Renal failure
Kidney diseases

- The earliest clinical evidence of nephropathy is the appearance of low but abnormal levels (>30 mg/day or 20 µg/min) of albumin in urine, referred to as micro albuminuria.
Acute renal failure

• The kidneys stop working entirely or almost entirely

• Acute renal failure occurs suddenly & is usually temporary

• It can last for a few days or weeks
Symptoms:

- Little or no urine
- Swelling especially in legs and feet
- Not feeling like eating
- Nausea and vomiting
- Pain in the back just below the rib cage
Diet therapy

**Energy:** A minimum of 600-1000 kcal is necessary

**Protein**
- All protein containing foods are stopped if blood urea nitrogen is rising
- If the patient is on dialysis 40g protein is given to reduce endogenous protein breakdown

**Carbohydrate:** A minimum of 100g/day is essential
- 700 ml of glucose with lime juice can be given orally
Fluid: The total fluid is 500ml plus loss occurred through urine

Potassium

• Potassium intoxication (hyperkalemia) occurs with a daily rise of potassium

• Potassium rich food sources are avoided
Chronic renal failure

- It occurs when progressively more nephrons are destroyed until the kidneys simply cannot perform vital function of filtering.

- It occurs over time & is usually irreversible

- The glomerular filtration rate begins to reduce
• When the GFR drops from 125ml/min to less than 30ml/min, dietary modification is initiated

• When the GFR reduces to 3ml/min, dietary control is not sufficient and dialysis or kidney transplant is necessary
Causes:

- Diabetes mellitus
- Hypertension
- Glomerulonephritis
Diet Therapy

• Energy: An intake of 1900-2000 kcal/day is prescribed

• The source of energy should be from carbohydrate & fat

• Protein: Intake should be restricted.

• A diet of high biological value is prescribed.

• Minerals: Reduce intake of potassium & sodium to avoid hyperkalemia, edema, hypertension

• Phosphorus should be restricted to 600-1200 mg/day
• Include calcium, iron, B vitamins & calcitrol supplements in the diet

• Fluid: Restrict fluid intake when urine output is low

• Fluids needs must be allocated between meals & medications
Dialysis

- It is a passage of solutes through a membrane
- It is usually started when the patient develops symptoms of severe fluid overload, high potassium levels, acidosis, or symptoms of uremia
- Dialysis cannot restore the lost hormonal functions of the kidney
- Dialysis becomes necessary at a creatinine clearance of 4 to 8 ml/min or a serum creatinine of about 10mg/dl.
When kidneys fail, there are three treatment choices:

- **Hemodialysis**: Blood is filtered using a dialyzer and dialysis machine

- **Peritoneal dialysis**: Blood is filtered inside the body after the abdomen is filled with a special cleaning solution

- **Kidney transplantation**

- **Many people feel that a successful kidney transplant provides a better quality of life because it may mean greater freedom, more energy and a less strict diet.**
Kidney transplant

When both kidneys are failed

It provides a functioning kidney which gives a normal life
Postoperative dietary progression

To recover

- A high protein
- Low carbohydrate
- Sodium restricted diet
- Reduced fat helps control in hyperlipidemias
- Restricted simple sugars prevents hyperglycemia

Liquid to solid diet
Kidney stones

Also known as

Renal calculi

Urolithiasis or nephrolithiasis

Found in the bladder, kidney, ureter, or urethra
• Urine passes from the bladder down the urethra & exits the body

• A stone also called a urinary calculus, is a deposit of mineral salts held together by a thick, syrupy substance

• It blocks the movement of urine out of the body
Symptoms

- Sudden severe pain with chills
- Fever
- Hematuria
- Increased desire to urinate
- A kidney stone can also pass out of the body with the urine
Causes

Some possible causes include

• Abnormal function of the parathyroid gland
• Disordered uric acid metabolism
• Excessive intake of animal protein & immobility
• Men with sedentary lifestyle are at higher risk
• Stones can be formed from oxalates, calcium or uric acid
Treatment

• Advised to drink lots of water

• To prevent formation of concentrated urine, in which crystals are more likely to combine & precipitate

• Increase potassium intake

• Reduce intake of meat
Conclusion

- Treatment of kidney failure is dialysis or a kidney transplant
- Nutritional management of clients with renal disease is a fundamental part of treatment
- Clients require constant assessment, monitoring & counseling