Submucous tramadol increases the anesthetic efficacy of mepivacaine with epinephrine in inferior alveolar nerve block

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Abstract

The purpose of this study was to evaluate the effect of submucous tramadol as adjuvant of mepivacaine with epinephrine in inferior alveolar nerve block. A double-blind, randomized, placebo-controlled, crossover clinical trial was conducted. Twenty healthy young volunteers were randomized into two treatment sequences using a series of random numbers. Sequence 1: Group A, 2% mepivacaine with 1:100,000 epinephrine plus submucous tramadol 50 mg (1 mL of saline) and one week later Group B, 2% mepivacaine with 1:100,000 epinephrine plus submucous placebo (1 mL of saline). Sequence 2: Group B and one week later Group A. All treatments were administered 1 min after that patient informed anesthesia of lower lip. We evaluated the duration of anesthesia of lower lip, anesthetic efficacy, and local and systemic adverse events. Anesthetic efficacy was better in group receiving submucous tramadol during the first 2 h compared with group receiving submucous placebo (*P* < 0.05). Submucous tramadol increased the anesthetic efficacy of mepivacaine with epinephrine of soft tissue in inferior alveolar nerve block.

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Introduction

Pain control in dentistry is an important factor to reduce the fear and anxiety associated with dental procedures. Local anesthesia is induced when propagation of action potentials is prevented, such that sensation cannot be transmitted from the source of stimulation, such as a tooth or the periodontium, to the brain. Local anesthetics work by blocking the entry of sodium ions into their channels, preventing the increase in permeability of the nerve membrane to sodium that is required for an action potential to occur.1

Pain control through truncal block of the inferior alveolar nerve is one of the loco-regional anesthetic techniques most widely used in oral surgery, affording comfort and safety for both the patient and operator when used correctly. The choice of anesthetic solution should be based on three main clinical considerations: anesthetic potency, latency (time of onset of anesthesia), and duration of the anesthetic effect.2 A continued improvement in properties these injectable drugs have contributed more than any other factor to the control of pain during dentistry care.

The local anesthetic effects of opioids have been demonstrated in both clinical and laboratory studies.3 Previous studies have reported that tramadol added to mepivacaine prolonged the duration of an axillary brachial plexus blockade 4 or improved postoperative dose-dependently analgesia.5 The purpose of this study was to evaluate the effect of submucous...