



SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT : OPERATION THEATRE AND ANAESTHESIA
TECHNOLOGY**

COURSE NAME : PHARMACOLOGY

UNIT : REVERSAL AGENTS

**TOPICS : NEOSTIGMINE, GLYCOPYRROLATE, ATROPINE,
NALORPHINE, NALOXONE AND FLUMAZENIL (DIAZEPAM)**



REVERSAL AGENTS



- Reversal agents are drugs or substances used to counteract the effects of another drug.
- These agents are often employed to reverse or mitigate the actions of certain drugs in a controlled and intentional manner.



- Reversal agents are particularly useful in situations where the effects of a drug need to be quickly and effectively neutralized, either due to therapeutic considerations or in emergency situations.



NEOSTIGMINE



Mechanism of Action:

Neostigmine is an acetylcholinesterase inhibitor. It inhibits the breakdown of acetylcholine, leading to increased levels of acetylcholine at the neuromuscular junction and improved muscle function.



Clinical Use:

Neostigmine is used to reverse the effects of non-depolarizing neuromuscular blocking agents (NMBAs) after surgery. It helps restore normal muscle function.

Administration:

Typically administered with an antimuscarinic agent (e.g., glycopyrrolate) to counteract potential side effects.



GLYCOPYRROLATE



Mechanism of Action:

- Glycopyrrolate is an antimuscarinic agent that blocks the effects of acetylcholine at muscarinic receptors.
- It helps counteract the unwanted side effects of neostigmine, such as bradycardia and excessive salivation.



Clinical Use:

- Administered alongside neostigmine to prevent or treat bradycardia and excessive salivation associated with neostigmine use.



ATROPINE



Mechanism of Action:

- Atropine is another antimuscarinic agent used to counteract the effects of excessive acetylcholine.
- It blocks muscarinic receptors, leading to increased heart rate and decreased salivation.



Clinical Use:

- Atropine is used in situations where bradycardia or excessive salivation occurs, such as during the reversal of non-depolarizing NMBA's.



NALORPHINE



Mechanism of Action:

- Nalorphine is an opioid receptor antagonist with mixed agonist-antagonist activity.
- It has a weaker analgesic effect compared to pure opioid agonists.



Clinical Use:

- Historically used to partially reverse opioid effects, but its use has declined due to the availability of more specific opioid antagonists like naloxone.



FLUMAZENIL



Mechanism of Action:

- Flumazenil is a selective antagonist for the benzodiazepine receptor.
- It reverses the sedative and anxiolytic effects of benzodiazepines by competitively inhibiting their binding.



Clinical Use:

- Flumazenil is used to reverse the central nervous system depressant effects of benzodiazepines.
- It is particularly employed in cases of benzodiazepine overdose or in situations where the rapid reversal of sedation is required.



ASSESSMENT



- What is the Administration of Neostigmine ?
- What is the Mechanism of Action of Nalorphine ?