Diet in kidney disorders
See inside…

• Kidney disease
  - Glomerulonephritis
  - Nephrotic syndrome
• Dietary management
• Conclusion
Functions

- Filtration
- Reabsorption
- Secretion of ions to maintain Acid-Base balance
- Excretion
- Calcium, phosphorus & vitamin D
- Erythropoietin
- Renal control of cardiac output & systemic blood pressure
Kidney disease

- The kidneys perform so many different metabolic functions
- Kidney disease has serious consequences
Causes

Factors

- Trauma
- Infections
- Birth defects
- Medications
- Chronic disease
- Toxic metal consumption
- Diabetic nephropathy
Glomerulonephritis

- Inflammation of the kidneys is **nephritis**
- Inflammation of the glomeruli is called **glomerulonephritis** which can be either acute or chronic
- Young children & young adults are often victims
- This condition often follows scarlet fever or a streptococcal infection of respiratory tract
Symptoms

- Nausea, vomiting
- Fever, hypertension
- Hematuria, oliguria
- Proteinuria, edema
- Some patients develop anuria

Without treatment this condition is fatal
Dietary modifications

**Fluid**: is calculated taking into account the water consumed with the drugs, water present in milk, tea, coffee etc

- Daily fluid replacement should be 1000 ml plus daily amount excreted in urine
- 30ml/kg body weight for infants
- 20 ml /kg body weight for older children
- 10 ml /kg body weight for adults
**Energy:** Requirements are calculated based on age & weight and an additional allowance of 10% is given for infections.

**Protein:** usually the diet contains 0.5 g/ kg body weight for older children. 1 to 1.5/kg body weight per day for younger children. Low protein diet is recommended to give rest to kidneys. If anuria develops proteins should be stopped. In oliguria dietary protein must be restricted.

**Calcium:** The intake should be roughly 1 g/ day.
• **Sodium**: It varies with the degree of oliguria & hypertension. Sodium will be restricted to 500-1000 mg/day

• **Potassium**: All renal patients should remember that too little potassium can also be dangerous. It is restricted to 1 mmol /kg/day

• When urine formation is reduce potassium also restricted

• **Phosphorus**: found in almost all foods intake should be restricted to 8-12 mg/kg/d
Nephrotic syndrome (nephrosis)

- The result of a variety of diseases that damage the glomeruli capillary walls is called nephrotic syndrome.
- The disease is caused by degenerative changes in the kidneys' capillary walls which consequently permit the passage of albumin into the glomerular filtrate.
Proteinuria

Low serum protein levels

Severe edema

Anemia

Hyperlipoproteinemia

SIGNS
• Water & sodium are retained
• Edema is sometimes so severe that it masks tissue wasting due to the breakdown of tissue protein stores
• The degree of malnutrition is hidden until the excess fluid is removed
Principles of diet

• Restricted protein, salt and restricted fluid
• High carbohydrate
• Moderate fat
• Vitamin supplements especially vitamin C should be given
• Patient with severe & persistent hyperlipidemia should maintain a normal weight for height
• The diet should be low in fat & cholesterol
Dietary treatment

- Kilocalories: 2000 Kcals is suggested
- Protein: Moderate restriction 0.8-1.0/ kg is often employed
- Sodium: It is restricted to prevent further accumulation of oedema fluid & prevent hypertension
- Salt is restricted to 2-3 g per day
- Low sodium foods can be consumed liberally
Fluid

Restriction is necessary if edema is present

If urine output is less than 25ml/kg/24 hours