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ANALIZA EFIKASNOSTI ROPIVAKAINA SA DEKSAMETAZONOM U ORALNOJ HIRURGIJI

ANALYSIS OF EFFICACY OF ADDING DEXAMETHASONE TO ROPIVACAINE IN ORAL SURGERY

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Sažetak

Uvod: *Duža postoperativna anestezija postiže se upotrebom lokalnih anestetika dugog dejstva,kao što su ropivakain i bupivakain. U različitim hirurškim granama, duži bezbolni postoperativni period postiže se kombinacijom ropivakaina sa deksametazonom.*
Cilj *rada bio je utvrditi kakav efekat na dužinu trajanja lokalne anestezije ima kombinacija 0,75% ropivakaina sa dodatkom deksametazona u toku i posle oralnohirurških operacija.*
Materijal i metode: *Na Odeljenju oralne hirurgije Klinike za stomatologiju u Nišu, u toku 2017. godine, ispitivanjem je obuhvaćeno 12 pacijenata koji su podeljeni u 2 grupe: studijsku grupu od 6 pacijenata , koji su prilikom anestezije dobili 4 ml 0,75% rastvora ropivakaina i 1 ml deksazona od 4mg i kontrolnu grupu od 6 pacijenata koji su primili 4 ml 0, 75% rastvora ropivakaina. Statistička obrada podataka rađena je u programu SPSS 15.0.*
Rezultati:*Vreme pojave prvih znakova anestezije, utvrđenih testom senzitivne osetljivosti mekih tkiva (usne i gingive) u studijskoj grupi bilo je 1,5 min, a u kontrolnoj 2,66 min. Vreme nastupanja potpune anestezije tj. potpune neosetljivosti mekih tkiva u studijskoj grupi bilo je 3,5 min, a u kontrolnoj 4,66 min. Vreme za koje su pacijenti još uvek osećali dejstvo anestezije u studijskoj grupi iznosilo je 625, 5 min što ima i statističku značajnost (p < 0.01), dok je u kontrolnoj grupi taj period bio oko 290 min.*
Zaključak: *Male doze deksametazona dodatih lokalnom anestetiku mogu smanjiti potrebu za dodatnom anestezijom i analgetskom terapijom u prvia 24 sata posle teških oralno hirurških operacija.*

Ključne reči: *ropivakain, deksametazon, analgezija, anestezija*

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Abstract

Introduction*: Prolonged local anesthesia is achieved by using long-acting local anesthetics, as ropivacaine and bupivacaine. In different surgical branches, longer absence of pain is noted after surgical intervention when ropivacaine is used with dexamethasone than when it is used alone.*
The aim *of the study was to determine the effect on the duration of local anesthesia with a combination of 0.75% ropivacaine with the addition of dexamethasone during oral surgery interventions.*
Material and methods*: A total of 12 patients participated in the study which was conducted at the Department of Oral Surgery at The Dentistry Clinic in Niš, in 2017.Surgical interventions were performed on both upper and lower jaw. Patients were divided into 2 groups: the study group of 6 patients who received 4 ml of 0.75% ropivacaine solution with addition of 1 ml/4mg dexamethasone and the control group of 6 patients who received 4 ml of 0, 75% solution of ropivacaine without the addition of dexamethasone. Statistical data was processed by the SPSS 15.0 software.*
The results*: The onset time of first signs of anesthesia, confirmed by testing sensibility of soft tissues (lip and gingiva), was 1,5 min in the study group and 2.66 in the control group. The time necessary for the full effect of anesthesia to set in, i.e. total insensitivity of soft tissues, was 3.5 min in the study group and 4.66 min in the control group. The duration of local anesthesia was 625,5 min in the study group which is considered statistically significant (p < 0.01) and 290 min in the control group.*
Conclusion: *Small doses of dexamethasone added to local anesthetics may reduce the need for additional anesthesia and analgesic therapy within the first 24 hours after major oral surgery interventions.*

Key words: *ropivacaine, dexametasone, analgesia, anesthesia*

Uvod

Bol je „neprijatno senzorno ili emocionalno iskustvo koje je posledica stvarnog ili potencijalnog oštećenja tkiva“ [1] i predstavlja subjektivni osećaj koji se stvara u određenim delovima mozga kao odgovor na oštećenje tkiva u organizmu ili funkcionalne promene u samom mozgu[2]. Priroda i jačina bola su posledice senzornih događaja koji nastaju posle oštećenja tkiva i afektivno-kognitivnih mehanizama.

Lokalni anestetici su supstance koje privremeno blokiraju sprovođenje impulsa nervnim vlaknom i izazivaju reverzibilnu anesteziju tkiva koje ovo vlakno inerviše, dovodeći do blokade natrijumskih kanala i stabilizacije ćelijske membrane nervnog vlakna [3]. Ekenstam je 1957. godine sintetisao mepivakain i bupivakain, koji je kasnije postao najkorišćeniji lokalni anestetik dugog dejstva [4]. Iste godine, sintetisan je ropivakain, koji je u kliničku praksu uveden početkom devedesetih godina [5].

Od kada su objavljeni prvi izveštaji o upotrebi bupivakaina u oralnoj hirurgiji, ovaj anestetik se prevashodno koristio kod operacija da bi se obezbedila duža postoperativna anestezija. Međutim, studije ukazuju da dodatak adrenalina bupivakainu utiče na jače ispoljavanje njegove kardiotoksičnosti [6]. Intravaskularna ili intraosealna primena bupivakaina može dovesti do akutnog srčanog zastoja i smrti pacijenta [7,8]. Posle izveštaja o neželjenim efektima bupivakaina (kardiovaskularni kolaps, smrt posle slučajne intravenske primene), ropivakain je uveden u kliničku upotrebu u ginekologiji, ortopediji, urologiji, neurohirurgiji i drugim hirurškim granama za postizanje regionalne anestezije [9]. Prvi put u oralnoj hirurgiji kod nas upotrebljen je 2003. godine [10]. Ropivakain je lokalni anestetik dugog dejstva amidne grupe, hemijski je veoma sličan bupivakainu i mepivakainu. Jačina dejstva lokalne anestezije zavisi od primenjene koncentracije ropivakaina, 0,25%, 0,5% ili 0,75%. Prosečno vreme dužine lokalne anestezije posle primene ropivakaina iznosi između 4-5 sati [11-14].

Kod težih oralnohirurških operacija, gde je poželjno duže delovanje lokalne anestezije, javlja se potreba za dužim delovanjem lokalnog anestetika, koji će smanjiti potrebu za uzimanjem analgetika u postoperativnom periodu.

Introduction

Pain is “an unpleasant sensory or emotional experience that results from actual or potential tissue damage" [1] and represents a subjective feeling that occurs in certain parts of the brain as a response to tissue damage or functional changes in the brain itself [2]. The nature and severity of pain are the consequences of sensory events that occur after damage to tissues and affective-cognitive mechanisms.

Local anesthetics are substances that temporarily block impulse conduction by nerve fibers and cause reversible anesthesia of the tissues that these fibers innervate, leading to the blockage of sodium channels and stabilization of the cell membrane of the nerve fibers [3].

Ekenstam synthesized mepivacaine in 1957, as well as bupivacaine that later became the most used long-acting local anaesthetics[4]. Ropivacaine was synthesized the same year but had not been introduced into clinical practice before the early ‘90s [5].

Since the first reports on the use of bupivacaine in oral surgery were published, this anesthetic was primarily used in surgery to ensure prolonged postoperative anesthesia. However, studies show that adrenaline added to bupivacaine increases its cardiotoxicity [6]. Intervascular or interosseous administration of bupivacaine may lead to acute cardiac arrest and patient death [7,8]. After adverse effects of bupivacaine had been reported (cardiovascular collapse, death following accidental intravenous administration), ropivacaine was introduced into clinical use in gynecology, orthopedics, urology, neurosurgery and other surgical branches for achieving regional anesthesia[9]. It was used for an oral surgery intervention at our clinic for the first time in 2003 [10]. Ropivacaine is a long-acting local anesthetic of the amide group, chemically very similar to bupivacaine and mepivacaine. The efficacy of local anesthesia depends on the concentration of ropivacaine applied: 0.25%, 0.5% or 0.75%. The average duration of local anesthesia after the application of ropivacaine is between 4-5 hours [11-14]. Prolonged action of local anesthetics is particularly required after major oral surgeries as a way of reducing the use of analgesics in the postoperative period.

Smatra se da je uvođenje glukokortikoida u terapiju jedno od deset najznačajnijih otkrića u modernoj medicini [15]. Dexametazon se koristi prvenstveno zbog imunosupresivnog, antiinflamatornog i antialergijskog dejstva. Antiinflamatorni efekat je posledica dejstva na različite ćelije koje su uključene u inflamatorni proces, jer glukokortikoidi dovode do smanjenja broja T limfocita, smanjenja fagocitne aktivnosti makrofaga i oslobađanja medijatora inflamacije iz makrofaga i T-limfocita [16].

Brojne studije iz različitih hirurških grana upućuju na duži bezbolni period posle hirurške intervencije pri upotrebi ropivakaina sa deksametazonom nego samog ropivakaina [17-20]. U nama dostupnoj literaturi nema podataka o upotrebi kombinacije ropivakaina sa deksametazonom u oralnoj hirurgiji,

Cilj rada bio je da se utvrdi kakav efekat na dužinu trajanja lokalne anestezije ima kombinacija 0,75% ropivakaina sa dodatkom dexametazona u toku oralnohirurških operacija.

Materijal i metode

Kliničko ispitivanje dužine dejstva lokalne anestezije 0,75% rastvora ropivakaina u dozi od 4 ml (Ropivacaine Cabi, Phressenius, Greece) i 0,75% rastvora ropivakaina uz dodatak 1 ml /4mg dexametazona (Dexason, Galenika, Srbija) urađeno je u skladu sa etičkim principima Helsinške dekleracije o zaštiti pacijenata u anesteziji iz 2010. godine[21]. Na Odeljenju oralne hirurgije Klinike za stomatologiju u Nišu, u toku 2017. godine, ispitivanjem je obuhvaćeno 12 pacijenata ASA I[22] (zdravi pacijenti) i ASA II[22] klase (pacijenti sa diskretnim sistemskim promenama, deca, vrlo stare i gojazne osobe, pacijenti sa hroničnim bronhitisom), kod kojih je bila indikovana hirurška intervencija u gornjoj i donjoj vilici. Dijagnoza i indikacija za operativni zahvat postavljana je na osnovu kliničkog pregleda i radiografskog snimka (ortopantomograma). Svi pacijenti su bili zdravi, bez podataka o hroničnim ili akutnim oboljenjima i alergijama na lokalne anestetike.

Svi pacijenti su bili obavešteni o sastavu lokalnog anestetika koji će primiti i oni su dali pisanu saglasnost za učešće u istraživanju. Pacijenti su posle operacije poneli sa sobom pisani upitnik u koji su unosili podatke o dužini dejstva anestezije u

The introduction of glucocorticoids as a treatment is widely considered to be one of the ten most significant discoveries in modern medicine [15]. Dexamethasone is used primarily due to its immunosuppressive, anti-inflammatory and anti-allergic effects. The anti-inflammatory effect comes from its action on various cells involved in the inflammatory process which decreases the number of T lymphocytes, as well as the phagocytic activity of macrophages, and reduces the release of the inflammatory mediators from macrophages and T-lymphocytes [16].

Numerous studies from different surgical branches show longer absence of pain after surgical intervention when ropivacaine is used with dexamethasone than when it is used alone [17-20]. To the best of our knowledge, there is no available data about using ropivacaine with dexamethasone in oral surgery.

The aim of this study was to determine the effect of adding dexamethasone to 0.75% ropivacaine on the duration of local anesthesia.

Materials and methods

Clinical examination of the duration of the local anesthetic – 4ml of 0.75% ropivacaine solution (Ropivacaine Cabi, Phressenius, Greece) or 0.75% ropivacaine solution with the addition of 1 ml / 4 mg dexamethasone (Dexason, Galenika, Serbia) – was done in accordance with The Ethical Principles of The Helsinki Declaration on Patient Safety in Anesthesia 2010[21]. A total of 12 patients participated in the study which was conducted at the Department of Oral Surgery, Clinic of Dentistry Niš, in 2017. The patients belonged to ASA I[22] (healthy patients) and ASA II[22] group (patients with minor systemic changes, children, very old and obese patients, and patients with chronic bronchitis). Surgical interventions were performed on both the upper and lower jaw. The diagnosis and indication for oral surgery interventions was based on a clinical examination and a radiographic image (orthopantomogram). All patients were healthy, without any familiar history of chronic or acute illnesses and allergies to local anesthetics. All patients were informed about the components of the local anesthetic they were going to receive and they signed a written consent for participating in our research. Having undergone surgery, the patients were

prva 24 sata po operaciji kao i o količini unetih analgetika.

Pacijenti su podeljeni u dve grupe: studijsku grupu od 6 pacijenata, koji su prilikom anestezije dobili 4 ml 0,75% rastvora ropivakaina i 1 ml dexasona od 4 mg i kontrolnu grupu od 6 pacijenata koji su primili 4 ml 0,75% rastvora ropivakaina bez dodataka.

Rezultati su statistički obrađeni. Statistička obrada podataka rađena je u programu SPSS 15.0. Kontinualni parametri praćeni su Studentovim t-testom nezavisnih uzoraka.

Rezultati

Ukupno je 12 pacijenata oba pola uključeno u studiju. Prosečna starost ispitanika iznosila je 27,8 godina. Od ukupnog broja, pet (41,6 %) ispitanika bilo je muškog pola, a 7 ispitanica (58,4%) ženskog pola (tabela1). Najveći broj oralno-hirurških intervencija odnosio se na operativno vađenje donjeg impaktiranog umnjaka, ukupno sedam (58,3%) od 12 izvedenih hirurških zahvata. Vreme pojave prvih znakova anestezije utvrđenih testom senzitivne osetljivosti mekih tkiva (usne i gingive) u studijskoj grupi bilo 1,5 min, a u kontrolnoj 2,66 min.

given a written questionnaire about the duration of anesthesia in the first 24 hours, as well as the amount of analgesics they used in that period.

Patients were divided into two groups: the study group of 6 patients who received 4 ml of 0.75% ropivacaine solution with addition of 1 ml/4mg dexamethasone and the control group of 6 patients who received 4 ml of 0, 75% solution of ropivacaine without the addition of dexamethasone. Statistical data were processed by the SPSS 15.0 software. Continuous parameters were evaluated by a Student's t-test for Independent Samples.

Results

Out of 12 patients in total that were included in this study, 5(41.6%) patients were male and 7(58.45%) were female. The average age of patients was 27.8 years. Most of the oral surgery interventions performed were surgical removals of impacted wisdom tooth in the lower jaw - 7(58.3%) out of 12 oral surgery interventions in total.

The onset time of the first signs of anesthesia, confirmed by testing sensibility of soft tissues (lip and gingiva), was 1.5 min in the study group and 2.66 in the control group. The time necessary for the full effect of anesthesia to set in, i.e. total insensitivity of soft tissues, was 3.5 min in the study group and 4.66 min in the control group.

Tabela 1. Polna pripadnost i prosečna starost ispitanika po grupama
Table 1. Sex and the average age of patients

Pacijenti/ patients	**Pol/Sex** ♂	♀	**Prosečna starost pacijenata/ The average age of patients**
Studijska grupa/ Study group 0,75%ropivakaina/ropivacaine &4mg deksazona/dexametasone	3 (50%)	3 (50%)	23,5 god./years
Kontrolana grupa/Control group 0,75%ropivakaina/ropivacaine	2 (33,3%)	4 (66,7%)	32,1 god./years
Ukupno/Total	5 (41,6%)	7 (58,4%)	27,8. god./yeras

Tabela 2. Praćeni parametri dejstva lokalne anestezije
Table 2. Monitored parameters of local anesthesia

Vrsta operacije /The type of oral surgery intervention	Vrsta anestezije /The type of anesthesia	Količina anestetika /The dosage of local anesthesia (ml)	Vreme pojave prvih znakova anestezije /The onset time for the first signs of anesthesia	Vreme nastupanja potpune anestezije /The time necessary for the full effect of anesthesia	Dužinaanestezije /The duration of local anesthesia
REVISIO VULNERIS 36	Direktna za n.alv. inferior /Direct anaesthesia for n..alveolaris inferior	4ml Ropivakaina /Ropivacaine	5 minuta	7 min	300 min
EXTRACTIO CHIRURGICA 18	plexus	4 ml Ropivakaina /Ropivacaine	Odmah po aplikaciji Immediately	4 min	280 min
EXTRACTIO CHIRURGICA 48	Direktna za n.alv. inferior	4 ml ropivakaina /Ropivacaine	1 minut	4 min	390 min
EXTRACTIO CHIRURGICA 28	Direktna za n.alv. inferior	4 ml ropivacaina	2 min	4 min	120 min
EXTRACTIO CHIRURGICA 16	plexus	4 ml ropivakaina Ropivacaine	5 min	6 min	420 min
EXTRACTIO CHIRURGICA 18	plexus	4 ml ropivakaina ropivacaina	3 min	3 min	230 min
			Prosečno: The average: 2,66 min	***Prosečno: The average: 4,66 min***	***Prosečno: The average: 290 min***
EXTRACTIO CHIRURGICA 48	Direktna za n.alv. inferior Direct forn.alv. inferior	4ml ropivacaine+1 ml dexametasone	2 min	5 min	703 min
EXTRACTIO CHIRURGICA 38	Direktna za n.alv. inferior Direct for n.alveolaris inferior	4ml ropivacaine+1 ml dexametasone	1 min	3 min	748
EXTRACTIO CHIRURGICA 38	Direktna za n.alv. inferior Direct for n.alveolaris inferior	4ml ropivacaine+1 ml dexametasone	Odmah po aplikaciji Immediately	Odmah po aplikaciji Immediately	624 min
REVISIO VULNERIS 48	Direktna za n.alveolaris inferior	4ml ropivacaine+1 ml dexametasone	3 minuta	8 min	292 min
EXTRACTIO CHIRURGICA 48	Direktna za n.alv. inferior Direct for n.alveolaris inferior	4ml ropivacaine+1 ml dexametasone	2 min	3 min	460 min
EXTRACTIO CHIRURGICA 38	Direktna za n.alv. inferior Direct for n.alveolaris inferior	4ml ropivacaine+1 ml dexametasone	1 min	2 min	926 min
			Prosečno: The average: 1,5 min	***Prosečno: The average: 3,5 min***	***Prosečno: The average: 625,5 min***

Vreme nastupanja potpune anestezije, tj. potpune neosetljivosti mekih tkiva, u studijskoj grupi bilo je 3,5 min, a u kontrolnoj 4,66 min.Vreme za koje su pacijenti još uvek osećali dejstvo anestezije (odgovarali su da su imali osećaj trnjenja, potpune ili delimične neosetljivosti) u studijskoj grupi je iznosilo 625,5 min, dok je u kontrolnoj grupi taj period bio više nego dvostruko manji, oko 290 min (tabela 2).Trajanje anestezije statistički je značajno duže u studijskoj grupi pacijenata kod kojih su korišćeni i ropivakain 4 ml i Dexason 4 mg/1ml ($p < 0,01$). Osim jednog pacijenta koje je preventivno uzeo jednu tabletu ibuprufena odmah posle intervencije, nije bilo pacijenata koji su koristili analgetike u prva 24h posle operacije.

Diskusija

Primenjena kombinacija 4 ml ropivakaina 0,75% sa deksametazonom 4 mg/1ml dovela je do uspešne perioperativne i postoperativne anestezije mekih i koštanih tkiva kod težih oralnohirurških operacija. U studijskoj grupi kod koje smo kao lokalnu anesteziju u istoj brizgalici dali ropivakain i deksametazon postoperativna anestezija trajala je više nego dvostruko duže, 625,5 min, tj 10,4 časova, dok je u kontrolnoj grupi posle primene ropivakaina bez deksazona anestezija trajala 290 min, ti. 4.8 sati. Dexametason se nalazi na listi najefikasnijih i najpotrebnijih lekova zadravstvenog sistema bazičnih lekova Svetske zdravstvene organizacije[23]. Deksametazon ima uticaj na produženu nervnu blokadu, jer sprečava nociceptivni prenos impulsa duž mijeliniziranog C vlakna[24,25] i deluje lokalno na nervno vlakno ako je primenjen perineuralno[26]. Vrlo često se kombinacija različitih razmera ropivakaina i deksametazona (10,18,25 ml ropivakaina i 4,8,10 mg deksametazona) koristi za blokadu brahijalnog plexusa i u hirurgiji ramenog zgloba[27-29], hirurgiji zgloba kolena[30], histerektomiji[31], za epiduralnu anesteziju[32] . Mi smo upotrebili 4 ml ropivakaina u koncentraciji od 0,75% i dexametasona 1 ml/4mg, što je znatno manje od razmera koje su drugi autori upotrebljavali, i postigli smo dvostruko duži period anestezije.

I bupivakain je kombinovan sa deksametazonom, pri čemu je postoperativni bezbolni period trajao i do tri puta duže nego bez njega[33].Interesantna je činjenica da se i.v. primena iste doze deksametazona nije pokazala tako efikasnom u smanjenju postoperativnog bola kao perineuralna primena[20,34].

The duration of local anesthesia, as measured by patients and described by numbness, partial or total insensitivity of lip, tongue or gingiva, was 625.5 min in the study group and 290 min in the control group (Table 2). The duration of anesthesia in the group that received a combination of 4 ml 0.75% ropivacaine and dexamethasone, 4mg/1ml ($p < 0.01$), was more than twice as long as that in the group that received only ropivacaine, which is considered statistically significant. Except for one patient who took a tablet of ibuprofen right after the intervention preventively, no other patients took analgesics in the first 24 hours postoperatively.

Discussion

A combination of 4ml 0.75% ropivacaine with 4mg/1ml dexamethasone resulted in successful perioperative and postoperative anesthesia of soft and bone tissues after major oral surgery interventions. In the study group, which received 4ml ropivacaine 0.75% with 4mg/1ml dexamethasone - administered in a single syringe, perioperative anesthesia lasted 625. 5 min, i.e 10.4 hours, while in the control group, which only received ropivacaine 0.75% it lasted 290 min, or 4.8 hours.

Dexamethasone is on the World Health Organization List of the Essential and Most Efficient Medicines in the Basic Health Care System [23]. It has an effect on the prolonged nerve block because it prevents the nociceptive transmission of the pulse along the myelinized C fiber [24,25] and acts locally on the nerve fiber, when applied perineurally [26]. Very often, a combination of different dosage of ropivacaine and dexamethasone (10 , 18, 25 ml ropivacaine and 4, 8 10 mg dexamethasone) is used to block the brachial plexus in shoulder surgery [27-29], knee joint surgery [30], hysterectomy [31] and for epidural anaesthesia [32]. The concentration used in this study, 4ml ropivacaine at a concentration of 0.75% and 1ml / 4mg of dexamethasone, which is considerably smaller than the dosage used by other authors, resulted in twice as long period of anesthesia.

Bupivacaine has also been combined with dexamethasone in some studies with the postoperative pain-free period lasting up to three times as long as without dexamethasone [33].

An interesting fact is that i.v administration of the same dose of dexamethasone has proven to be not as effective in

Neki autori navode da je dužina postoperativne analgezije dozno zavisna od koncentracije deksametazona [35], dok su drugi došli do suprotnih rezultata [36]. Postoje podaci da kombinacija glukokortikida u istoj brizgalici može dovesti do kristalizacije tečnosti i potencijalne embolije organa, a primenjena perineuralno može imati neurotoksični efekat [37]. Dexametazon i ropivakain u istoj brizgalici nisu doveli do kristalizacije rastvora, odnosno vidljivog zamućenja tečnosti. Posle primene ove kombinacije, postoperativni tok u svim slučajevima prošao je bez simptoma neurotoksičnog delovanja primenjenog rastvora ili negativnog sistemskog dejstva.

Uzevši u obzir činjenicu da u dostupnoj literaturi nema podataka o perineuralnoj primeni kombinacije ropivakaina (u predelu n. alveolaris inferior i rr. alveolares superiors posteriores) i deksametazona u oralnoj hirurgiji, kao i da smo u studiji upotrebili manje doze ove kombinacije od 4 ml 0,75% anestetika i 1 ml/4 mg deksametazona, nego one koje su navedene u literaturi, naši rezultati pokazuju da je ova kombinacija jednako uspešna za postizanje perioperativne i postoperativne anestezije kao i u drugim hirurškim granama[38-39].

Zaključak

Kod oralnohiururških operacija kod kojih se očekuje pojava bolova posle intervencije, kombinacija 4 ml ropivakaina od 0,75% i 1ml deksametazona od 4mg/ml, obezbedila je dvostruko duži bezbolni postoperativni period (625,5 min) nego ropivakain bez dodatka deksametasona (290 min). Uočili smo da male doze deksametazona dodatih lokalnom anestetiku mogu smanjiti potrebu za dodatnom anestezijom i analgetskom terapijom u prva 24 sata posle teških oralnohirurških operacija.

Zahvalnica

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reducing postoperative pain as when applied perineurally [20,34].

Certain authors state that the duration of postoperative analgesia is dose dependent on the concentration of dexamethasone [35], while others report contrasting results [36].

Some data suggest that combining glucocorticoids in the same syringe can lead to crystallization of liquids and potential organ embolism, while perineural administration can have a neurotoxic effect [37].

In this study, dexamethasone and ropivacaine, administered in the same syringe, did not lead to the crystallization of the solution, or visible fluid clouding. The postoperative period with the combination used went without any symptoms of the neurotoxic effect or any negative systemic effects in all cases.

Considering the fact that there is no available information in the literature about perineural application (n.alveolaris inferior and rr.alveolares superiors posteriores) of ropivacaine in combination with dexamethasone in oral surgery, and that the combination dosage used in the study (4ml 0.75 % anesthesia and 1ml / 4mg Dexamethasone) was lower than the combination listed in the existing literature, our results show that this combination is equally successful in achieving perioperative and postoperative anesthesia in oral surgery as in other surgical branches[38-39].

Conclusion

In oral surgery interventions where pain is expected after the intervention, a combination of 4 ml of ropivacaine 0.75% and 1 ml of dexamethasone 4 mg / ml, results in twice as long postoperative anesthesia (625.5 min) compared to ropivacaine only (290 min). It was noted that small doses of dexamethasone added to local anesthetics may reduce the need for additional anesthesia and analgesic therapy within the first 24 hours after major oral surgery interventions.

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