UNIVERSITY OF ,,GOCE DELCEV,, - STIP
FACULTY OF MEDICAL SCIENCES

INTERNATIONAL STUDENT'S SYMPOSIUM OF FACULTY OF MEDICAL SCIENCES

ANESTHETIC BUFFERING – NEW ADVANCES FOR USE IN DENTISTRY

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COCAINE (First anaesthetic)

Administration - Intradermal, Subcutaneous , Intrathecal

LOCAL ANAESTHETIC

Numb a small part of the body

WEAK BASE (pH 8-9)

-unionized can penetrate cell membrane

↓ Physiological pH 7

WEAK BASE

Ionized – can not penetrate cell membrane

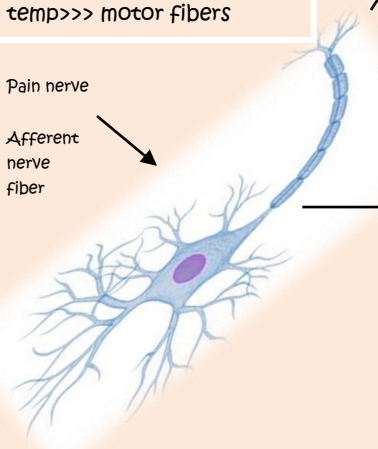
PAIN

Local anaesthetic work on every nerve

General rule - small fibers are more susceptible than large fibers

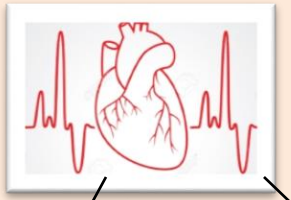
Myelinated more than unmyelinated

Nociceptors > sympathetic > temp>>> motor fibers



SIDE EFFECTS

- Headache
- Dizziness
- Confusion
- CNS depression
- Respiratory depression



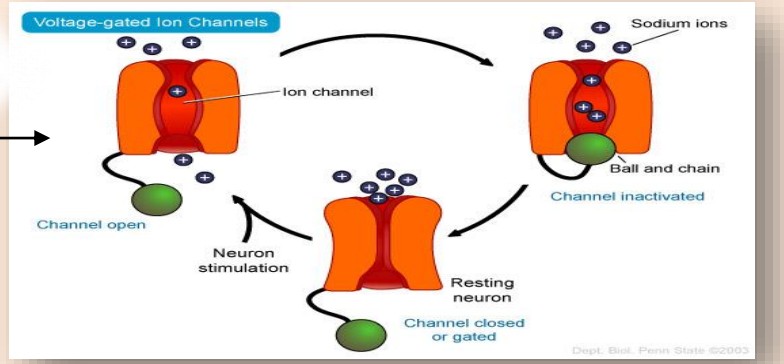
Myocardial depression vasodilatation

Care must be taken

Check blood pressure

Local anesthetic prevent both the generation and conduction of nerve ap

Block the Na + channels by physically plugging the transmembrane pure



LIDOCAINE

-rapid induction, medium duration, good tissue penetration

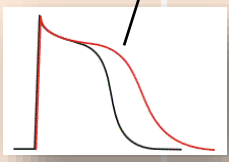
- very common use

- antiarrhythmic

Lidocaine

↑ Na +

o



PROCAINE

BUPIVACAINE

-slow onset, long duration, medium tissue penetration

- common to long surgery

- high cardio toxicity

The aim of this study was to evaluate the role and benefits of local anesthetic buffering. Buffering of local anesthetics has been demonstrated to counteract these undesirable qualities of local anesthetics. Recent advances in technology have made buffering of local anesthetics practical for use to alkalinize the dental local anesthetic cartridges chairside immediately prior to injection, making the anesthetic's onset quicker, more reliable, and more comfortable for the patient. The buffering process uses a sodium bicarbonate solution that is mixed with the cartridge of local anesthetic such as lidocaine with epinephrine.

For buffering is used Onpharma's Onset Mixing Pen. The pen accommodates cartridges of Onpharma's bicarbonate solution and can be used to precisely buffer a dental anesthetic cartridge containing lidocaine/epi. The buffering process takes 5 seconds at chairside and should be done immediately before loading the dental syringe and delivering the anesthetic using the practitioner's standard injection technique.

As a conclusion we can noted that buffering of the local anesthesia can have an advantage in everyday dental practice for reducing the pain and discomfort caused by the injection process.