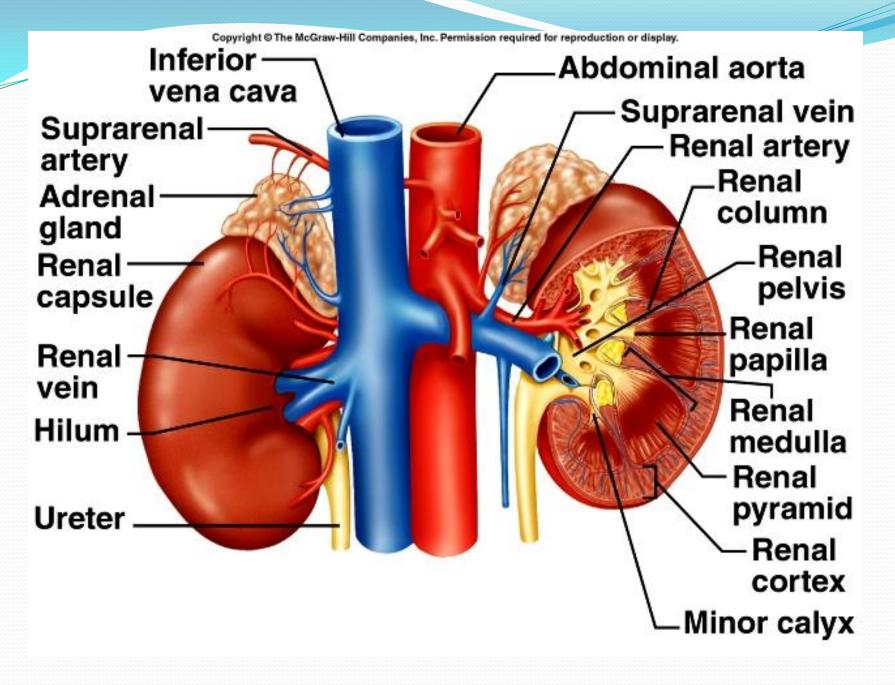
Acute renal failure

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Functions of the kidney:

- Kidneys make up 1 % of body mass, but receive about 25% of cardiac output.
- Kidney has 3 major functions:
 - 1. Filtration of blood:
 - Removes metabolic wastes from the body, esp. those containing nitrogen

2. Regulation:

Blood volume and composition Electrolytes Blood pH and blood pressure

3. Production of hormones as erythropoitin

Acute Renal Failure

Definition

 Sudden and usually reversible loss of renal function, which develops over days or weeks.

Causes of Acute renal failure:

- Pre-renal causes:
- 1- heart failure
- 2- blood or fluid loss as:
 - Hemorrhage- diarrhea- burns
- 3- renal artery occlusion
- Pre-renal causes lead to kidney underperfusion >> rapidly progressive changes>> acute tubular necrosis.

Intrinsic Renal causes:

1- Acute tubular necrosisIschemic from prerenal causes.

Bacterial toxins.

Drugs as gentimicin.

2-Glomerular diseases Primary.

Secondary: Systemic lupus.

3- Interstitial diseases. analgesic nephropathy

- Post- renal causes:
- -Stones
- Tumors
- Prostatic enlargment

Clinical assessment

- The cause of decreased renal perfusion may be obvious as hemorrhage or burns .
- But in some cases, the cause may be concealed as GIT bleeding.
- There may be marked hypotension with signs of poor peripheral perfusion as cold sweaty hands.

- Uremic features as nausea, anorexia, and vomiting followed by drowsiness, convulsions and coma.
- Tachypnea due to acidosis or pulmonary edema .
- Pulmonary edema from excessive fluid intake relative to urine output.

- Oliguria (Urine volume < 400 ml\day),
- Anuria is rare and if present indicates post renal obstruction.
- Rise in Urea and creatinine.
- Disurbance in electrolytes, fluid and acid base balance
 - 1- hyperkalemia 2- dilutional
 - hyponatremia 3- metabolic
 - acidosis 4- hypocalcemia

Managment

- Correct the cause of acute renal failure.
- If hypovolemia is present, restore blood volume (blood, plasma or isotonic saline).
- Monitoring of central venous pressure to assess the rate of fluid administration.

- Correction of hyperkalemia (serum K > 6mmol\L) by:
- 1- I.V calcium gluconate.
- 2-Inhaled B2 agonist as salbutamol.
- 3-I.V glucose and insulin
- 4-Ion- exchange
- 5- Dialysis

- Correction of metabolic acidosis (IV Sodium Bicarbonate)
- Dialysis (pulmonary edema, hyperkalemia).