Medical Nutrition Therapy Diet
Renal Diet not on Dialysis

1. Purpose
   a. Nutrition Indicators
      Signs and symptoms associated with inadequate kidney function are directly
      related to the kidney’s inability to perform normal homeostatic control functions
      such as maintenance of fluid and electrolyte imbalance.
   b. Criteria to Assign the Diet
      Signs and symptoms associated with inadequate kidney function are directly
      related to the kidney’s inability to perform normal homeostatic control functions
      such as maintenance of fluid and electrolyte balance. Advanced impairment of
      kidney function results in edema, uremia, hyperphosphatemia, hyperkalemia,
      metabolic acidosis, azotemia, oliguria, hypertension, anemia and bone and
      mineral disorders. A decreased GFR is also an indicator of kidney damage and
      may call for a renal diet prescription.
   c. Rationale for Diet
      The rationale for a renal diet is to get the body back in balance of normal
      fluid/electrolyte/mineral ranges that have been altered due to kidney damage.

2. Population
   a. Overview
      Patients with kidney disease or failure require special diets to control the progress
      and many of the symptoms of their condition.
   b. Disease Process
      Sudden failure of blood supply to the kidneys is the main cause of acute kidney
      failure, resulting in toxic overload in the blood. In some cases, acute kidney
      failure can be caused by accidents, injuries or complications from surgery where
      the kidneys can be deprived of regular blood flow over long periods of time. For
      example, heart bypass surgery is a situation in which the kidneys receive reduced
      blood flow.

      Overdosing of drugs or medication may also cause the onset of acute kidney
      failure. Often times, the kidneys are able to recover from acute failure, allowing
      the patient to resume a normal life. People suffering from acute failure require
      supportive treatment until their kidneys recover function, and are at an increased
      risk of developing future kidney failure.

   c. Biochemical and Nutrient Needs
   Biochemical/Laboratory Values Goals
   Albumin- 3.5-5.0 g/dL
   BUN- stabilized
   Potassium- 3.5-5.5 mEq/L
   Phosphorous- 2.5-5.5 mg/dL
   Calcium- 8.5-10.5 mg/dL
Cholesterol and Triglycerides - <200
Hematocrit - 33%-36%
Ferritin - 100-800 ng/mL
Transferrin Saturation - 20%-50%

3. General Guidelines
a. Nutrition Rx
   For Chronic Treatment after Transplant
   Protein: 1.0 g/kg
   Calories: Maintain Desirable Weight
   Carbohydrates: 50-60% of total kcal; emphasis on complex CHO and 20-30g dietary fiber
   Fats: 25-35% total kcal with saturated fat <7% of total kcal
   Cholesterol: <200mg day
   Potassium: no restriction unless hyperkalemia exists
   Sodium: 2,000-4,000 mg with hypertension
   Calcium: 1,200-1,500 mg
   Phosphorous: 1,200-1,500 mg
   Fluids: No restriction unless graft not functioning

b. Adequacy of Nutrition Rx
   To make sure adequate levels of nutritional requirements are being met, check lab values monthly and try to obtain maintenance of values within the recommended ranges.

c. Goals
   1. Biochemical and Hematological Parameters:
      Maintain or achieve appropriate lab values
   2. Anthropometric:
      Achieves/maintains reasonable body weight
      Goal: BMI 20-25
   3. Clinical signs and symptoms:
      Adequate body mass
      Goal: adequate muscle/fat stores
      Maintains level of functional ability
      Goal: Optimal functional ability
      Maintains good appetite
      Goal: Minimal GI symptoms
      Appropriate blood pressure control
      Goal: food intake > 80% of recommended, BP w/in normal limits
   4. Meal Planning/Food Selection- Make appropriate food choices and take medication as directed
   5. Nutrient Need- Maintains appropriate protein intake
   6. Potential Food/Drug Interaction- Maintains stable glucose if diabetic, maintains lab values within normal limits
   7. Exercise- If no contraindications, exercise program
d. Does it Meet DRI

Energy and protein intake should meet the patient’s requirements, which are challenging to identify. The amount of nutrition administered depends on the patient’s nutritional status, catabolic rate, GFR. General recommendations for renal patients not on dialysis are .6 g/kg/d.

4. Education Material
a. Nutrition Therapy
   1. Contact your local physician for help with questions regarding kidney failure and a renal diet.
   2. Visit the National Kidney Foundation online at: http://www.kidney.org/

b. Ideas for Compliance
   1. To help limit sodium intake:
      - Try removing the salt shaker from the table, too limit additional sodium content to foods.
      - Reduce intake of canned soups, canned vegetables and processed deli meats.
      - Choose fresh or frozen fruits and vegetables over canned.
   2. To help limit phosphorous intake:
      - Avoid excessive intake of dairy products like milk, cheese, and yogurt and take a calcium supplement daily with added Vitamin D instead.

5. Sample Menu
a. Foods Recommended

Milk and nondairy:
   Skim or fat-free milk, nondairy creamer, plain yogurt, sugar-free nondairy frozen desserts, sugar free ice cream *Portions are often limited to 4 ounces due to high protein, phosphorous, or potassium content.
Breads and starches:
   White bread, unsweetened refined dry cereals, cream of wheat, grits, malt-o-meal, noodles, pasta, rice bagel, unsalted crackers, cornbread (made from scratch), flour tortilla
Fruits and juices:
   Apples, apple juice, applesauce, apricot halves, berries, low sugar cranberry juice, cherries, fruit cocktail, grapefruit, grapes, mandarin oranges, pears, pineapple, plums and watermelon
Vegetables:
   Corn, peas, potatoes (soaked to reduce potassium, if needed), asparagus, beets, carrots, cabbage, cauliflower, celery, cucumber, green beans, iceberg lettuce, radishes, red and green peppers
Meats, cheeses and eggs:
   Lean cuts of meat, poultry, fish and seafood; eggs, cottage cheese (limited due to high sodium content)
Seasonings:
   Soft or tub margarine low in trans fat, mayonnaise, sour cream, cream cheese
Beverages:
Water, crystal light, diet clear sodas, homemade tea or lemonade sweetened with artificial sweetener

b. Foods to Avoid
- Limit protein to .75g/ per kg body weight
- Limit salt (sodium), potassium, and phosphorous

c. Example of a meal plan

Breakfast:
- ½ c cranberry juice, 1 egg, 2 slices toast, 2 teaspoons, jelly, 1 cup coffee, 2tbs non-milk creamer

Lunch:
- 3 oz sliced turkey, 2 slice bread, 2 teaspoons mayonnaise, ½ c cucumber salad w/ 1 tbsp oil and vinegar dressing, 1 medium apple, 1 cup lemonade

Dinner:
- 3 oz broiled fish, ½ c rice, ½ c green beans, 1 dinner roll, 2 tsp margarine, ½ c canned peaches

Snack:
- 1 slice pound cake, ½ c Jell-O

6. Websites

a. Organizations with Websites
1. Medical College of Wisconsin, Division of Nephrology:
   http://www.mcw.edu/display/ClinicalServices/DietforRenalPatient.htm
2. Drugs.com:
   http://www.drugs.com/cg/renal-failure-diet.html
3. eMedicineHealth:

b. Government Websites
1. National Kidney Foundation Council on Renal Nutrition (CRN):
   http://www.kidney.org/professionals/CRN/
2. ADA Renal Practice Group:
   http://www.renalnutrition.org/about/join.php
3. MedlinePlus:
4. National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC):
   http://kdnidk.nih.gov/kudiseases/pubs/choosingtreatment/

7. References

a. Journal articles references


Additional References:
