

DIURETICS

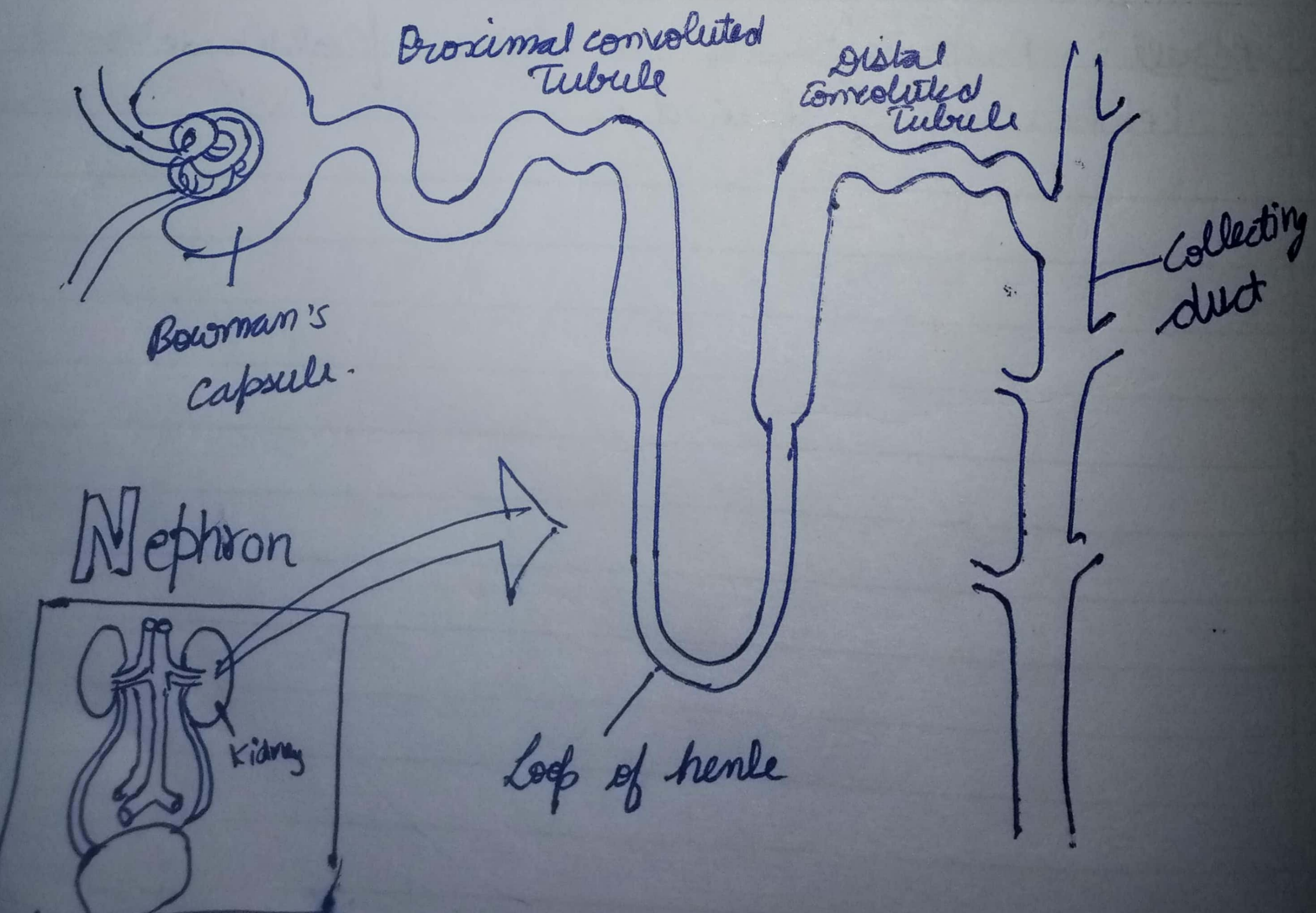
Diuretics : The agents that increase the Rate of urination by inhibiting Reabsorption.

(Reabsorption :- Some component/Part of urine get absorb back in tubules)

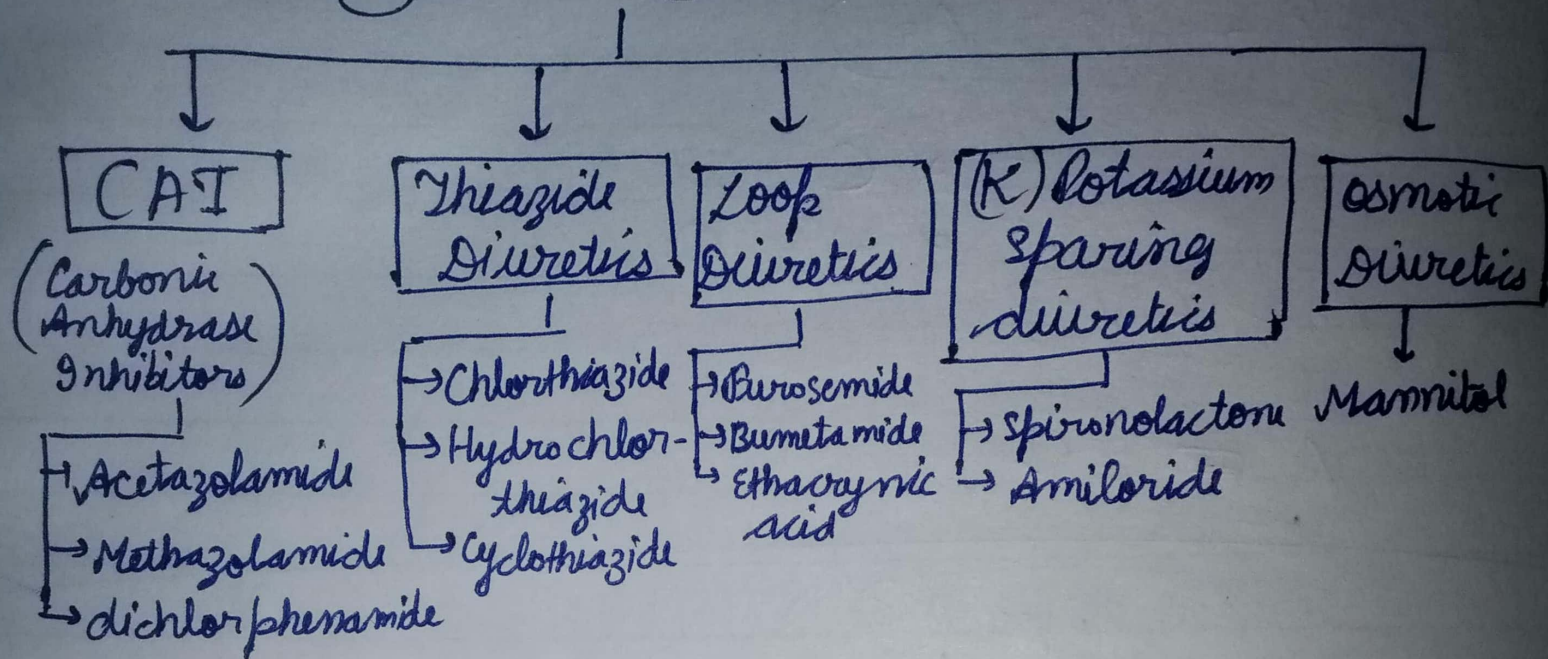
* Sodium (Na) is Responsible for increase BP (Hypertension)

⇒ Kidneys are Responsible for urine formation
↓

On Kidneys, Millions of Nephrons are Present



Classification of Diuretics



CAT - Carbonic Anhydrase Inhibitors

★ Carbonic Anhydrase is responsible by increasing Reabsorption

★ CA (Carbonic Anhydrase) is responsible for the reabsorption of Cl , Na , H_2O , so CAT can inhibit the reabsorption.

Mechanism of Action (MOA):-

Inhibits Carbonic Anhydrase enzyme



↓ reabsorption



↑ re excretion of Na , Bicarbonate, K .



↑ re urine volume

ADR :-

- May cause hypokalemia (↓ se K (Potassium) in Body)
- ↓ se GFR (Glomerular filtration rate)
- hypersensitivity.

Uses :-

- In treatment of glaucoma (Eye disorder)
- ↓ se Intraocular Pressure (high or large fluid enters the eye)

Thiazide Diuretics

MOA :-

The ↓ se in Na^+ , H_2O Retention or

↑ se elimination of Na^+ , H_2O



↓ se Blood Pressure



BP Fall and Back to Normalise



Plasma Volume approaches Normal

ADR :-

- May cause gout (It wai acid not eliminates with urine)
- hypokalemia (↓ se Potassium in Body)
- Erectile dysfunction in male
- obesity.

Loop Diuretics (high Ceiling Diuretics)

MOA - $\downarrow$ Plasma Volume $\leftarrow$ $\downarrow$ Reabsorption

$\downarrow$

$\downarrow$ $\heartsuit$ output.

* weaker Antihypertensive agents than thiazide Diuretics.

Osmotic Diuretics :-

→ Based on osmotic Principle

→ Osmotic Principle - A solvent moves from the high concentration to low concentration through semipermeable membrane until Equilibrium is reached

MOA - Filtered by glomerulus but Not Reabsorb

$\downarrow$

Stop / Retard Reabsorption of H_2O .

$\downarrow$

$\uparrow$ H_2O Elimination but less Na^+ Elimination

$\downarrow$

Oppose Action of Antidiuretic hormone (ADH)

$\downarrow$

$\uparrow$ Urination

Potassium Sparing Diuretics

These are the diuretics which do not promote the secretion of Potassium (K) into the urine.

→ Potassium Loss minimize



Interfering with Sodium-Potassium Pump

→ weak diuretics, acts as antagonists at aldosterone receptor.