Nutrition and PKD: Why diet matters and what parents can do to help their kids

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Disclosures/Conflicts of Interest

• No disclosures or conflicts of interest to report
Objectives

In this session we will discuss:

- The link between diet and PKD progression
- Research at KUMC developing a diet for PKD
- Practical tips that parents can use to improve their child’s diet

Polycystic Kidney Disease

- 600,000 people in the United States and 12.5 million people worldwide are affected by Polycystic Kidney Disease (PKD)
  - Autosomal Dominant Polycystic Kidney Disease (ADPKD)
  - Autosomal Recessive Polycystic Kidney Disease (ARPKD)
- Cysts growth
- Kidney failure
  - Age 60 = 50% will have kidney failure
  - Age 70 = 60% will have kidney failure
How do we target cyst growth?

What makes cysts grow faster?
- Eating a high amount of:
  - Dietary Acids
  - Protein
  - Sodium

OR
- Drinking a low amount of:
  - Fluid

Dietary Factors that ACCELERATE PKD progression

- Dietary Acids
- Protein
- Sodium
- Fluids

Diet: Mechanisms of Kidney Damage

H⁺ ions

Disease Progression

Slower
- Dietary Acid Load Decreases
  - Protein
  - Fruits and Vegetables
- Salt
- Fluid
  - Solute Load Decreases

Faster
- Dietary Acid Load Increases
  - Protein
  - Fruits and Vegetables
- Salt
- Fluid
  - Solute Load Increases

Vasopressin/ADH
cAMP
What should I do for my kids?

What can I do to feed my kids the right foods?

In utero
- No data available

Birth – 11 months
- Possible use of specialized formulas in the future
- Baby foods
- No studies done to date
What can I do to feed my kids the right foods?

1 - 3 years old
- Critical time to offer variety of foods
  - Exposure is key
- Offer fruits and vegetables at every meal
- Make sure they drink fluid throughout the day
- Cook foods at home
  - Buy less processed foods
- Limit meat to meals

4 - 5 years old
- School age children
  - Peer influence
- School lunch
  - Send healthy meals from home
  - If eating in cafeteria, help them select the best meals prior to school day
    - Special diet

6 – 12 years old
- Sports
  - Water vs sports drinks
  - Make sure they get plenty of fluid
    - Have a bottle in class
- Fast food
  - Request fresh, unsalted fries
  - Look up nutrition facts from favorite restaurants
- School lunch
- Involve kids in preparation of dinner

13 - 18 years old
- Shift of responsibilities
- High School
  - School lunch
  - Sports coaches
- Skipping breakfast
  - Opt for smoothies, fruit
- Fast food
What can I do to feed my kids the right foods?

18 + years old
• College years
  – Limited access to kitchen/inability to cook
  – Campus meals/food pass
  – Energy drinks/alcohol

How do I monitor if I’m following the diet?

• No home methods established at this time
• Clinic appointments
  – Urine collection
    • Urine osm/urine specific gravity
    • Urinary sodium
    • Net acid excretion
  – Diet records
  – Patient centered website
    • Track diet
Summary

• Drink fluid throughout the day
• Eat fruits and vegetables with every meal/snack
• Less processed/fast foods and more fresh foods
• Limit meat to meals and watch portion sizes

DISCUSSION