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COMPARISON OF EFFICACY AND SAFETY OF TWO LOCAL ANESTHETICS IN THE CONTROL OF PAIN AFTER MOLAR REMOVAL

MOLAR DİŞ ÇEKİMİNİ TAKİBEN AĞRI KONTROLÜNDE İKİ LOKAL ANESTEZİĞİN ETKİNLİĞİNİN VE GÜVENİLİRLİĞİNİN KARŞILAŞTIRILMASI

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ÖZET

Lokal anestezikler kullanarak hastanın ağrısının kontrol altına alınması, başarılı dental tedavinin en önemli faktörlerinden biridir. Çalışmamızın amacı, octapressin içeren Prilocain (Citanest^R) ile epinephrine HCL içeren Articain HCL (Ultracain DS-Forte^R)'ün molar diş çekimi takibinde gelişen ağrının kontrolü üzerine olan etkilerini ve bu iki ajanın güvenilirliğini karşılaştırmaktı. Post-operatif ağrı kontrolleri açısından yalnız 4. saatte istatistiksel olarak anlamlı bir fark gözlendi. Ayrıca, Articain HCL veya Prilocain ile ilgili ciddi bir ters etki gözlenmedi. Bu çalışmanın sonuçlarına dayanarak, postoperatif ağrı kontrolünde her iki anestezik solüsyonun sadece benzer şekilde bir etkiye sahip olmadıklarını aynı zamanda güvenli olarak kullanılabileceklerini de düşünmekteyiz.

Anahtar Kelimeler: *Ağrı kontrolü, prilocain HCL, articain HCL.*

ABSTRACT

Using local anesthetics to control a patient's pain is one of the most important factors for successful dental treatment. The aim of our study was to compare the efficacy and safety of prilocain (Citanest^R) with octapressin and articain HCL (Ultracain DS-Forte^R) with ephinephrine HCL in the control of pain after molar removal. There were statistically significant differences between prilocain HCL and articain HCL on their ability to control the postoperative pain in only 4th hour. In addition, no serious adverse events related to the articain or prilocain were shown. According to the results, it can be concluded that both anesthetics solutions showed not only similar effects but also they could be safely used for the control of postoperative pain.

Key Words: *Pain control, prilocain HCL, articain HCL.*

INTRODUCTION

Using local anesthetics to control a patient's pain is one of the most important factors for successful dental treatment[1].

Prilocain is an amide, chemically similar to articaine.[2] Prilocain alone is frequently able to provide regional anesthesia that is equal in duration to that noted with lidocaine and mepivacaine with vasoconstrictor.[3]

Articaine is the only amide local anesthetic that contains a thiophene ring. It has a lot of physicochemical properties of the most commonly used local anesthetics with the exception of the aromatic ring and its degree of protein binding.[4] In addition, it is better to be able to diffuse through soft tissue and bone than other local anesthetics.[5]

The aim of this study was to evaluate the comparative efficacy and safety of these anesthetics on the control of pain after removal of molars.

MATERIAL AND METHODS

This prospective study included in 156 patients (86 women and 70 men) who were applied to Ataturk University, Dental Faculty, Department of Oral and Maxillofacial Surgery for mandibular or maxillary molar simple extraction and who had no serious periapical and periodontal problems. Patient age ranged from 15 to 68 years. Patient's weights ranged from 41 to 105 kg. Patients who had a history of systemic illness or were taking any medication, which could affect the postoperative course, were excluded from this study.

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In our study, patients were randomized into two groups: those receiving 2ml prilocain HCL [(Citanest^{R} with 3% octapressin) AstraZeneca, Istanbul, Turkey] was the first group and those receiving the same volume of 4% articain HCL [(Ultracain DS-Forte^{R} with 1/100.000 ephinephrine HCL) Aventis, Istanbul, Turkey] was the second group.

Mandibular or maxillary molars were removed using a standard surgical technique. The same surgeon performed all injections and extractions. Patients were then given a questionnaire to record evidence of postoperative pain and the number of pills required for analgesia. The patients were also asked to grade postoperative pain on a 4-point categorical scale of 1 to 4: 1; being no pain, 2; moderate, 3; severe and 4; extreme severe pain. Postoperative pain and discomfort were assessed at the immediate postoperative 2, 4, 6, and 8 hours time periods.

Patients were instructed not to use any medications, especially analgesics, until they experienced pain. Parasetamol (500mg tb) was the medication of choice for pain.

Variations in pain intensity based upon body weight, age, sex, dental arch were statistically evaluated by the T-test analysis. We included age in the analysis because the results showed that scores assigned by elderly patients were lower than those assigned by younger patients; the age categories were 15 to 30 years, 31 to 49 years and 50 to 68 years. The mean pain scores of the prilocain HCL group and articain HCL group were compared using analysis of Mann-Whitney U over postoperative 8 hours period. Other measures of efficiency and safety included the number of patients who took 'additional' analgesics and the incidence of adverse effects such as bleeding, edema, pain at the injection site, trismus, headache, nausea and dizziness occurring in each treatment group over the study period. Adverse events were elicited during telephone follow-up at 24 hours and 7 days after the procedure. The patients were reviewed as outpatient 1 week postoperatively.

RESULTS

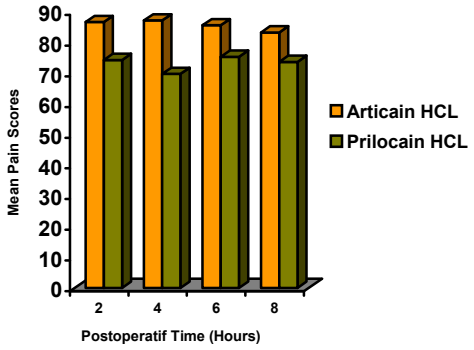
The average duration of surgery was eight minutes (± two minutes) and the amount of tissue trauma involved in this procedure was minimal level in all the patients.

Pain intensity did not correlate with patient's sex, weight, and dental arch (p>0.05). There was a negative relationship with age. The 50- to 68- year-old patients had lower scores than either of the 15-to 30- or the 31-to 49-year-old patients. But this did not have statistical significance (p>0.05) (Table 1).

Table 1: Mean pain scores based on patient's age, sex, weight, arch.

		N	Means
Age	**Articain HCL**	78	33,50
	Prilocain HCL	78	33,76
Sex	**Articain HCL**	78	1,50
	Prilocain HCL	78	1,60
Weight	**Articain HCL**	78	68,96
	Prilocain HCL	78	66,82
Arch	**Articain HCL**	78	1,49
	Prilocain HCL	78	1,63

Regardless of the anesthetic used, the perceived pain was usually no more than mild. No significant difference in pain relief was observed between prilocain HCL with octapressin and articain HCL with epinephrine in 2nd hour (p>0.05). However, this was found to be statistically significant in the immediate postoperative 4-hour time period, pain intensity was greater for articain HCL (p=0.012). At 6th and 8th hours, pain tended to be less in the prilocain HCL group, but this did not have statistical significance (p>0.05) (Graphic 1).



Graphic 1: Mean pain scores based on time.

No serious adverse effects such as bleeding, edema, pain at the injection site, trismus, headache, nausea and dizziness related to articaine or prilocaine occured. The only adverse effect considered related to articain was accidental lip in two patients.

DISCUSSION

The use of local anesthetics for postoperative pain relief has been a subject of growing interest in recent years.[6] Some authors suggest that the use of long-acting local anesthetics has been shown to reduce the postoperative pain experince.[7-10] However, all investigators placed limits on the use of long-acting anesthetics in the treatment of children and mentally retarded, or for short, routine dental procedures.[7, 11-13]

Since surgical procedures took short time and there was no severe postoperative pain, long-acting agents were not used in our study.

In clinical studies it was reported that both of these anesthetics were effective and safe agents.[2, 14] Some clinical studies indicated that there were no statistically significant differences between prilocain HCL and articain HCL in their ability of anesthesia on maxilla and mandibula.[15, 16] However, there was no any report in the literature on comparison of efficacy for control of postoperative pain of these agents.

The most severe pain following oral surgery is reported to occur within the first 12 hours, and reach maximum intensity 4 to 6 hours postoperatively.[17-21] Averbuch and Katzper stated that patients with more baseline pain in the postoperative dental pain may increase the need for analgesic.[22]

In our study, the highest pain scores of both groups were seen in the 3rd hour. In addition, it was observed only two patients received analgesic in prilocaine group and only three patients received analgesic in articaine group.

Seymour et al suggested that women have greater sensitivity and lower tolerance to pain than men.[18] However, in our study, no statistically difference between women and men was seen. Some authors reported that pain intensity a negative relationship with age.[23,24] Our study showed that scores assigned by elderly patients were lower than those assigned by younger patients.

According to the results, it can be concluded that both anesthetics solutions showed not only similar effects but also they could be safely used for the control of postoperative pain.

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