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Diploma in Pharmacy 2nd Year
Pharmacology
Important Questions
Chapter 9 : Drugs Acting on Kidney

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Chapter 9

Drugs Acting on Kidney

IMPORTANT Questions

Q1. Write the brief note on Diuretics

Ans.

Diuretics

- Drugs promoting urine output are known as diuretic drugs.
- They act directly on the kidneys and primarily increase the excretion of water and ions (sodium (Na), chloride (Cl) or bicarbonates (HCO₃)) from the body.
- Diuretics are also used for treatment of cardiac oedema (accumulation of fluid in extra vascular tissues).
- It is also employed in the treatment of various disorders like nephrotic syndrome, diabetes insipidus, hypertension, nutritional oedema, oedema of pregnancy, and cirrhosis of liver.
- They also decrease the intracellular and cerebrospinal fluid pressure.

Classification

- High Efficacy Diuretics (Inhibitors of Na⁺-K⁺-2Cl⁻ Co-transport)**
 - **Sulphamoyl Derivatives** : Furosemide, Bumetanide.
 - **Phenoxyacetic Acid Derivatives** : Ethacrynic acid.
 - **Organomercurials** : Mersalyl.
- Medium Efficacy Diuretics (Inhibitors of Na⁺-Cl⁻ Symporter)**
 - **Benzothiadiazines (Thiazides)** : Chlorothiazide, Hydrochlorothiazide, Benzthiazide, Hydroflumethiazide, Clopamide.
 - **Thiazide like Diuretics (Related Heterocyclics)** : Chlorthalidone, Metolazone, Xipamide, Indapamide.
- Weak or Adjunctive Diuretics**
 - **Carbonic Anhydrase Inhibitors** : Acetazolamide.
 - **Aldosterone Antagonists** : Spironolactone.
 - **Osmotic Diuretics** : Mannitol, Isosorbide, Glycerol.
 - **Xanthines** : Theophylline.

Pharmacological actions

- The act by diminishing sodium reabsorption at different sites in the nephron, thereby increasing urinary sodium and water losses.
- Diuretics drugs increase urine output by the kidney.

Indications:

- Hypertension
- Oedema
- Diabetes
- Congestive Heart failure
- Hypercalcemia

- Certain Kidney disease
- Liver cirrhosis (damage)
- Poisoning

Contraindication

- ⤴ Hypokalemia, Hypotension
- ⤴ Hyponatremia

Doses

- ✓ Chlorothiazide (125- 500 mg/ d), Hydrochlorothiazide (12.5 -50 mg/d)
- ✓ Spironolactone (25-50 mg/d), Amiloride (5-10 mg/d)
- ✓ Furosemide (20-80mg/d), Bumetanide (0.5- 2 mg/d)

Q2. What are Anti-Diuretics Drugs ? Write the classification, pharmacological action, Indication, contraindications, dose, of Anti-Diuretics Drugs.

Ans.

Antidiuretics

- The drugs decrease the volume of urine are called antidiuretics.
- These drugs inhibit urine formation by increasing the reabsorption of water in the kidney.

Classification

- **Antidiuretic hormones and its Analogues :** Vasopressin (ADH) , Desmopressin , Lypressin , Terlipressin . (these last 3 are analogues of Vasopressin)
- **Thiazides (in patients with Diabetes insipidus) :** Amiloride
- **Miscellaneous :** Carbamazepine , Chlorpropamide , Indomethacin

Pharmacological Actions

- These drugs act on kidney and increase the reabsorption of water.

Indications

- To treat bedwetting.
- Thiazides are used to treat Diabetes Insipidus (increased urine volume due to problem in hypothalamus or in pituitary or in kidney)

Contraindication

- ⤴ In Ischemic heart disease
- ⤴ In hypertension
- ⤴ Chronic nephritis
- ⤴ Psychogenic polydipsia (a mental disorder in which patient urge to drink water and drink all day , although he doesn't need)

Doses

- ✓ Vasopressin 5-10 U injection
- ✓ Lypressin 10 U i.m. or s.c

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