



SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT : CARDIO PULMONARY PERFUSION CARE
TECHNOLOGY**

COURSE NAME : PHARMACOLOGY

UNIT : SODA BICARBONATE

**TOPICS : DEFINITION, MECHANISM OF ACTION,
PHARMACODYNAMICS, PHARMACOKINETICS,
INDICATIONS, CONTRAINDICATIONS, SIDE EFFECTS**



SODA BICARBONATE



- Sodium bicarbonate, also known as baking soda, is a chemical compound with the formula NaHCO_3 .
- In a medical context, sodium bicarbonate refers to a medication used to manage acid-base imbalances in the body.



MECHANISM OF ACTION



- **Buffering Agent:** Sodium bicarbonate acts as a systemic alkalizer by accepting hydrogen ions, thereby increasing blood and urine pH.
- **Neutralization of Acids:** It neutralizes excess acid in the body, particularly hydrogen ions, helping to restore a more balanced pH.



PHARMACODYNAMICS



- Acid-Base Balance: Sodium bicarbonate helps in correcting metabolic acidosis by increasing serum bicarbonate levels.
- Electrolyte Effects: Sodium bicarbonate administration can affect electrolyte balance, particularly sodium and potassium levels.



PHARMACOKINETICS



- Absorption: Rapidly absorbed from the gastrointestinal tract.
- Distribution: The majority of the bicarbonate is distributed in the extracellular fluid.
- Metabolism: Metabolized in the liver.
- Excretion: Excreted primarily by the kidneys.



INDICATIONS



- **Metabolic Acidosis:** Sodium bicarbonate is used to treat metabolic acidosis, particularly in emergency situations or when the acidosis is severe.
- **Urine Alkalinization:** It may be used to alkalinize the urine in certain medical conditions, such as in the treatment of certain types of kidney stones.



CONTRAINDICATIONS



- **Metabolic Alkalosis:** Sodium bicarbonate is contraindicated in individuals with metabolic alkalosis.
- **Hypocalcemia:** Caution is needed in individuals with low blood calcium levels.
- **Heart Failure:** Sodium bicarbonate may exacerbate fluid overload in individuals with heart failure.



SIDE EFFECTS



- **Metabolic Alkalosis:** Excessive use of sodium bicarbonate can lead to metabolic alkalosis, characterized by an elevated pH.
- **Fluid Overload:** Sodium bicarbonate administration may contribute to fluid overload, particularly in patients with compromised cardiac function.



TECHNICIAN ROLE



- **Serum Bicarbonate Levels:** Regular monitoring of serum bicarbonate levels is important, especially in individuals receiving sodium bicarbonate.
- **Electrolyte Levels:** Monitoring sodium and potassium levels is crucial during sodium bicarbonate therapy.
- **Cardiac Monitoring:** In cases where sodium bicarbonate is used, cardiac monitoring may be necessary, particularly in patients with heart conditions.



ASSESSMENT



- What is the Pharmacokinetics of Sodium ?
- What all are the Contraindications of Sodium ?