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KOLIKO ZNAMO O BIFOSFONATNIM LEZIJAMA

HOW MUCH WE KNOW ABOUT BISPHOSPHONATE LESIONS

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Sažetak

Uvod:*Bifosfonatne preparati se upotrebljavaju u lečenju osteoporoze i malignih procesa u koštanim tkivima.Kao posledica upotrebe ovih preparata nastaju bifosfonatne lezije sluzokože i koštanog tkiva vilica koje predstavljaju izuzetan terapeutski problem.*
Cilj *rada bio je utvrditi koliko su stomatolozi u ordinacijama* **opšte** *prakse upoznati sa značajem,dijagnostikom i terapijom bifosfonatnih lezija.*
Materijal i metode: *Anonimna anketa sa upitnikom od 13 pitanja,sprovedena je u stomatološkim ordinacijama Niškog okruga u periodu od oktobra 2015. do decembra 2015.god.dobijeni podaci su statistički obrađivani.*
Rezultati: *Ukupno 60% stomatologa znalo je koji se preparati koriste u lečenju osteoporoze i malignih procesa na kostima.25% je znalo šta su bifosfonatne lezije na kostima.66,6% stomatologa je znalo koja je prevencija bifosfonatnih lezija.63,3% stomatologa upoznato je sa komplikacijama bifosfonatnih lezija.*
Zaključakči:*Stomatolozi opšte prakse su nedovoljno upoznati sa značajem, dijagnostikom i terapijom bifosfatnih lezija vilica.Trebalo bi aktivirati sve subjekte koji učestvuju u kontinuiranoj medicinskoj edukaciji,kako bi se postigao viši nivo prevencije ovih terapijski nezahvalnih lezija.*

Abstract

Introduction: *Bisphosphonate drugs are used in the treatment of the osteoporosis and malignant processes in the bone tissue. As a result of this use bisphosphonate lesions are formed in bone tissue and oral mucosis, which representing a remarkable therapeutic problem.*
The aim *of this study was to determine how many dentists in general practice are familiar with the character, diagnosis and therapy bisphosphonate lesions.*
Matreijal and Methods: *An anonymous questionnaire of 13 questions was conducted in dental practices in Nis County in the period from October 2015 to December 2015. The obtained data were statistically analyzed.*
Results: *A total of 60% dentists knew what drugs are used in the treatment of osteoporosis and malignant processes in the bones. 25% knew what the bisphosphonate bone lesions are . 66, 6% of dentists knewn what is the prevention of bisphosphonate lesions. 63.3% of dentists are aware of the complications bisphosphonate lesions.*
Conclusion: *Dentists in general practices are insufficiently familiar with the character, diagnosis and treatment of bisphosphonate lesions. We should activate all entities that participate in more continuous medical education, in order to achieve a higher level of prevention of these therapeutic ungrateful lesions.*

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Uvod

Prisutni već trideset godina u medicinskoj praksi, bifosfonati su zauzeli značajno mesto u terapiji brojnih malignih i benignih, destruktivnih promena u koštanom tkivu. Njihova široka primena se zasniva na njihovoj sposobnosti da se putem apoptoze blokira osteoklastična aktivnost u koštanom tkivu, ali oni nemaju uticaja na osteoblastičnu aktivnost, zbog čega se blokira povećanje i favorizuje smanjenje koštanih defekata nastalih bilo malignim, bilo dejstvom benignih faktora u koštanom tkivu. Sam patofiziološki mehanizam nije u potpunosti razjašnjen, ali se smatra da dolazi do inkorporacije molekula bifosfonata u hidroksiapatitni matriks, čime se menja mikrostruktura koštanog tkiva, što dovodi do usporavanja razaranja koštanog tkiva. Kao što je već rečeno, osteoblastična aktivnost nije pod uticajem bifosfonata, te dolazi do zaustavljanja napredovanja u smislu destrukcije omogićava regeneraciju[1].

Što se samog termina tiče, u srpskom jeziku se koriste termini bifosfonatne lezije i bisfosfonatne lezije.

Iako su promene na viličnim kostima uzrokovane delovanjem fosfora poznate još iz 19. veka, prvi rad vezan za pojavu i širenje lezija vilica uzrokovanih delovanjem bifosfonatnih medikamenata publikovan je tek 2003[2]. Dve su osnovne grupe oboljenja sa indikacijama za davanjem bifosfonatne terapije. U grupu benignih spadaju osteoporoza, Padžetova bolest, osteogenezis imperfekta, fibrozna displazija kao i primarni hiperparatireoidizam. Drugu grupu čine neoplastični procesi direktno ili indirektno povezani sa metabolizmom kostiju, kao što su na primer multipli mijelom, metastatski procesi kao što su metastaze karcinoma dojke ili karcinoma prostate u koštanim tkivima. Korišćenje ovih preparata iz godine u godinu raste, međutim, bifosfonatana grupa preparata ima jedan prateći efekat od velikog značaja za stomatolge, a to je formiranje osteonekrotičnih lezija vilica. Uglavnom locirane u mandibuli (65%), ređe su kao solitarne u gornjoj vilici (26%), dok se u obe lice javljaju retko (9%). Češće su kod žena. Bifosfonatne lezije vilica se mogu definisati kroz tri aspekta postavljena od strane Američke akademije za oralnu i maksilofacijalnu hirurgiju. Da bi se neka lezija vilica mogla definisati kao bifosfonatna lezija

Introduction

Bisphosphonates have been present for thirty years in medical practice. They had taken an important place in the treatment of many malignant as well as benign destructive changes in bone tissue. Their wide application is based on their ability to block osteoclast activity in bone tissue, but they do not have the same effect on osteoblast activity, which blocks the increase and favors a decrease of bone defects after any malignant or benign influence of any factor in bone tissue. Pathophysiological mechanism is not fully understood but is thought to pass through the incorporation of molecules of the bisphosphonate into the hydroxyapatite matrix, which changes the microstructure of the bone tissue and slows down the process of bone tissue destruction. As noted above, osteoblastic activity is not affected by the bisphosphonate and halts the progression in terms of bone destruction and possible regeneration of bone[1].

In the Serbian language, the terms biphosphonate lesions and bisphosphonate lesions are used.

Although the changes to the jaw bones are caused by the influence of phosphorus, known from the 19th century, the first article related to the occurrence and spread of lesions in jaws caused by bisphosphonate drugs was published in 2003[2]. There are two main groups of diseases with indications for applying of bisphosphonate therapy. The first group includes osteoporosis, Paget's disease, osteogenesis imperfecta, fibrous dysplasia, and primary hyperparathyroidism. The second group consisting of neoplastic processes is directly or indirectly related to the bone metabolism, such as, multiple myeloma and metastatic processes such as metastasis of breast cancer or prostate cancer in the bone tissue. The use of these preparations is growing from year to year, however, they have one side effect which is of great importance for dentistry, and that is the formation of osteonecrotic lesions of jaws. The are mainly located in the mandible (65%), less frequently as solitary in the maxiila (26%), while they occur rarely in both jaws (9%). They are more common in

vilica (BRONJ), mora ispunjavati tri uslova: 1) da je kost vilica eksponirana duže od 8 nedelja, 2) da u anamnezi postoji ili još uvek traje ordiniranje bifosfonatnih preparata, 3) da u predelu glave i vrata nije sprovođena radioterapija[3]. Navedena Akademija je ne tako davno uvela novi termin MRONJ koji se odnosi na nekrotične promene na vilicama izazvane upotrebom antiresorptivnih i antiangiogenih medikamenata[4]. Sama BRONJ se deli na četiri stadijuma, u zavisnosti na razvijenosti kliničke slike. Sama aplikacija bifosfonata smatra se rizikom za pojavu i zahteva edukaciju pacijenata. Ukoliko su prisutni nespecifični klinički znakovi i simtomi, a nema prisutne nekroze koštanog tkiva, smatra se nultim stadijumom, čija terapija podrazumeva korišćenje analgetika i antibiotika. Stadijum I podrazumeva prisutnu nekrotičnu kost eksponiranu intraoralno, bez znakova infekcije i asimptomatske je kliničke slike. Terapija u ovom stadijumu podrazumeva oralne dezinficijense, redovne kontrole, sagledavanje korisnosti bifosfonatne terapije i razmatranje uzroka za njen nastavak. Stadijum II podrazumeva eksponiranu kost, znakove infekcije, sa ili bez purulentnog sadržaja, kao i eritem okolnih mekih tkiva. Terapija podrazumeva upotrebu analgetika, antibiotika, oralnih defizinficijensa i oskudnog, površnog debridmana. Klinički III stadijum podrazumeva eksponiranu kost, znakove infekcije i jedno od sledećeg: progresiju nekroze dalje od kosti alveolarnog nastavka, patološku frakturu, komunikaciju sa sinusnom ili nosnom dupljom, ekstraoralnu fistulu. Terapija, pored ispiranja usne duplje dezinficijensima, upotrebe antibiotika i analgetika, podrazumeva hirurški debridman koji može ići do resekcije[4]. Kao što se može videti, terapija BRONJ, naročito u stadijumima II i III, predstavlja težak i zahtevan zadatak, kako za terapeuta tako i za pacijenta. Stoga treba obratiti pažnju na prevenciju ovih lezija i otkrivanje u nultom stadijumu. Zato je neophodno poznavanje i prepoznavanje ovih nekrotičnih lezija. Stoga se javila potreba za ispitivanjem koliko stomatolozi u stvari znaju o BRONJ i koliko su sposobni da je prepoznaju.

Cilj našeg istraživanja bio je utvrditi koliko su stomatolozi u opštoj stomatološkoj praksi upoznati sa značajem, dijagnostikom i

women. Bisphosphonate lesions of jaws can be defined through three aspects set by the American Academy of Oral and Maxillofacial Surgery. Some lesions of jaws could be defined as bisphosphonate lesions (BRONJA) and they must fulfill three conditions: 1) that the jaw bone is exposed more than 8 weeks, 2) that there is a history or still ongoing administration of bisphosphonate preparation, 3) that radiotherapy was not administrated in the head and neck region [3].

Not long ago, the aforesaid Academy introduced a new term MRONJ referring to necrotic changes in the jaw caused by the use of antiresorptive and antiangiogenic medicaments[4]. BRONJ is divided into four stages, according to the development of the clinical picture. The application of bisphosphonates is considered at risk for the occurrence and requires patient education. If they nonspecific clinical signs and symptoms are present and there is no necrosis of bone tissue, it is considered to be zero stage, therapy of which involves the use of analgesics and antibiotics. Stage I involves the present necrotic bone exposed intraorally, with no signs of infection and the asymptomatic clinical picture. Treatment at this stage involves oral disinfection, regular controls and assessment of the usefulness of bisphosphonate therapy and addressing the causes for continuation. Stage II comprises the exposed bone, signs of infection, with or without pus, and erythema surrounding the soft tissues. Treatment includes analgesics, antibiotics, oral disinfectant and superficial debridement. Clinical stage III includes the exposed bone, signs of infection and one of the following: the progression of necrosis beyond the alveolar bone, pathologic fracture, communication with sinus or nasal cavity, extraoral fistula. The therapy, in addition to rinsing the mouth with disinfectant, antibiotics and analgesics includes surgical debridement, which can go up to resection[4].
As you can see, the therapy BRONJ, especially in stages II and III, represents a demanding task for both the therapist and the patient. Therefore, attention should be paid to the prevention and detection of these lesions in the stage zero. In order to carry it out, it is necessary to know and recognize these necrotic lesions among all those who are related to everyday dental practice. There is a need to examine how dentists actually got to know about BRONJ and if they ar

terapijom ovih lezija, s obzirom na izuzetan značaj preventive za pojavu ovih lezija.

Anketnim istraživanjem sprovedenim na uzorku od 30 stomatologa koji obavljaju opštu stomatološku praksu sakupljeni su podaci kooji su nakon toga statistički obrađivani. Anketa je vršena za tu priliku formiranim anketnim listom sa 13 pitanja, anonimna je i sprovedena u stomatološkim praksama Niškog okruga u periodu oktobar – decembar 2015. godine.

Prikaz pitanja:

Anketa o poznavanju bifosfonatnih lezija

1. Koliko dugo radite kao stomatolog? ____________
2. Da li znate koliko vaših pacijenata boluje od malignih bolesti? Da Ne
3. Da li znate koliko vaših pacijenata boluje od osteoporoze? Da Ne
4. Da li znate šta su to bifosfonatni preparati? Da Ne
5. Da li znate koji se preparati koriste u lečenju osteoporoze i lečenju primarnih i sekundarnih malignih bolesti na kostima? Da Ne
6. Da li znate šta su to bifosfonatne lezije? Da Ne
7. Da li ste tokom vaših studija učili o bifosfonatnim lezijama? Da Ne
8. Da li ste nekada imali komplikaciju u vašoj ordinaciji u smislu odloženog i otežanog zarastanja postekstrakcionih rana? Da Ne
9. Da li ste nekada imali prilike u vašoj ordinaciji da vidite i tretirate lezije na kostima u ustima koje su iznad nivoa sluzokože? Da Ne
10. Da li znate sta je prevencija nastanka bifosfonatnih lezija? Da Ne
11. Da li znate koji je tretman bifosfonatnih lezija u ustima? Da Ne
12. Da li ste imali prilike na nekoj od kontinuiranoj medicinskoj edukaciji (KME) imali prilike da slušate o bifosfonatnim lezijama? Da Ne
13. Da li znate moguće komplikacije bifosfonatnih lezija? Da N

*Anketa je potpuno anonimna. Obzirom da ispitanici nisu bolesnici, već medicinsko osoblje, saglasnost etičkog komiteta nije neophodna.

able to recognize them.The aim of our research is to determine how many dentists in general dental practice are familiar with the character, diagnosis and treatment of these lesions, given the great importance of prevention of these lesions.

This questionnaire was conducted on a sample of 30 dentists employeed in the general dental practice. The results were then statistically analyzed. The questionnaire with 13 questions composed for this occasion was anonymous and is conducted in dental practices in district of Nis, in the period from October to December 2015.

Questions:

Questionnaire about the knowledge of bisphospohonate lesions

1. How long have you worked as a dentist? ____________
2. Do you know how much your patients suffer from malignant diseases? Yes/No
3. Do you know how many of your patients suffer from osteoporosis? Yes/No
4. Do you know what are bisphosphonate preparations? Yes/No
5. Do you know which products are used in the treatment of osteoporosis and treatment of primary and secondary malignant disease on the bones? Yes/No
6. Do you know what are bisphosphonate lesions? Yes/No
7. Did you learn about bisphosphonate lesions during your studies? Yes/No
8. Have you ever had a complication in your practice in terms of delayed and difficult healing after tooth extraction? Yes/No
9. Have you ever had the chance in your office to see and treat the bone lesions in the mouth that are above the level of the mucous membrane? Yes/No
10. Do you know what is prevention of the occurrence of bisphosphonate lesions? Yes/No
11. Do you know what is the treatment of bisphosphonate lesions in the mouth? Yes/No
12. Have you had a chance at one of continuing medical education (CME) sessions to listen about the bisphosphonate lesions? Yes/Nomedical staff, the approval of the ethics committee is not necessary.
13. Do you know what are the possible complications of bisphosphonate lesions? Yes/No

* The questionnaire is completely anonymous. Since the subjects are not patients but the medical staff, the approval of the ethics committee was not necessary.

Rezultati

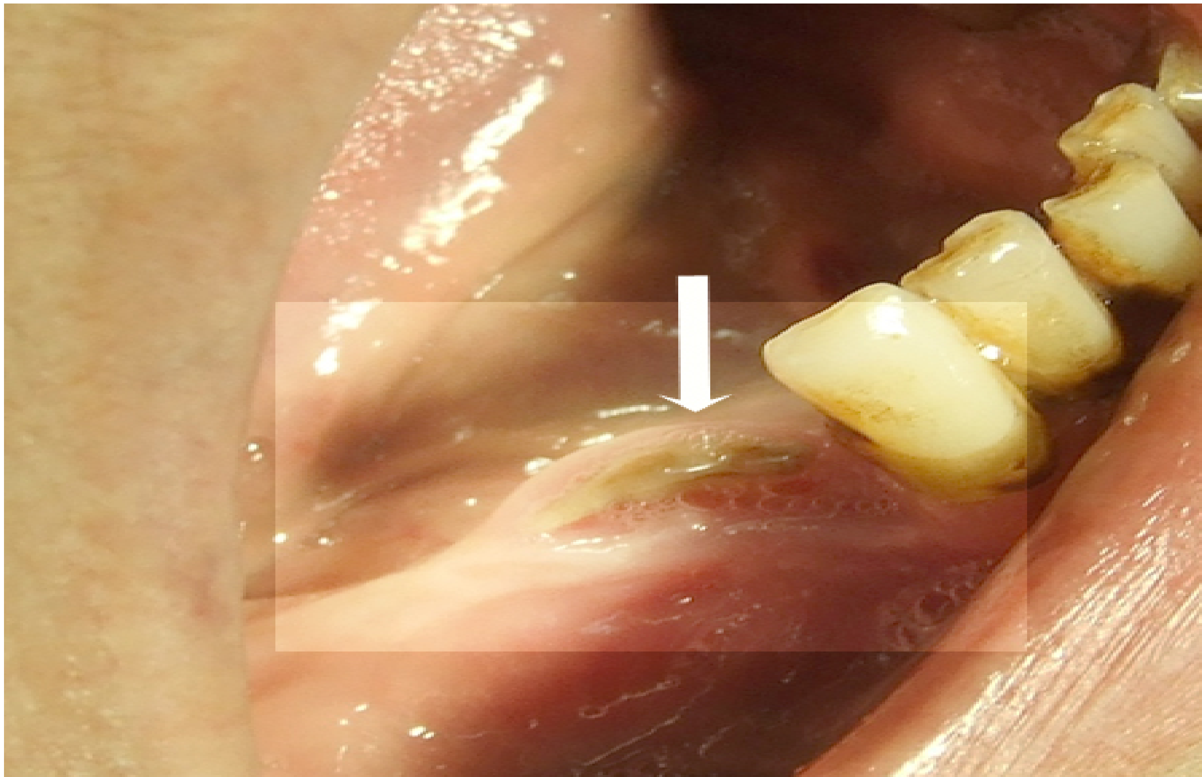
Rezulati su prikazani u tabeli 1. Prosečan radni vek stomatologa kod ispitivane grupe bio je 14, 7 godina, što ukazuje da je većina imala višegodišnje kliničko iskustvo, ali i da su završili školovanje kada bifosfonatne lezije još nisu definisane kao oboljenje. Na pitanje o tome koliko pacijenata iz svakodnevne prakse boluje od malignih bolesti, 53,3% ispitanih stomatologa je znalo koliko njihovih pacijenata boluje. Na treće pitanje koje se odnosi na osteoporozu, 46,6% je odgovorilo da su upoznati koliko njihovih pacijenata boluje od osteoporoze. Na osnovno pitanje, da li znate sta su to bifosfonatni preparati, samo 36,36% je odgovorilo da zna, dok 60% ispitanika tvrdi da zna koji se preparati koriste u lečenju osteoporoze i malignih procesa na kostima. Na pitanje br 6, da li ispitanici znaju šta su to bifosfonatne lezije, samo 25% je odgovorilo da su upoznati sa ovim patološkim promenama kostiju vilica. Ispitanici su u 43,3% izjavili da su o bifosfonatnim lezijama učili na studijama. U 90% slucajeva ispitanici su odgovorili da su se u svojoj praksi sreli sa odloženim i usporenim zarastanjaem postekstrakcionih rana. Ispitanici su tvrdili da su u svojoj praksi tretirali promene koštanog tkiva iznad nivoa sluzokože u 33,3%, a da u 66,6% znaju koja je prevencija bifosfonatnih lezija. Čak 70% ispitanika tvrdi da je upoznato sa tretmanom bifosfonatnih lezija u ustima. O bifosfonatnim lezijama 76% ispitanih je imalo prilike da sluša na KME. Sa komplikacijama bifosfonatnih lezija upoznato je 63,3% ispitanika. Ispitivanje je bilo anonimno i sprovedeno usmenim ili telefonskim intervjuom.

Results

The results are presented in Table 1. The average work life as a dentist in the main group was 14,7 years, which indicates that most of them had many years of clinical experience, but also that they had finished their studies when bisphosphonate lesions were still not defined as an illness. When asked about how many patients in everyday practice suffer from malignant diseases, 53.3% of dentists knew how many of their patients suffer from them. To the third question related to osteoporosis, 46,6% answered that they were aware how many of their patients suffered from osteoporosis. To the basic question, whether they knew what they bisphosphonate preparations were, only 36.36% gave positive answer, while 60% of respondents claimed to know which products were used in the treatment of osteoporosis and malignant processes in the bones. To Question 6, whether respondents knew what they bisphosphonate lesions were, only 25 % answered that they were familiar with the pathological changes of the bone jaw. Forty-three point three respondents stated that they learned about bisphosphonate lesions at the faculty. Ninety percent of respondents said that in their practice they encountered delayed and slow postextraction healing. The respondents argued that in their practice they treated the changes of bone tissue above the level of the mucous membrane in 33.3%, and that in 66.6% they knew what that prevention of the bisphosphonate lesions was. Even 70% of respondents state they are familiar with bisphosphonate treatment of lesions in the mouth. 76% of respondents had the opportunity to listen to the bisphosphonate lesions on the CME. About 63.3% of respondents are familiar with the complications of bisphosphonate lesions. The questionnaire was anonymous and the interview was conducted orally or by telephone.

Tabela 1. Rezultati ankete
Table 1. Questionnaire results

	1.	2	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
DA YES	/	14	16	22	18	24	13	27	10	20	21	23	19
NE NO	/	16	14	8	12	6	17	3	20	10	9	7	11



Slika 1. Bifosfonatna lezija alveolarnog nastavka donje vilice sa desne strane(označena strelicom)
Figure 1. Bisphosphonate lesions of mandibular alveolar processus on the right side(arrow pointed)

Diskusija

Bifosfonatne lezije predstavljaju ozbiljan terapeutski problem. Za njihovo lečenje neophodno je sprovesti dugotrajan i relativno skup medikamentozno-hirurški tretman. Sa druge strane, kvalitet života obolelih je ozbiljno poremećen, jer prisustvo ovih patoloških struktura uveliko utiče na ishranu, fonaciju i opšte zdravlje. Same bifosfonatne lezije u stvari su arteficijalno patološko stanje nastalo kao prateća pojava lečenja, nekada i po život opasnih oboljenja. Tražeći kompromis između uspeha lečenja ili usporavanja malignog procesa u kostima i što manjih posledica po oralno i opšte zdravlje bolesnika, problem bifosfonatnih lezija se mora sagledavati kompleksno, u smislu saradnje, a ne odvojenog poimanja posla, od strane onkologa i stomatologa. Preventiva predstavlja najefikasniji, najmanje invazivni i najjeftiniji način sprečavanja pojave bifosfonatnih lezija, međutim da bi se ona sprovela, neophodno je

Discussion

Bisphosphonate lesions represent a serious therapeutic problem. To repair them, it is necessary to carry out time-consuming and relatively expensive medication surgical treatment. On the other hand, the quality of life of these patients is seriously disturbed, because the presence of these pathological structures greatly affect the diet, phonation and the general health of patients. The very bisphosphonate lesions are actually the artificial pathological condition caused as a side effect of the treatment of sometimes life-threatening diseases. Seeking a compromise between the success of the treatment or slowing the malignant process and general health of the patient, the problem of bisphosphonate lesion must be viewed as something very complex in terms of cooperation between the oncologists and dentists. Prevention is the most effective, least invasive and least expensive way to prevent the occurrence of bisphosphonate

poznavanje patologije bifosfonatnih lezija od strane svih subjekata koji utiču na lečenje ovih pacijenata, kako onkologa i hirurga koji se bave osnovnim oboljenjem tako i stomatologa koji se bavi sanacijom patoloških stanja usne duplje. Bifosfonatne lezije predstavljaju relativno novo patološko stanje, poznato nauci od pre manje od dvadesetak godina[2]. Radovi vezani za ispitivanje zdravstenih radnika se ne sreću tako često u literaturi. Ipak oni pružaju značajne podatke o pravoj slici edukovanja zdravstvenih radnika, o njihovom znanju i napredovanju. Ako uzmemo u obzir da je pojava bifosfonatnih lezija novi zdravstveni problem, onda on predstavlja odličan primer kako u praksi deluje kontinuirana medicinska edukacija. Ispitivana grupa stomatologa imala je prosečno radno iskustvo od 14,7 godina, što znači da su bili srednjih godina i predstavljaju realan ispitivani uzorak. Rezultat od nešto preko 50% stomatologa koji u anamnezi svojih pacijenata imaju podatak da su ih pitali o prisutnim malignim oboljenjima ukazuje na slabu opredeljenost ovih medicinskih subjekata sa upoznavanjem opšteg stanja pacijenata. Ako se ima u vidu da je to jedno od osnovnih pitanja, onda se može postaviti pitanje da li su ti stomatolozi informisani i o eventualnim zaraznim oboljenjima kod njihovih pacijenata. Nešto manje od polovine ispitanih je bilo upoznato sa tim da njihovi pacijenti boluju od osteoporoze, pri čemu se nisu izjašnjavali da li su pacijenti bili na terapiji bifosfonatimma. Samo 36,6% ispitanih je znalo šta su to bifosfonatni preparati. Ova činjenica predstavlja jako značajan podatak jer ukazuje na nepoznavanje bitne materije od strane stomatologa opšte prakse. Na ovaj način se ukazuje na važnost kontinuirane medicinske edukacije, pogotovu u slučajevima skoro nastalih patoloških stanja. Iako je čak 60% ispitanih tvrdilo da je upoznato sa medikamentima koji se koriste u lečenju osteoporoze i malignih oboljenja u koštanim tkivima, samo 25% ispitanih je znalo šta su to bifosfonatne lezije. Sa druge strane, navedeni odgovori su u suprotnosti sa odgovorima iz sledećeg pitanja, gde se 43% ispitanih izjasnilo da je o bifosfonatnim lezijama učilo na studijama. Ovo može da ukazuje na netačno iznošenje podataka i na činjenicu da i broj od 25% može biti realno manji. Visok procenat ispitanika se izjasnio da je u praksi sreo usporeno srastanje postekstrakcionih rana i da se čak jedna trećina upuštala u tretman koštanih lezija iznad nivoa sluzokože.

lesions, but in order to apply it is necessary to know the pathology of bisphosphonate lesions by all the subjects that affect the treatment of these patients, both oncologists and surgeons who deal with the underlying disease and dentists who deal with the rehabilitation of pathological conditions of the oral cavity. Bisphosphonate lesions are a relatively new pathological condition known in science less than twenty years[2]. The papers related to the testing of health workers are rarely found in the literature. Still, they provide important information about the true nature of educating health workers. If we consider that the appearance of new bisphosphonate lesions is a new health problem, then it is a great example of how continuing medical education works in practice. The study group of dentists had an average experience of 14.7 years, which means that they were middle-aged and represent a realistic test sample. The result that over 50% of dentists obtain from their patients the information about the present malignant diseases shows a poor knowledge of the medical workers about the general condition of their patients. If we bear in mind that this is one of the basic questions, then a question can be posed whether these dentists are informed about any communicable diseases in their patients. Less than half of the respondents were aware that their patients suffered from osteoporosis, without saying whether their patients were treated with bisphosphonates or not. Only 36.6% of respondents knew what bisphosphonate preparations were. This information represents a very significant fact because it shows the ignorance of dentist general practitioners of the essential issue. In this way, the importance of continuing medical education is emphasized, especially in cases of new pathological conditions. Although 60% of respondents claimed to be aware of the medications used in the treatment of osteoporosis and malignant diseases of the bone tissue, only 25% of respondents knew what bisphosphonate lesions were. On the other hand, the answers are in collision with answers from the following questions where 43% of respondents stated that they learned about bisphosphonate lesions at the faculty. This may indicate a wrong presentation of data and the fact that 25% may be lower in reality. A high percentage of respondents

Približni rezultati su dobijeni za prevenciju bifosfonatnih lezija i poznavanje terapije, što je delimično u kontradikciji sa podacima o njihovom prepoznavanju. Iako je relativno visok procenat ispitanih imao prilike da o njima sluša na kontinuiranim medicinskli edukacijama, evidentno je da je transfer znanja bio mali, što se ogleda u odgovorima na pitanja o dijagnostikovanu lezija. Dosta nerealnim deluje da je mali broj ispitanih upoznat sa dijagnostikovanjem osnovnih lezija, a relativno visoki sa komplikacijama koje su one izazvale. Bifosfonatne lezije, kao tzv. novo oboljenje, predstavljaju interesantnu formu za ispitivanje i test stvarnog efekta kontinuiranih medicinskih edukacija.

Zaključak

Bifosfonatne lezije, kao patološko stanje koje je relativno skoro opisano, predstavlja ozbiljan terapeutski prblem. Međutim u preventivi, kako se može zaključiti iz rezulatata našeg istraživanja, još uvek nema poznavanja dovoljnih karakteristika ovog oboljenja od strane stomatologa opšte prakse, primarnih subjekata prevencije ovih lezija. Osnovni mehanizam upoznavanja ove stomatološke populacije sa novim patološkim stanjima predstavljaju kontinuirane medicinske edukacije, ali se, na žalost, iz navedenih rezultata vidi da transfer znanja preko sadašnjeg sistema kontinuirane medicinske edukacije stomatologa, u ovom slučaju, mali. Stoga, mišljenja smo da bi trebalo aktivirati sve subjekte u poboljšanju edukacije stomatologa, kako bi se povećala prevencija, a samim tim i smanjio broj ovih terapijski nezahvalnih lezija.

declared that in practice they has seen a slow healing of postextraction wounds and that one third indulged in the treatment of bone lesions above the level of the mucous membrane. Similar results were obtained for the prevention of bisphosphonate therapy lesions and knowledge of the same, which is partly in contradiction with information regarding the identification of the bisphosphonate lesions. Although a relatively high percentage of respondents had a chance to learn about these lesions during continuing medical education, it is evident that the transfer of knowledge was small, which is reflected in the answers to questions related to the diagnosis of lesions. Bisphosphonate lesions as a new disease represent an interesting form of trial and a test of the actual effect of continuous medical education.

Conclusion:

Bisphosphonate lesions, as a pathological condition that is relatively recently described, is a serious therapeutic problem. However, in the prevention of these lesions, as can be inferred from the statistics of our research, the knowledge of general dental practitioner about this disease is still not sufficient, primary subjects of prevention of these lesions. The basic mechanism of introducing the dental population with the new pathologies is the continuing medical education but, unfortunately, from the results shown above, it can be seen that the transfer of knowledge through the current system of continuing medical education to dentist is small, in this case. Therefore, we believe that education of dentists should be improved in order to increase prevention, and therefore reduce the number of these, for therapy, ungrateful lesions.

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