

CLINICAL INSIGHTS
PRESENTED BY
ESCONDIDO ENDODONTICS



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Contemporary Pain Control in Endodontics

One of the hottest topics in local anesthesia pain control is TTX-Sodium Resistant Channels. The goal of local anesthetics is to block sodium diffusion through the neuron cell membrane. Prior opinion held that an increase in local pH, caused by inflammation, resulted in inadequate anesthesia. Difficulties with clinical anesthesia, may actually be caused by a change or an increase in Sodium Resistant Channels. The so called TTX Resistant Channels. Sodium Resistant Channels may be distant from the site of injection (dorsal horn of the spinal cord and 1st and 2nd order neurons), therefore local pH is not really a factor.

Research is on-going to identify specific TTX Resistant Channels that will lead to specifically designed local anesthetics for patients in severe pain. The current recommendation for TTX Resistant Channel management is Mepivacaine (3% Carbocaine). TTX Resistant Channels are less resistant to Lidocaine. So, try Mepivacaine (3% Carbocaine) as your first anesthetic for patients presenting in pain.

Some interesting facts from current research:

- * NSAID/acetaminophen combinations are very useful for dental pain when each alone is inadequate. Try alternating acetaminophen 650-1000 mg every three hours with ibuprofen 600 mg every three hours. In other words, the patient is taking one of the two drugs every three hours not to exceed the maximum daily dose for each drug. One study reported that this regimen was more effective than Vicodin.
- * In order for Codeine to be effective as an analgesic, the Codeine has to be demethylated by the liver into morphine. Approximately 14% of Caucasians lack demethylating cytochrome mechanisms, so Codeine is not an effective pain medication. How many of your patients have claimed that Tylenol #3 doesn't work for pain control?
- * Consider the use of "fast acting NSAIDs" before administering local anesthetics. ADVIL Liquigels combined with a first injection with Mepivacaine (3% Carbocaine) is an excellent combination.
- * Increasing the dose of local anesthetics in blocks exposes a greater length of the inferior alveolar nerve to the increased likelihood of a conduction blockade. In this case "more is better" (but not to the point of overdose).
- * A recent published review reported that naproxen (Aleve, Naprosyn, Anaprox) is cardioprotective. Naproxen inhibits thromboxane production by 95% and inhibits platelet aggregation by 88% suggesting that naproxen has cardioprotective effects similar to aspirin. Three studies reported that 275 mg of naproxen every 8-12 hours decreases the incidence of myocardial infarction.
- * Reduced anxiety leads to reduced post-op pain. Memory of pain can be predicted by the patient's anxiety at the time of treatment. Controlling your patient's anxiety before treatment with medication or just TLC is important to their post-op pain perception. Keeping the patient out of pain for as long as possible after the procedure reduces the "memory of pain". Administer Marcaine at the end of the procedure for longer lasting anesthesia and more effective pain control.

Hargreaves KM, Keiser K. Local anesthetic failure in endodontics: Mechanisms and management. Endo Topics 2002;1:26-39.

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