SNS COLLEGE OF ALLIED HEALTH SCIENCES

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Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT : OPERATION THEATRE AND ANAESTHESIA TECHNOLOGY

COURSE NAME : PHARMACOLOGY

UNIT : LOCAL ANESTHETICS

TOPICS : XYLOCAINE, PREPARATION, LOCAL - BUPIVACAINE - TOPICAL, PRILOCAINE - JELLY, EMLA - OINTMENT, ETIDOCAINE, ROPIVACAINE

LOCAL ANESTHETICS

- Local anesthetics are drugs that induce a reversible loss of sensation in a specific area of the body.

- They are used to prevent pain signals from reaching the brain, allowing medical procedures to be performed without causing discomfort to the patient in the targeted region.

- Local anesthetics are widely used for various surgical, dental, and medical procedures, as well as for pain management.

- There are two main classes of local anesthetics: esters and amides. These classes differ in their chemical structures, metabolism, and potential for allergic reactions.

LIDOCAINE

Preparation:

- Lidocaine is available in various forms, including injectable solutions for local and regional anesthesia, topical formulations, and oral solutions for certain medical procedures.

Mechanism of Action:

- Lidocaine is a voltage-gated sodium channel blocker.
- By inhibiting sodium influx into neurons, it prevents the generation and conduction of nerve impulses, leading to local anesthesia.

Clinical Use:

- Local Anesthesia: Lidocaine is commonly used for various local anesthesia procedures, such as dental work, minor surgical procedures, and dermatological interventions.

- Cardiac Arrhythmias: Intravenous lidocaine is used in emergency settings to treat certain cardiac arrhythmias.

BUPIVACAINE

Preparation:

- Bupivacaine is available as an injectable solution for local and regional anesthesia.

Mechanism of Action:

- Like lidocaine, bupivacaine is a sodium channel blocker. It produces a more prolonged duration of action compared to lidocaine, making it suitable for prolonged pain control.

Clinical Use:

- Local Anesthesia: Bupivacaine is often used for regional anesthesia, such as epidural or spinal anesthesia for surgeries or obstetric procedures.
- Postoperative Pain Control: Bupivacaine may be used in postoperative pain management through various routes, including continuous infusion.

PRILOCAINE (in EMLA - Eutectic Mixture of Local Anesthetics)

Preparation:

EMLA is a eutectic mixture of lidocaine and prilocaine in a cream form.

Mechanism of Action:

Prilocaine, similar to lidocaine, is a sodium channel blocker. EMLA is a topical anesthetic used to numb the skin before minor procedures.

Clinical Use:

- Topical Anesthesia: EMLA is applied topically to the skin before procedures like venipuncture, intravenous catheter placement, or minor dermatological procedures.

ROPIVACAINE

Preparation:

Ropivacaine is available as an injectable solution.

Mechanism of Action:

Ropivacaine is also a sodium channel blocker, similar to lidocaine and bupivacaine. It is designed to provide sensory blockade with a reduced motor blockade.

Clinical Use:

- Local and Regional Anesthesia: Ropivacaine is used for various regional anesthesia techniques, such as epidurals and nerve blocks.
- Postoperative Pain Control: It may be used for postoperative pain management.

ETIDOCAINE

Preparation:

Etidocaine is available as an injectable solution.

Mechanism of Action:

Etidocaine, like other amide-type local anesthetics, blocks sodium channels, leading to local anesthesia.

Clinical Use:

- Local Anesthesia: Etidocaine is used for local anesthesia in dental procedures, minor surgeries, and other medical interventions.

ASSESSMENT

- What is the Preparation of Lidocaine ?
- What is the Mechanism of Action of Etidocaine ?