**Community &family medicine**

**MNT kidney diseaseS &Gout**

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**Functions of the Kidney**

* Excretory
* Acid-base balance
* Endocrine
* Fluid and electrolyte balance

**Causes of Chronic Kidney Disease**

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**Medical nutritional therapy**

MNT is recommended for all stages of Kidney disease.

 Prevents and treats protein-energy malnutrition and mineral and electrolyte disorders.

Improves patient outcome

 Minimizes the impact of other comorbidities on the progression of kidney disease

**The renal diet**

 Sufficient in protein

  Adequate in calories

  Restricted in sodium, potassium, phosphorus, and fluids(Dialysis).

**Nutrition needS in CKD**

 Protein needs: 0.6-0.8 grams/Kg.

  Caloric needs: 25-35Cal/Kg

  Sodium: ≤ 2.4 grams/day.

 Potassium: Not restricted unless serum K is high. (2-4 grams daily).

  Phosphorous: 10-12mg/gram of protein or 800-1000mg/day

  Calcium: ≤ 2000mg/day

  Fluids: unrestricted

**Nutrition needs on haemodialysis**

 Protein needs: 1.2-1.5 grams/Kg.

  Caloric needs: 30-35Cal/Kg.

 Sodium: 2-3 grams/day.

  Potassium: 40 mg/Kg.

  Phosphorous: 10-12mg/gram of protein or 800-1000mg/day

  Calcium: ≤ 2000mg/day

  Fluids: 500-1000ml/day plus urine output

**Protein**

 Help to build and repair body tissues.

 Rich sources : Dairy products, meat, poultry, fish, eggs, legumes and soya.

  Low protein food items: Bread, rice, pasta, potatoes, cornflakes, oats and other grains.

**Sodium restriction**

 Canned and processed food: mortadella, bastourma, readymade & frozen meals, canned & dehydrated soups and chicken stock, canned vegetables and tomato juice.

 Seasonings and dressings like salt, soy sauce, barbeque sauce, ketchup, mustard.

  potato chips, processed cheese, pickles, olives, roasted nuts and most fast food items.

**Potassium restriction**

 Avoid nuts and seeds, chocolate, vegetable juices.

 Milk and yogurt can be taken in limited amount.

  Limit coffee to 1 cup daily and tea to 2 cups daily.

**Nephrotic syndrome**

* Not a specific disease—kidney disorders that result in urinary protein losses in excess of 3 grams/day
* Occurs most often in children between 1 ½-4 years old
* Damage to glomeruli increases permeability to plasma proteins, allowing protein to escape into the urine
* Can progress to renal failure

 ***Causes***

**Infection**

**Chemical damage**

**Immunological & hereditary disorders**

**Diabetes mellitus**

**Other disorders involving glomerulus**

 ***Clinical findings***

**Proteinuria**

**Low serum albumin levels**

**Edema**

**Elevated blood lipids**

**Blood coagulation disorders**

***Nutrition of Nephrotic syndrome***

* **Meet protein (0.8-1g/Kg)& energy (35 kcal/Kg)needs to minimize muscle tissue loss**
* **Low sat fats, cholesterol**
* **Low refined sugars**
* **Sodium restriction(1-2g/d) Potassium-rich foods (if potassium-wasting diuretics are used)**
* **Vitamin & mineral supplements**

***Kidney Stones***

* **Crystalline mass that forms within urinary tract**
* **May be asymptomatic or may cause severe pain or blockage of urinary tract as the stone passes**
* **Tend to recur, but can be prevented with diet & medical treatment**

***Formation of kidney stones***

**Develop when stone constituents become concentrated in urine**

**Formation promoted by factors that:**

* **Reduce urine volume**
* **Block urine flow**

*Types of Stones*

Calcium oxalate stones

* Most common
* Reduce intake of oxalate
* Avoid vitamin C supplements

Uric acid stones

* Abnormally acidic urine
* Associated with gout
* Low-purine diet

Cystine stones

Inherited disorder *cystinuria*

Struvite stones

Form in alkaline urine

**MNT of renal stones**

Drink 12-16 cups of fluids/day

* Tea, coffee, beer
* No apple or grapefruit juices
* Other Dietary Measures
* Consume enough calcium to control oxalate absorption
* Restrict dietary oxalate & purine
* Moderate protein intake
* Sodium restriction

*Gout*

* Hereditary abnormal metabolism of purines.
* Cause a form of acute arthritis, with inflamed joints (usually knees& feet).
* Hyperuricemia results with deposition of urate& s.t. sodium.

Pathophysiology



***Risk factors***

* ***M:F = 20:1(>after menopause)***
* ***Age >40***
* ***Alcohol***
* ***Genetics***
* ***Diseases: DM,Psoriasis ,Myeloproliferative***
* ***Drugs :Diuretics,B3(Niacin)***
* ***Obesity:(waist hip circumference)***

***MNT goals of Gout:***

-Weight loss for obese patient.

-Increase urates excretion.

-Force fluid intake to prevent uric acid stones.

-Correct any existing hyperlipidemia.

***Dietary recommendations (MNT):***

1-High CHO diet& low fat intake

 increase excretion of urates.

2- In acute case; avoid excessive intake of purines( shellfish, smoked meat, sardines & meat extracts).

3-Exclude alcohol beverages.

4-Calorie controlled diet for obese.

5-Ensure high fluid intake.

*Foods high in purines*

**High: content 150-825mg/100g**

\*Shellfish, seafood, sardines.

\*Meat, brain, kidney, liver.

**Moderate: content 50-150mg/g**

\*Vegetables; cauliflower, green peas, mushrooms, spinach

\*Grains& legumes; peas, lentils, beans,

\*Oatmeal, wheat bran, whole grain

 breads & cereals.

\*Fish; all kind, .

 \*Meat; beef, lamb

\*Poultry; chicken, duck, turkey.

**Low: content 0-50mg/100g**

\*Beverages; carbonated beverages, coffee, tea.

\*Grains; bread& cereals (refined white flour)

\*Dairy; cheese, milk (all fat levels)

\*Miscellaneous; eggs, fat, fruits,nut&vegetables.