONG AS POSSIBLE ???

- Promptly reporting to your doctor of the following
- Frequent urination, burning or pain with urination, cloudy or blood spotted urine, strong odor to your urine
- Limiting salt in your diet
- Avoid OTC motrin, alleve, ibuprofen (Pain relieving meds called NSAIDs)
- 4. Check with your doctor regarding herbal meds
- Keeping cholesterol and lipids at check, heart healthy diet

KEY POINTS TO REMEMBER

- About a third of people with diabetes may develop kidney failure
- Because diabetes may harm the blood vessels, it can cause kidney damage
- Early kidney damage is detected via urine test microalbuminuria
- GFR tells you your kidney function
- Treatment with some high blood pressure medicines called ACE inhibitors or ARBs can slow the loss of kidney function in people with diabetes, even in people with normal blood pressure.
- Reducing the amount of sodium (salt) in your diet may be needed if there is kidney damage or high blood pressure. The most common form of sodium is found in table salt.

KEY POINTS TO REMEMBER

- Other things that cause kidney damage and affect kidney function are: blocking of urine flow, urinary tract infection and certain medicines (especially OTC pain meds like ibuprofen, alleve, motrin)
- Early kidney disease rarely has symptoms. That is why it is so important to be tested regularly by your doctor for kidney damage. An early sign of kidney damage is protein in your urine
- Pay attention to diet

WHAT IF YOUR KIDNEY COMPLETELY FAILS

- Renal Replacement Therapy or Dialysis
- Transplant
- Stem cell therapy (Research Phase)

PERITONEAL DIALYSIS

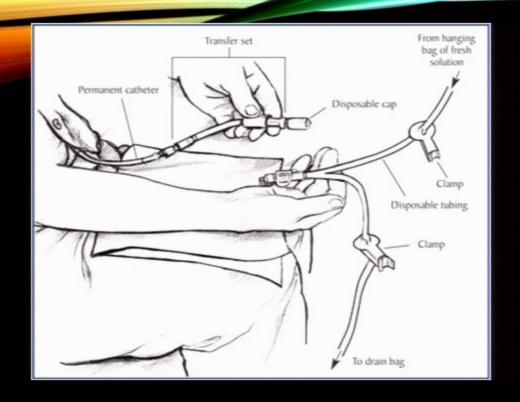
- PD gives you more control.
- Treatments at home, at work, or on trips.
- Health care team: your nephrologist, dialysis nurse, dialysis technician, dietitian, and social worker.
- Most important members of your health care team are you and your family.
- By learning about your treatment, you can work with your health care team to give yourself the best possible results, and
- you can lead a full, active life.

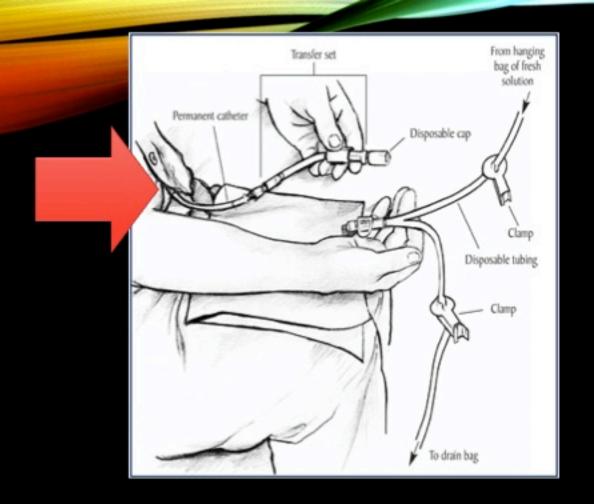
CUSTOMIZING YOUR PD

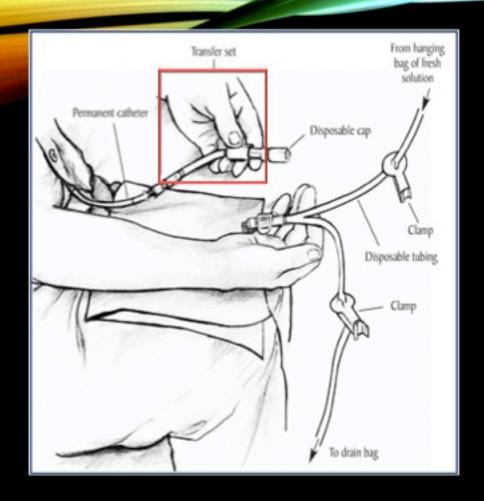
- CAPD Continuous Ambulatory Peritoneal Dialysis
- CCPD Continuous Cycler assisted Peritoneal dialysis
- NIPD Nocturnal Intermittent Peritoneal Dialysis.

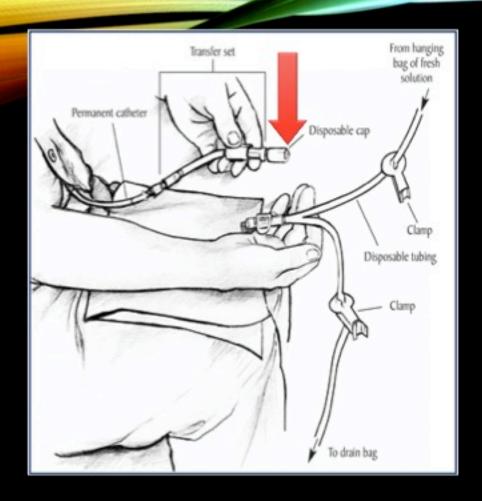
PREVENTING PROBLEMS

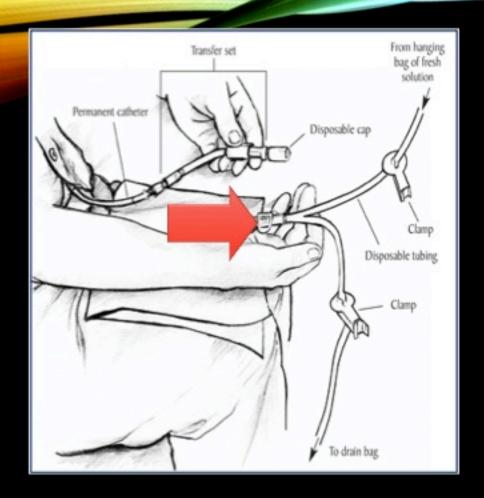
- Store supplies in a cool, clean, dry place.
- Inspect each bag of solution for signs of contamination before you use it.
- Find a clean, dry, well-lit space to perform your exchanges.
- Wash your hands every time you need to handle your catheter.
- Clean the exit site with antiseptic every day.
- Wear a surgical mask when performing exchanges.
- Keep a close watch for any signs of infection and report them so they can be treated promptly.
- Here are some signs to watch for:
- Fever
- Nausea or vomiting
- Redness or pain around the catheter
- Unusual color or cloudiness in used dialysis solution
- A catheter cuff that has been pushed out

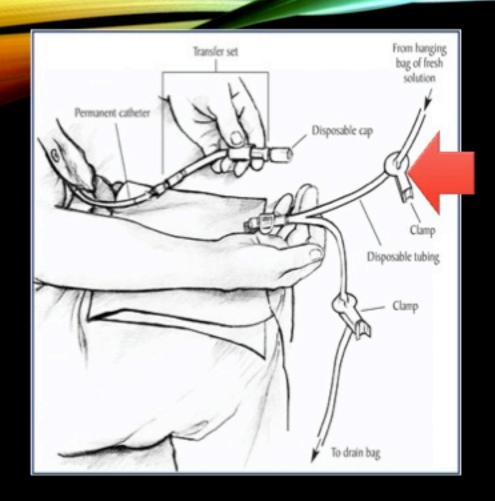


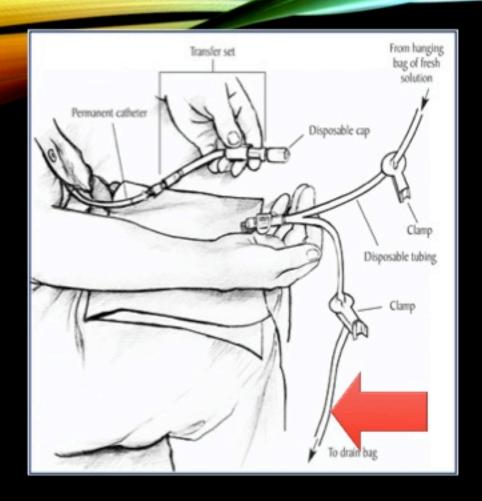


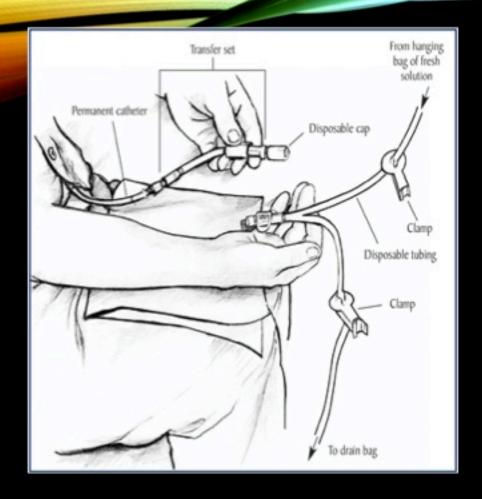


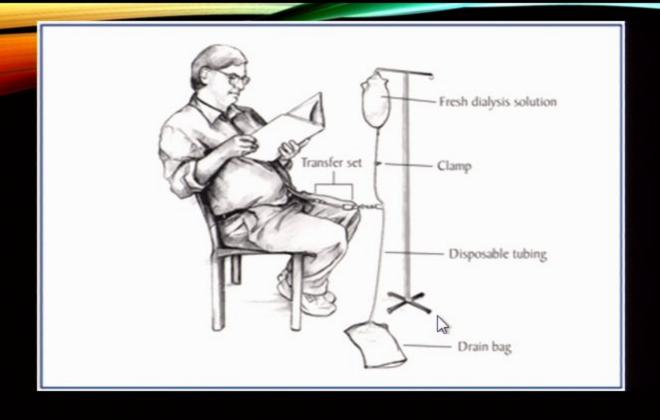




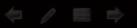








DURING AN EXCHANGE, YOU CAN READ, TALK, WATCH TELEVISION, OR SLEEP.

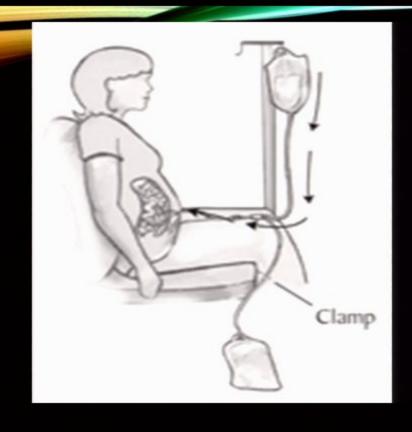




THE FIRST STEP OF AN EXCHANGE IS TO DRAIN THE USED DIALYSIS SOLUTION FROM THE PERITONEAL CAVITY INTO THE DRAIN BAG. NEAR THE END OF THE DRAIN, YOU MAY FEEL A MILD "TUGGING" SENSATION THAT TELLS YOU MOST OF YOUR FLUID IS GONE.

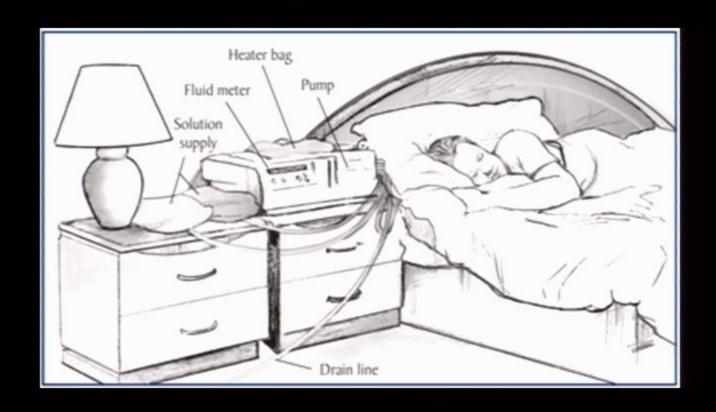


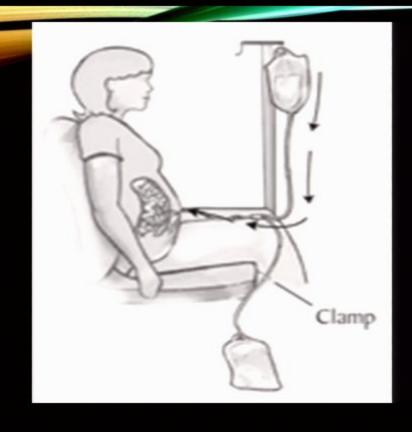
AFTER THE USED SOLUTION IS REMOVED FROM YOUR ABDOMEN, YOU WILL CLOSE OR CLAMP THE TRANSFER SET AND LET SOME OF THE FRESH SOLUTION FLOW DIRECTLY INTO THE DRAIN BAG. THIS FLUSHING STEP REMOVES AIR FROM THE TUBES.



THE FINAL STEP OF THE EXCHANGE IS TO REFILL THE PERITONEAL CAVITY WITH FRESH DIALYSIS SOLUTION FROM THE HANGING BAG.

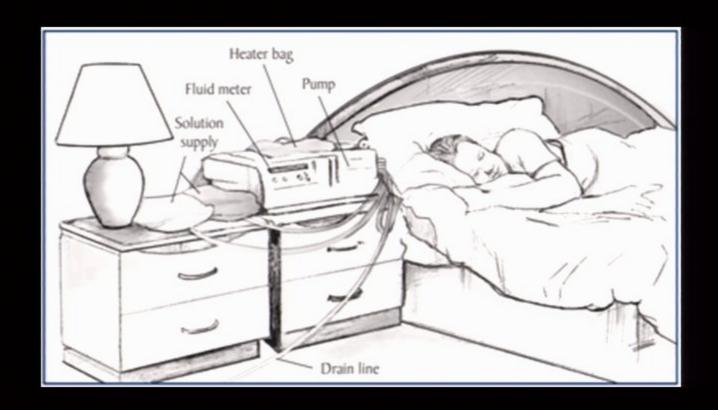
CCPD





THE FINAL STEP OF THE EXCHANGE IS TO REFILL THE PERITONEAL CAVITY WITH FRESH DIALYSIS SOLUTION FROM THE HANGING BAG.

CCPD



HOME DIALYSIS – EITHER PERITONEAL DIALYSIS OR HOME HEMO

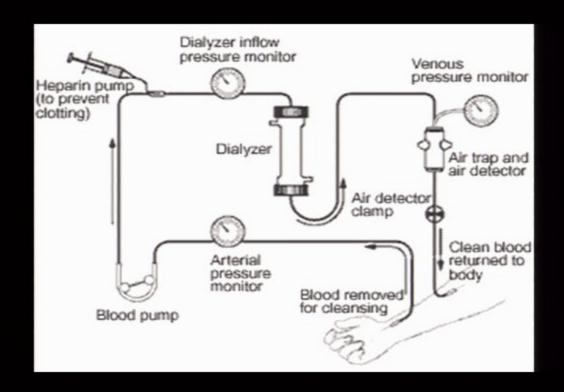




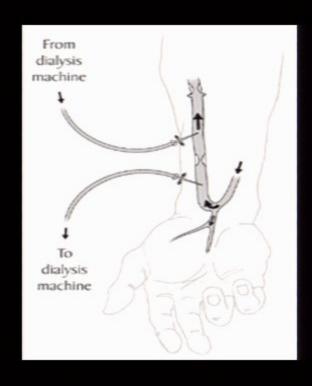


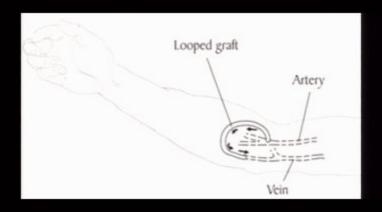


HEMODIALYSIS



GETTING YOUR VASCULAR ACCESS READY





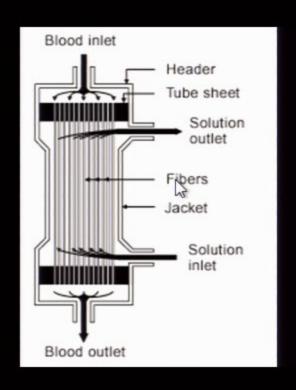
DIALYSIS MACHINE

- The dialysis machine is about the size of a dishwasher. This machine has three main jobs:
- pump blood and watch flow for safety
- clean wastes from blood
- watch your blood pressure and the rate of fluid removal from your body

HEMODIALYSIS



DIALYZER





THANK YOU

DR. TAMIRISA KIDNEY AND HTN SPECIALISTS





Q&A WITH DR. TAMIRISA KIDNEY AND HTN SPECIALISTS