

19.1. DIURETIC DRUGS

19.1.1. Introduction

Drugs promoting urine output are known as diuretic drugs. They act directly on the kidneys. These drugs primarily increase the excretion of water and ions [sodium (Na^+), chloride (Cl^-) or bicarbonates (HCO_3^-)] from the body.

Diuretics effectively treat cardiac oedema (accumulation of fluid in extra vascular tissues), especially the one associated with congestive heart failure. 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.

19.1.2. Classification

On the basis of their intensity, diuretics can be categorised as follows:

- 1) **High Efficacy Diuretics (Inhibitors of Na^+ - K^+ - 2Cl^- Co-transport)**
 - i) **Sulphamoyl Derivatives:** Furosemide and Bumetanide.
 - ii) **Phenoxyacetic Acid Derivatives:** Ethacrynic acid.
 - iii) **Organomercurials:** Mersalyl.
- 2) **Medium Efficacy Diuretics (Inhibitors of Na^+ - Cl^- Symporter)**
 - i) **Benzothiadiazines (Thiazides):** Chlorothiazide, Hydrochlorothiazide, Benzthiazide, Hydroflumethiazide, and Clopamide.
 - ii) **Thiazide like Diuretics (Related Heterocyclics):** Chlorthalidone, Metolazone, Xipamide, and Indapamide.
- 3) **Weak or Adjunctive Diuretics**
 - i) **Carbonic Anhydrase Inhibitors:** Acetazolamide.
 - ii) **Potassium Sparing Diuretics**
 - a) **Aldosterone Antagonists:** Spironolactone.
 - b) **Directly Acting Diuretics (Inhibitors of Renal Epithelial Na^+ Channel):** Triamterene and Amiloride.
 - iii) **Osmotic Diuretics:** Mannitol, Isosorbide, and Glycerol.
 - iv) **Xanthines:** Theophylline.

19.1.3. Individual Compounds

The following drugs are studied in detail:

- 1) Furosemide,
- 2) Chlorothiazide,