

## CHRONIC KIDNEY DISEASE

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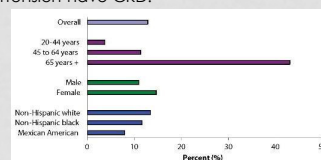
- What is CKD?
  - Definition: Chronic Kidney Disease is the slow loss of kidney function over time
  - The loss of kidney function takes place over months or even years
  - GFR <60 for > 3 months, with or without kidney damage
- What do our Kidneys do?
  - Our kidneys act as a filtration system, removing waste and toxins
  - Help regulate fluid and electrolyte balance
  - Form urine to excrete waste and excess fluid

## HOW COMMON IS CKD?

- Chronic kidney disease is a growing health problem in the United States.
  - A report by the Centers for Disease Control (CDC) determined that 10% of all adults above the age of 20 years have chronic kidney disease.
    - <http://www.cdc.gov/diabetes/pubs/factsheets/kidney.htm>
- The prevalence of chronic kidney disease has increased by **16%** from the previous decade.
  - The increasing incidence of diabetes mellitus, hypertension and obesity.

## WHO IS AT RISK FOR CKD

- CKD is more common among women than men.
- Those with high blood pressure, HTN.
- Those with uncontrolled diabetes.
  - More than 35% of people aged 20 years or older with diabetes have CKD.
  - More than 20% of people aged 20 years or older with hypertension have CKD.



## SYMPTOMS OF CKD

Symptoms may include:

- Appetite loss
- Fatigue
- Headaches
- Itching and dry skin
- Nausea
- Unintentional weight loss



## MORE SYMPTOMS

- As CKD becomes progressively worse these other symptoms may occur
  - Abnormally dark or light skin
  - Drowsiness and or confusion
  - Problems concentrating or thinking
  - Numbness in the hands or feet
  - Muscle twitching or cramps
  - Easy bruising, bleeding, or blood in the stool
  - Excessive thirst
  - Amenorrhea
  - SOB
  - Edema
  - N/V, typically in the morning

## DIAGNOSIS OF CKD

- The diagnosis of CKD is determined by urine, blood, and imaging tests such as an ultrasound
  - Stick tests/Dip tests
  - 24-hour urine tests
  - Glomerular Filtration Rate test – GFR
- The GFR is a standard means of expressing overall kidney function. As kidney disease progresses, GFR falls. The normal GFR is about 100-140 mL/min in men and 85-115 mL/min in women.



## LABS FOR CKD

- Urine labs are checked often for changes in protein levels
- Creatine levels
- BUN
- Albumin
- Calcium
- Potassium
- Sodium
- Cholesterol



## STAGES OF CKD

- The development of CKD can take months or years, and can go undiagnosed for just as long

| Stage of CKD | Description                                     | GFR                         |
|--------------|---|-----------------------------|
| 1            | Kidney damage with normal or slightly lower GFR | Greater than or equal to 90 |
| 2            | Kidney damage with mild decrease in GFR         | 60-89                       |
| 3            | Moderate decrease in GFR                        | 30-59                       |
| 4            | Severe decrease in GFR                          | 15-29                       |
| 5            | Kidney Failure                                  | Less than 15                |

## NUTRITION AND CKD

- While the management of CKD takes a team of Doctors, Nurses and Registered Dieticians there are some things you can do at home.

- Limiting protein intake
- Reducing the amount of added salts
- Balance of fluid intake
- Controlling blood glucose levels
- Taking prescribed medications;
  - Insulin
  - HTN medications



## END-STAGE RENAL DISEASE

- Chronic Kidney Disease can eventually lead to End Stage Renal Disease
- End-stage Renal Disease (ESRD) is when the kidneys are no longer able to work at a level needed for day-to-day life.
- The most common causes of ESRD in the U.S. are diabetes and HTN.
- ESRD almost always comes after CKD. The kidneys may slowly stop working over 10 - 20 years before end-stage disease results.

## TREATMENT FOR CKD

- Unfortunately, there is no cure for chronic kidney disease. The four goals of therapy are to:
  - Slow the progression of disease;
  - Treat underlying causes and contributing factors;
  - Treat complications of disease; and
  - Replace lost kidney function.



## RENAL REPLACEMENT THERAPIES

- In end-stage kidney disease, kidney functions can be replaced only by dialysis or by kidney transplantation.



## MNT FOR DIALYSIS

- Diets for patients on Dialysis
  - Adequate protein intake (1.2g/kg), DaVita recommends 6-9oz of lean protein per day
  - Maintain adequate energy needs (35kcal/kg)
  - Limit Calcium rich foods
  - Limit added salts
  - Restricting fluid intake
  - Maintaining Potassium levels
  - Maintaining Phosphate levels
    - Taking Phosphate Binders with each meal/snack

<http://www.davita.com/kidney-disease/diet-and-nutrition/diet-basics/protein-how-much-should-dialysis-patients-eat?/e/7973>

## SAMPLE MENU

*Sample Menu Plan for Individuals with potassium, phosphorus and fluid restriction*

**Breakfast:**

Scrambled egg whites with a thin slice (2-oz) Canadian bacon on an English muffin  
Grape Juice, 4-oz

**Lunch:**

1 cup romaine lettuce tossed with 1/8 cup raw broccoli and 1 tablespoon slivered almonds.  
Top with 3-oz of cooked salmon and reduced fat peppercorn dressing  
White roll with trans-free margarine  
Diet soda, 4-oz or 4-oz water

**Dinner:**

3-oz cooked skinless chicken with 1/2 cup squash, 1/2 cup of cabbage served on top of 1 cup of cooked pasta tossed with 2 tablespoons of olive oil and 1/2 cup reduced-sodium chicken broth  
Cherries 1/2 cup  
Iced Tea, 4-oz

**Snacks:**

Low-sodium crackers  
Orange sherbet

## PROGNOSIS FOR CKD

- There is no cure for chronic kidney disease. The natural course of the disease is to progress until dialysis or transplant is required.
- People undergoing dialysis have an overall five year survival rate of 32%. The elderly and those with diabetes have worse outcomes.

## CASE STUDY

- Enez Joaquin
- 24 years old
- Secretary
- Lives with husband age 26, daughter age 7
- Pima Indian



## PATIENT HISTORY

- Enez complains about anorexia, nausea, vomiting, plus a 8.4 lb weight gain in 2 weeks.
- She displays shortness of breath with orthopnea, muscle cramps, edema, and inability to urinate.
- Diagnosed with type 2 diabetes at age 13, and has a history of poor compliance with medications.
- She has been monitored for kidney function for past 7 years.
- She also has high blood pressure.

### PATIENT HISTORY


- Intake poor due to anorexia, nausea, and vomiting
- Tries to follow the diet she was taught for diabetes 2 years ago, describes "It went pretty well for awhile, but is to hard to keep up with."
- Currently taking Glucophage and Vasotec.
- Had previous nutrition therapy 2 years ago when diagnosed with stage 3 CKD
- Medical DX: Chronic Kidney Disease; Type 2 DM

### ASSESSMENT

- Height:5'0
- Weight:170 lbs.
- BMI:33.2 (obese)
- IBW:100lbs (170%, had about 8 lb. weight gain in past 2 weeks)
- UBW:160lbs (106% of UBW)

### USUAL DIETARY HISTORY

| Breakfast | Cold cereal, bread or fried potatoes, fried egg (occasionally) |
|-----------|--|
| Lunch     | Bologna sandwich, potato chips, Coke                           |
| Dinner    | Chopped meat, fried potatoes                                   |
| Snacks    | Crackers and peanut butter                                     |



### PERTINENT LABS

| Lab           | Normal  | Patient's |
|---------------|---------|-----------|
| Calcium       | 9-11    | 8.2 L     |
| Cholesterol   | 120-199 | 220 H     |
| Sodium        | 136-145 | 130 L     |
| Potassium     | 3.5-5.5 | 5.8 H     |
| PO4           | 2.3-4.7 | 9.5 H     |
| Glucose       | 70-110  | 282 H     |
| Creatine      | 0.6-1.2 | 12 H      |
| BUN           | 8-18    | 69 H      |
| Triglycerides | 35-135  | 200 H     |

### ENERGY AND PROTEIN NEEDS

- EER:  $655 + (9.6 \times 77.2) + (1.8 \times 152) - (4.7 \times 24) = 1557$  kcals
  - $1557 \times 1.2 = 1868$  kcals
- Protein:  $77.2 \text{ kg} \times 1.2 \text{ g/kg} =$ 
  - 92 grams Protein

### NUTRITION DIAGNOSIS

- **Food and nutrition related knowledge deficit (NB-1.1)** related to new hemodialysis treatment and new nutrition therapy for dialysis as evidenced by patient report.
- **Limited adherence to nutrition related recommendations (NB-1.6)** related to new nutrition therapy for dialysis as evidence by patient report.

### INTERVENTION/GOALS

**• Nutrition Related Behavior Modification Therapy (C-1) using motivational interviewing to discuss the following topics:**

- Counsel patient on the importance of medication adherence(phosphate binders with meals).
- Counsel patient on the importance of fluid and sodium restricted diet.

### GOALS

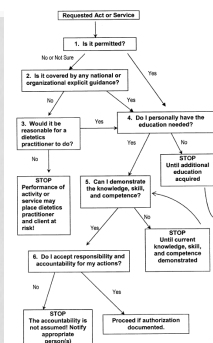
- Client will adhere to diabetes medication to control blood sugars below 150 mg/dl.
- Client will adhere to a low potassium diet to lower potassium levels below 5.5 mg/dl.
- Client will adhere to a fluid restricted, low sodium diet to alleviate edema.

### MONITORING AND EVALUATING

- Check labs for potassium, sodium and phosphate for normal ranges. (over next week)
- Monitor patient's adherence and tolerance to medications for kidney replacement therapy.
- Watch the patient's blood glucose levels and adherence to diabetes medication to make sure it's in normal range.

### DECISION TREE

1. Yes, we are permitted.
4. Yes, we do have the Education needed.
5. Yes, we can Demonstrate the skills Needed.
6. Yes, we do accept Responsibility.
7. Proceed.



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