



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 : HYPERKALEMIA

**TOPICS : DEFINITION, CAUSE, CLINICAL MANIFESTATIONS,
DIAGNOSIS, MANAGEMENT**



HYPERKALEMIA



- Hyperkalemia is a medical condition characterized by elevated levels of potassium in the bloodstream.
- Potassium is an essential electrolyte that plays a vital role in various physiological processes, including maintaining the electrical excitability of muscles and nerves, regulating the acid-base balance, and assisting in cellular metabolism.
- Hyperkalemia can be caused by a variety of factors, including certain medications.



MEDICATIONS THAT CAN CAUSE HYPERKALEMIA



Potassium-Sparing Diuretics:

Medications like spironolactone and amiloride can reduce potassium excretion by the kidneys, potentially leading to hyperkalemia.

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs):

Some NSAIDs, like indomethacin, can reduce renal potassium excretion.



Renin-Angiotensin-Aldosterone System (RAAS) Inhibitors:

ACE inhibitors (e.g., enalapril, lisinopril) and angiotensin II receptor blockers (ARBs) (e.g., losartan, valsartan) can interfere with aldosterone production, leading to potassium retention.



Beta-Blockers:

Certain non-selective beta-blockers, such as propranolol, can inhibit potassium uptake into cells.

Heparin:

Heparin, an anticoagulant, may cause hyperkalemia, particularly in patients with impaired kidney function.



Trimethoprim:

This antibiotic can interfere with renal potassium excretion.

Digitalis (Digoxin):

Digoxin toxicity can lead to hyperkalemia.



CLINICAL MANIFESTATIONS



- Muscle weakness or paralysis
- Cardiac arrhythmias
- Nausea and vomiting
- Abdominal cramps
- Changes in electrocardiogram (ECG) readings



DIAGNOSIS



- Diagnosis involves blood tests to measure serum potassium levels.
- ECG may be performed to assess cardiac effects.



MANAGEMENT



- **Discontinuation or Adjustment of Medications:** If medication-induced, discontinuing or adjusting the dose of the causative drug may be necessary.
- **Calcium Administration:** Calcium gluconate or calcium chloride can stabilize the cardiac membrane in acute hyperkalemia.



- **Ion Exchange Resins:** Medications like sodium polystyrene sulfonate can exchange sodium for potassium in the intestines, promoting potassium elimination.
- **Hemodialysis:** In severe cases, especially with acute kidney injury, hemodialysis may be necessary to rapidly remove excess potassium.



- **Enhanced Potassium Excretion:** Diuretics like furosemide may be used to increase potassium excretion.



TECHNICIAN ROLE



- Regular monitoring of serum potassium levels and ECG is crucial during the management of hyperkalemia.



ASSESSMENT



- What is Hyperkalemia ?
- What all are the Clinical Manifestations of Hyperkalemia ?