Eating Healthy with Diabetes and Kidney Disease

Lori Martinez-Hassett, RD, CSR
Thanks to our speaker!

Lori Martinez-Hassett, RD, CSR

- Registered dietitian at Satellite Healthcare
- Her nutrition career and interest in diabetes started well before her professional career, when a beloved aunt living with type 1 diabetes taught her the art of carb counting and introduced her to an insulin pump.
Learning Objectives

- Review common lab work for kidney patients and how it affects food choices
- Learn how kidney disease affects blood sugar and diabetes management
- Understand causes of weight changes due to kidney disease
Food Frustration is Real

- Well, what can I eat?
- I can’t have that, it’s on “The List”
- Can you just give me a meal plan to follow?
There is No One “Renal Diet”

- Nutrition needs differ from person to person
- Nutrition needs vary depending on stage of CKD
- Diet restrictions for certain nutrients like potassium, phosphorus and sodium are common
- Recommendations are individualized
- See a dietitian or ask a doctor about education classes
The 3 Ps of Kidney Nutrition

- Protein
- Potassium
- Phosphorus
Function of Protein

Protein is needed for good health and...

- To grow our hair and nails
- Build/repair muscles, connective tissue
- Heal wounds
- Make hormones and enzymes
- Make antibodies to fight infections
Protein In Our Diet

- Animal: meat, fish, chicken, eggs, milk (also referred to as High Biological Value—HBV)
- Vegetable: beans, lentils, nuts and seeds
- Small amounts of protein in grains: cereal, bread, rice, pasta, etc.
Protein In Our Diet

- Eat enough, but not too much
- Too much protein is an added burden on the kidneys
- Many people with diabetes spill protein into their urine = Proteinuria
- Higher levels of proteinuria are associated with faster decline in kidney function
Protein for Health: Challenges

- As kidney function declines people may have symptoms that make it hard to eat:
  - Decreased appetite
  - Taste changes
  - Nausea, vomiting
Protein for Health: Challenges

• Proper diet is needed to maintain albumin level (protein in blood)
  – Target: albumin → 4.0 is ideal

• Low albumin levels lead to infections & hospitalizations

• Also, infections, inflammation, surgeries, and fluid retention contribute to low albumin levels
Protein Recommendations

• If you eat meat, about ½ of protein should be from HBV protein (meat, poultry, fish, eggs, milk)
• Vegetarian diets are healthy
  – Note* that protein from beans, lentils & nuts also contain potassium and phosphorus
• A dietitian can help you plan a vegetarian diet
Protein Recommendations

• Not on dialysis (Stage 4): eat **LESS** protein
  – 0.8 grams/kg

• On dialysis (Stage 5): eat **MORE** protein
  – 1.2-1.3 grams/kg
Example of Protein Recommendations

Pre-dialysis:
- Smaller person
- 135 lbs (61 kg)
- 50 g protein/day
- 4 oz/day from HBV (meat, chicken, fish, eggs)

On Dialysis:
- Smaller person
- 135 lbs (61 kg)
- 79 g protein/day
- 6 oz/day from HBV
Example of Protein Recommendations

Pre-dialysis
- Larger person
- 200 lbs (91 kg)
- 73 g protein/day
- 5-6 oz/day from HBV (meat, chicken, fish, eggs)

On Dialysis
- Larger person
- 200 lbs (91 kg)
- 109 g protein/day
- 8-9 oz/day from HBV
Potassium

• The muscles & nerves need potassium to work
• High or Low potassium levels can be dangerous and affect your heart
• Healthy kidneys keep potassium balanced
• When kidneys don’t work, potassium may go up
Causes of Changes in Potassium Level

- Decline in kidney function
- GI problems: poor intake, vomiting, diarrhea
- Various medications
- Salt substitutes contain KCl (potassium chloride)
- Food choices
- Dialysis choice
Potassium In Our Diet

• Eat enough, but not too much
• Potassium found mainly in fruits & vegetables
  – (also beans, lentils, nuts, milk/milk products, salt subs)
• 5 Servings/day of fruits & vegetables
• Serving size = similar to diabetic exchanges:
  - ½ cup portions (light bulb sized fruit or starchy vegetable) = 15 g carb
  - 1 cup non-starchy vegetables = 5 grams carb
Potassium In Our Diet

Higher Potassium Foods

- Oranges
- Orange Juice
- Bananas
- Plantains
- Coconut Milk/Water
- Persimmons
- Pomegranates
- Dried Fruit
- Mango
- Papaya
- Tomatoes
- Potatoes (chips, fries, hash browns), Yams
- Pumpkin
- Winter Squash
- Greens
- Artichokes
- Nopales
- Dried Beans*
- Lentils*
- Peas*
- Nuts*
- Milk*

*Contains potassium & phosphorus
Potassium In Our Diet

Lower Potassium Foods:

- Apples
- Cranberries
- Blueberries
- Raspberries
- Grapes
- Pears
- Plums
- Fruit Cocktail
- Lemon
- Limes
- Rhubarb
- String Beans
- Cabbage
- Carrots
- Corn
- Cucumbers
- Jicama
- Eggplant
- Peppers
- Onions
- Eggplant
- Cauliflower
- Turnips
- Water Chestnuts
Potassium Monitoring

• Potassium levels can change

• “Too High” or “Too Low” is dangerous
  – Symptoms are irregular heartbeat, muscle weakness

• Lab target: 3.5-5.0 mg/dL

• Type of dialysis may affect level
  – Lower levels in home dialysis (PD) vs. hemodialysis

• Consult with doctor or dietitian
Phosphorus

• Phosphorus (along with calcium) are minerals that keep our bones and teeth strong
• Healthy kidneys keep phosphorus and calcium in balance in the blood
• Phosphorus levels go up as kidney function goes down, causing weaker bones and hardening of the heart and blood vessels
Phosphorus In Our Diet

• Processed foods, fast food, cola drinks
  – Contain “inorganic phosphates” or phosphorus additives
  – Ex: deli meats, sausage, ham, frozen entrees, baking mixes

• Protein foods:
  – Milk, cheese, yogurt, and milk products
  – Meats and animal protein
  – Dried beans, legumes, nuts
Phosphorus In Our Diet

• Inorganic phosphates: >90% absorption
  — Not on nutrition facts label
  — Found in ingredient list: Look for “Phos”
    — Phosphoric Acid, monocalcium phosphate
• Meats/Animal protein: 50% absorption
• Beans/Legumes: <40% absorption
Hidden Phosphorus

Find the Phosphorus...
Hidden Phosphorus

Leavening in baked goods:
• Monocalcium Phosphate
• Sodium Aluminum Phosphate
Phosphorus Monitoring

• Changes in phosphorus happen early in CKD
• Higher levels lead to weak bones & calcification
• In general, phosphorus target is <5.0
  – 2.5-4.5 mg/dL in early stages of CKD
  – 3.5-5.5 mg/dL CKD Stage 5
Managing Phosphorus

• Management is important & challenging
  – Few symptoms
  – Phosphorus is in many foods
  – High levels linked with poor outcomes: higher risk of fractures and heart calcification

• Diet restriction

• Medication: phosphate binders taken with meals

• Dialysis
In Review: 3 P’s of CKD Nutrition

• Protein (Albumin): Stay healthy fight infections
  – Avoid excess protein in diet; Eat enough, but not too much
  – Medications to help manage proteinuria (ACE/ARBS) also protect the heart

• Potassium: Can affect your heart rhythm
  – If blood levels are high, then restrict high potassium foods
  – If blood levels are low, then eat more high potassium foods, be aware of carb

• Phosphorus: Affects bone & heart health
  – Food choices often recommended to stabilize glucose may be high in phos
    (cheese for a snack, milk at bedtime) may be high in phosphorus

• Target: in the 4s
CKD & Diabetes: Considerations

• A1c is a diabetes blood test
• Its accuracy may be affected by anemia
  – Low Hemoglobin and iron deficiency
  – Shorter red blood cell life span
  – A1c may appear normal despite hyperglycemia
  – Continue to check blood sugar
  – A1c target: 7% up to 8% to avoid low blood sugar
CKD & Diabetes: Considerations

- Causes of low blood sugar
  - Decreased intake due to symptoms of kidney disease
    - Decreased appetite
    - Nausea
    - Taste changes
  - Decreased clearance, or time it takes for medication to leave the body, of medication when GFR <50
    - Dose of medication and insulin can be decreased
    - Higher risk with long acting meds
    - Ex: Glyburide (long acting) often changed to Glipizide (short acting)
CKD & Diabetes: Considerations

- Sulfonurias: Glipizide dose may be decreased
- Insulin: dose may be decreased
- Metformin: stopped when GFR <30 or creatinine >1.4
- TZD (Glitazones): stopped in advanced CKD
- New classes of medications: GLP-1 & DPP-4
  - Decreased risk of cardiovascular death
  - Low risk of hypoglycemia + helps with weight loss
CKD & Diabetes: Considerations

• Dialysis: Peritoneal dialysis (PD) vs. Hemodialysis
  – PD is done at home daily
  – PD solution (dialysate) contains dextrose which may affect blood sugars
  – Medication or insulin dosing may need to be adjusted
CKD & Weight Changes

• Kidneys remove both waste products and fluid
• As kidney function declines...
  – Fluid can build up and cause weight gain
  – Waste products increase and cause symptoms contributing to weight loss:
    • Decreased appetite
    • Taste changes
    • Nausea/vomiting
Dry Weight vs. Fluid Weight

- Dry weight: weight without fluid retention (build-up of fluid inside body)
  - No swelling, not short of breath, BP better controlled
  - Changes in dry weight occurs slowly
  - Dry weight is not affected by dialysis
Dry Weight vs. Fluid Weight

- Fluid weight gain due to fluid retention
  - Clearance from kidneys decreases: pee less
  - Worsens with high salt and/or fluid intake
  - Symptoms: swelling, shortness of breath, rapid weight changes.
  - Report symptoms to your doctor
  - Fluid weight strains the heart, leads to congestive heart failure
Weight Gain & Sodium

• Limit sodium to 2000 mg per day
• Read food labels
  – No added salt and low sodium better
  – Reduced sodium next best, may still be high in sodium
• Cook at home when possible
• Eating out: ask for no added salt or dressing on the side, avoid soups and sauces
Sodium – Less is Better

• 2400 mg/day for all Americans
• 1 tsp = 2400 mg
• ¼ tsp = 560 mg*

*Sodium content of salt varies only slightly between products

*Sea salt is not lower in sodium!
Benefits of Weight Loss

• First line therapy for diabetes is Therapeutic Lifestyle Changes (TCL)
• TLC: Includes diet & exercise
• Improved blood sugars & blood pressures
• Transplant criteria
  – Most centers require BMI <35
  – BMI >25 is overweight, BMI >30 is obese
Kidney disease affects...

- Clearance of fluid: sodium & fluid restrictions
- Clearance of some nutrients: restrictions for potassium and phosphorus
- Hemoglobin, which in turn may change A1c results: continue glucose checks
- Clearance of meds: dosing may be decreased or stopped altogether. Talk to doctor if you have lows!
Questions?
Join us for our next webinar!

Anxiety and kidney disease
Thursday, December 13, 2018 from 2:00 - 3:00 p.m. EST

Join us to hear more about:

• How anxiety occurs
• What anxiety can look and feel like in a person’s life
• How anxiety can affect quality of life for kidney patients who are pre-dialysis, on dialysis, and preparing for transplant
• Tips and resources to fight and overcome anxiety

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