Activity 1
Medication Monograph
Medication Name: lidocaine
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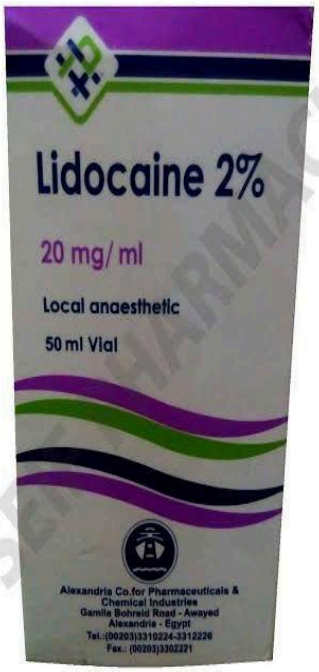
Historical story:

First synthesized between 1943 and 1946 by Nils Löfgren and Bengt Lundquist, it is a tertiary amine derived from xylidine, and its use rapidly became widespread given its superior safety profile compared to older local anesthetic agents.



Routes of administration in the Egyptian market for this medication

Brand name	Route of administration
Akten	• **The typical dose is 2 drops in the affected eye(s) applied by your ophthalmologist (eye specialist) before the eye procedure**
Lignospan Forte	• **Lignospan Forte (lidocaine HCl 2% and epinephrine 1:50,000 injection) contains a local anesthetic agent and a vasoconstrictor indicated for the production of local anesthesia for dental procedures by nerve block or infiltration techniques**
Oraqix	• **Oraqix (lidocaine and prilocaine) Periodontal Gel is an amide local anesthetic used for adults who require localized anesthesia in periodontal pockets during scaling and/or root planing**
ReadySharp	• **this medication is given by injection into a vein, muscle, joint, or skin area as directed by your doctor**
Synera	• **SYNERA should only be applied to intact skin. Use immediately after opening the pouch**

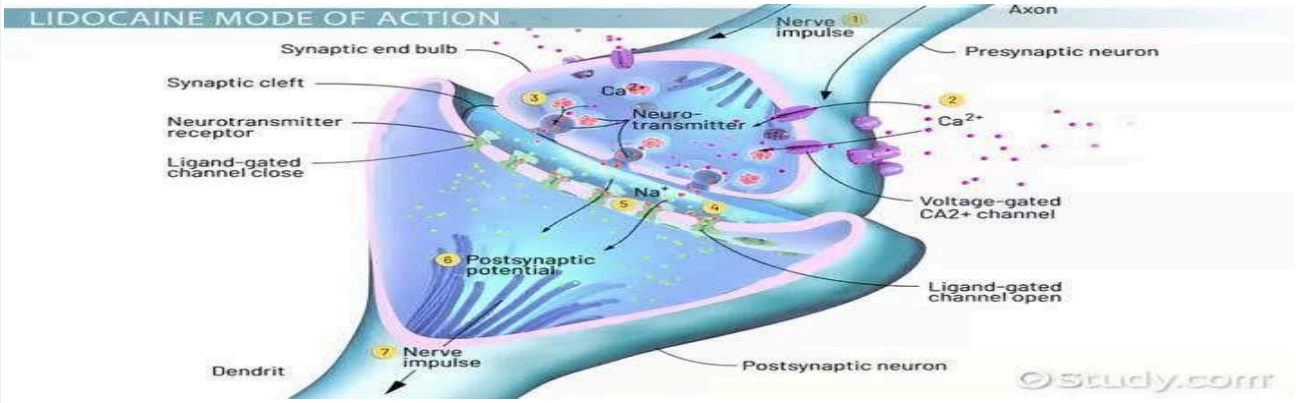
Pharmacokinetics

Absorption	• **Lidocaine is absorbed extensively following mucosal, intramuscular, rectal, transdermal, and inhalation pathways**
Distribution	• **lidocaine is gradually absorbed into the circulation. This can occur surprisingly slowly, with plasma lidocaine levels increasing for as long as 23 hours after administration**
Metabolism	• **Lidocaine is metabolized predominantly and rapidly by the liver, and metabolites and unchanged drug are excreted by the kidneys 10,7**
Excretion	• **The elimination half-life of lidocaine is biphasic and around 90 min to 120 min in most patients. This may be prolonged in patients with hepatic impairment (average 343 min) or congestive heart failure (average 136 min). Lidocaine is excreted in the urine (90% as metabolites and 10% as unchanged drug)**

Pharmacodynamics

Main mechanism of action	Side effects
• The mechanism of action of lidocaine as a local anesthetic is through a blockade of voltage-gated sodium channels (VGSCs) leading to a reversible block of action potential propagation	• dizziness, headaches, drowsiness, tingling or numbness around your mouth, metallic taste, garbled speech, tunnel vision, ringing in your ears or a tremor, a sense of being drunk and nausea

Other reported pharmacological activities:



- Lidocaine is an antiarrhythmic medication of the class Ib type. This means it works by blocking sodium channels and thus decreasing the rate of contractions of the heart. When injected near nerves, the nerves cannot conduct signals to or from the brain

Drug interactions.

(Mention an example to each of the following if present)

IV admixture incompatibility	• The drug is contraindicated in patients with a known severe adverse reaction. Anaphylactic reactions to lidocaine are possible but rare
Drug-Drug interaction	• Serious Interactions of lidocaine include: axitinib.bosutinib.cobimetinib.eliglustat.fentanyl.fentanyl intranasal.fentanyl iontophoretic transdermal system.fentanyl transdermal
Drug food interaction	• Grapefruit and grapefruit juice may increase the plasma concentrations of lidocaine

Drug lab test interaction	• **Certain medicines should not be used at or around the time of eating food or eating certain types of food since interactions may occur. Using alcohol or tobacco with certain medicines may also cause interactions to occur. Discuss with your healthcare professional the use of your medicine with food, alcohol, or tobacco.**

References:

1- Lidocaine: Uses, Interactions, Mechanism of Action | DrugBank Online
2- Molecular mechanisms of lidocaine - PMC (nih.gov)
3- Lidocaine (Topical Application Route) Side Effects - Mayo Clinic
4- Lidocaine/oxytetracycline and Alcohol/Food Interactions - Drugs.com