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Znanje studenata dentalne medicine o raku usne šupljine

Dental Students' Awareness of Oral Cancer

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Sažetak

Svrha: Ovim istraživanjem željelo se procijeniti znanje studenata četvrte i pete godine Studija dentalne medicine Stomatološkog fakulteta Sveučilišta u Zagrebu o prevenciji i ranom otkrivanju raka usne šupljine. **Ispitanici i postupci:** Upitnik kojim se ispitalo znanje studenata o raku usne šupljine podijeljen je studentima diplomske nastave četvrte i pete godine tijekom kliničkih vježbi iz oralne medicine. U anketi je sudjelovalo ukupno njih 207 - 122 studenta četvrte godine (94,6 % od ukupnog broja polaznika četvrte godine) i 85 s pete godine (95,5 % od ukupnog broja studenata pete godine). **Rezultati:** Odziv studenata bio je vrlo velik (95 %). Oni s pete godine znali su više o raku usne šupljine negoli studenti četvrte godine, što je i očekivano s obzirom na dvostruko veću satnicu kliničkih vježbi i više sati nastave s pacijentima u usporedbi sa studentima četvrte godine. Studenti pete godine pokazali su također bolje poznavanje kliničke slike raka, vrsta lezija na sluznici usne šupljine povezanih s karcinomom, znali su da je alkohol značajni rizični čimbenik te kojem specijalistu treba uputiti bolesnika na daljnje liječenje. **Zaključak:** Propusti u znanju studenata dentalne medicine o raku usne šupljine pokazuju što treba popraviti u nastavnim programima studija, a odnosi se na edukaciju o raku usne šupljine. Rezultati istraživanja pokazuju da veća satnica kliničke nastave tijekom studija dentalne medicine pridonosi većem znanju i svjesti o toj zloćudnoj bolesti.

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Ključne riječi

rak usne šupljine, studenti, edukacija, dentalna medicina, Hrvatska

Uvod

Rak usne šupljine šesti je oblik karcinoma po učestalosti u svijetu (1). U Europi rak usne šupljine i rak ždrijela zajedno zauzimaju sedmo mjesto po pojavnosti (2, 3). U incidenciji tih bolesti postoje velike zemljopisne i regionalne varijacije te se bilježi porast stope incidencije osobito kod muškaraca (4 - 6). U Hrvatskoj je 2008. godine bilo 487 novooboljelih na 4 milijuna 437 tisuća i 460 stanovnika, od kojih su 368 bili muškarci. Incidencija na 100 tisuća ljudi bila je 17,2 za muškarce i 4,6 za žene (10,6 ukupno) (7). Duhan i alkohol dobro su dokumentirani rizični čimbenici u razvoju raka usne šupljine i ždrijela (1,2,4,5,8 -11). Više od 90 posto zloćudnih bolesti gornjeg dijela probavnog i dišnog sustava čini rak pločastih stanica (2, 4, 10). Najčešće mjesto gdje se pojavljuje karcinom usne šupljine kod europske i američke populacije jest jezik, a kod azijske obrazna sluznica. Ostala mjesta su dno usne šupljine, gingiva i nepce (2). Rano otkrivanje te bolesti vrlo je važno zbog iznimno niske stope preživljavanja oboljelih (1, 4, 9, 12). Naime, većina dijagnosticiranih slučajeva otkrivena je u uznapredovalom stadiju, unatoč lakoj dostupnosti usne šupljine pri pregledu (2). U dosadašnjim studijama istaknuta je nedovoljna svijest o raku usne šupljine među liječnicima i doktorima dentalne medicine, a osobito među studentima i jednog i drugog fakulteta (10, 11, 13-15). Zato je svrha ovog istraživanja bila procijeniti znanje

Introduction

Oral cancer is the sixth most common cancer in the world (1). Overall in EU, oral and pharyngeal cancer occupies the 7th position (2, 3). In the incidence of oral and pharyngeal cancer, a significant geographic variation is noted, and many regions are reporting increasing incidence rates, particularly in males (4-6). In Croatia, the incidence of oral cancer in 2008 was 487 per 4,437,460 people, and 368 out of it were males. The incidence per 100.000 people was 17.2 for males, 4.6 for women and 10.6 in total (7). Tobacco and alcohol consumption are well-recognized risk factors for cancers of the oral cavity and the pharynx (1, 2, 4, 5, 8-11). More than 90% of oral malignancies in the upper aerodigestive tract are squamous cell carcinomas (2, 4, 10). The most common site for intraoral cancer among European and the US populations is the tongue, and among Asian population, the buccal mucosa. Other intraoral sites include floor of the mouth, gingivae and the palate (2). Early detection of oral cancer is of vital importance because of its extremely low survival rates (1, 4, 9, 12). Most diagnosed cases are in advanced stages at the time of detection despite easy accessibility of the oral cavity for regular examination (2). Previous studies have reported lack of awareness about oral cancer among doctors and dentists and particularly among medical and dental students (10, 11, 13-15). The aim of this study was to assess un-

studenata dentalne medicine o prevenciji i ranom prepoznavanju i otkrivanju raka usne šupljine.

Ispitanici i postupci

Za ovo istraživanje upitnik je preuzet iz istraživanja Cartera i Ogdena (10) te preinačen kao što se vidi na slici 1. Upitnici su podijeljeni studentima diplomske nastave dentalne medicine četvrte i pete godine tijekom kliničkih vježbi u Zavodu za oralnu medicinu Stomatološkog fakulteta Sveučilišta u Zagrebu. Ispunjavanje je trajalo otprilike 15 minuta. Studenti četvrte i pete godine odabrani su zato što uče o oralnim bolestima, uključujući i oralni karcinom. Prije početka istraživanja provedbu je odobrilo Etičko povjerenstvo Fakulteta. Sudjelovanje studenta bilo je dobrovoljno i anonimno, te je svaki od njih potpisao suglasnost. Rezultati su analizirani primjenom hi-kvadrat testa i MedCalcova statističkog paketa, a p -vrijednost $<0,05$ smatrala se statistički značajnom.

Rezultati

U istraživanju su sudjelovala 122 studenta četvrte godine, što je predstavljalo 94,6 posto od ukupnog broja studenata četvrte godine, te 85 studenata pete godine, što je činilo 95,5 posto od ukupnog broja studenata pete godine. Među studentima četvrte godine bilo je 45 mladića (36,89 %) i 77 djevojaka (63,11 %), a raspon dobi kretao se od 21 do 28 godina (srednja dob = 21,96 godina), a među studentima pete godine bilo je 27 muškaraca (31,76 %) i 59 žena (69,41 %), u dobi od 23 do 35 godina (srednja dob = 23,23 godina). Odgovori na pitanja iz upitnika prikazani su odvojeno za četvrtu i petu godinu studija samo kad su se znatno razlikovali. S obzirom na to da je većina odgovora bila bez većih razlika, smatralo se da se odgovor odnosi na sveukupan broj studenata, neovisno o godini studija.

Na prvo pitanje: „Pregledate li rutinski svakom pacijentu i oralnu sluznicu? (DA ili NE) 72,46 posto studenata obiju godina zajedno odgovorili su potvrdno.

Na treće pitanje: „Što smatrate rizičnim čimbenicima za rak usne šupljine?“ studenti su godine dali mnogo različitih odgovora. Distribucija navedenih različitih rizičnih čimbenika prikazana je u tablici 1.

Pušenje duhana, kao rizični čimbenik za rak usne šupljine, navelo je ukupno 94,2 posto studenata četvrte i pete godine. No, mnogo više studenata pete godine u odnosu na studente četvrte godine navelo je i alkohol kao rizični čimbenik (četvrta godina 17,21 %, a peta godina 78,82 %, $p < 0,001$).

Na pitanje obavještavaju li pacijente o rizičnim čimbenicima koji pogoduju razvoju raka usne šupljine, 60,87 posto od ukupnog broja studenata odgovorilo je potvrdno.

Na peto pitanje (vidi sliku 1) mnogo više studenata pete godine u odnosu na četvrtu izjavilo je da su već pregledali pacijenta s potencijalno zloćudnom lezijom sluznice usne šupljine (16) (peta godina 18,82 %, a četvrta godina 1,64 %, $p < 0,0001$)

dergraduate dental students' knowledge on prevention, early recognition and detection of oral cancer.

Material and Methods

For the purpose of this research, a questionnaire was taken from the study of Carter and Ogden (10) and modified as seen in Figure 1. Questionnaires were delivered to undergraduate dental students of the fourth and fifth year of study of dental medicine during clinical practices at the Department of Oral Medicine, School of Dental Medicine, University of Zagreb. Completing the questionnaire took 15 minutes.

The students of the 4th and 5th year were selected after they had attended lectures on oral diseases including oral cancer. Before beginning of the research, the study was approved by the institutional Ethics Committee. Participation in the study was voluntary with anonymous responses. Each student gave a written consent for use of the data for research purposes. The results were analysed using the chi-square test and MedCalc statistical package. P value <0.05 was considered as statistical significance limitation.

Results

The study included 122 students of the fourth year (94.6% of total number of the fourth year students) and 85 students of the fifth year (95.5% of total number of the fifth year students). The respondents of the fourth year were forty-five male (36.89%) and seventy-seven female (63.11%) students whose ages ranged from twenty-one to twenty-eight years (mean age = 21.96 years), while the respondents of the fifth year were twenty-seven male (31.76%) and fifty-nine female (69.41%) students whose ages ranged from twenty-three to thirty-five years (mean age = 23.23 years). The answers were not tabulated separately by years since the differences between the two groups were mostly not significant for many of the answers. In such cases, we considered the total student body altogether. Only answers where there was a difference of interest between years were highlighted.

On the first question, 'Do you examine patients' oral mucosa routinely?' (YES or NO), the students of both groups answered affirmative with a percentage of 72.46%.

On question 3, 'What would you consider as a risk factor for oral cancer?' students of both years gave a great number of different answers. The distribution of various risk factors is shown in Table 1.

There was no statistically significant difference in identification of smoking as a risk factor for oral cancer between both groups of students (94.2% of total student body altogether). However, the students of the fifth year showed statistically significant difference (fourth year 17.21% and fifth year 78.82%, $p < 0.001$) in identification of alcohol as a risk factor.

When asked about advising their patients about the risk factors for oral cancer, 60.87% of overall students reported that they do advise patients about risk factors for oral cancer.

On the fifth question (see Figure 1), a significantly greater number of students of the fifth year reported that they had

Tablica 1 Rizični čimbenici za razvoj raka usne šupljine
Table 1 Risk factors for oral cancer

Risk factors	Studenti 4. godine • 4 th year students (N=122)	Studenti 5. godine • 5 th year students (N=85)
Uživanje duhana • Tobacco smoking	111	84
Genetika i obiteljsko naslijeđe • Genetics and family heritage	36	24
Alkohol • Alcohol	21	67
Oralne prekancerozne lezije • Oral precancerous lesions	21	42
Imunosupresija • Immunosuppression		
Zračenje • Irradiation	14	4
HIV		
Mehanička iritacija, parafunkcija • Mechanical irritation, parafunction	11	14
Sustavne bolesti, lijekovi i dob • Systemic diseases, drugs and age	12	1
Nezdrav način života, tjelesna neaktivnost, izloženost suncu, stres, loša oralna higijena • Unhealthy way of life, physical inactivity, sun exposure, stress, poor oral hygiene	7	13
Infekcija • Infection	7	3
Ulceracije, afte, erozije • Ulcerations, aphtae, erosions	6	1
Kemijska iritacija i intoksikacija • Chemical irritation and intoxication	4	3
Vlasasta leukoplakija • Hairy leukoplakia	1	0
Prehrambeni čimbenici • Dietary factors	1	6
Upala kutova usana • Angular cheilitis	1	0
Tvrđi vried u sifilisu • Chancre	1	0
Žvakanje duhana • Tobacco chewing	0	3

Kad je riječ o prepoznavanju kliničkog izgleda raka usne šupljine, mnogo više studenata pete godine smatralo je da su vrlo dobro ili dobro upoznati s kliničkom slikom raka (studenti četvrte godine 10,65 %, studenti pete godine 47,05 %, $p < 0,0001$) u usporedbi sa studentima četvrte godine.

Na sedmo pitanje: „Koje bi promjene na oralnoj sluznici povezali s rakom usne šupljine?“ studenti su odgovorili kao što je prikazano na slici 2. Mnogo više studenata pete godine navelo je eritroplakiju kao oralnu leziju povezanu s karcinomom (studenti pete godine 69,41 %, studenti četvrte godine 18,85 %, $p < 0,0001$). Što se tiče leukoplakije, znatno više studenata pete godine prepoznalo je nehomogenu leukoplakiju kao oralnu leziju povezanu s rakom (studenti pete godine 88,23 %, studenti četvrte godine 47,54 %, $p = 0,0080$), a studenti četvrte godine naveli su homogenu leukoplakiju i kandidijalnu leukoplakiju kao oralne promjene povezane s rakom.

Na osmo pitanje - tko bi trebao liječiti pacijente s oralnim lezijama, većina studenata četvrte i pete godine odabrala je specijalista oralne medicine kao liječnika kojem bi uputili pacijenta (vidi sliku 3). Većina studenata obiju godina odabrala je estetskog kirurga kao specijalista kojemu bi poslali pacijenta sa sumnjom na rak usne šupljine (slika 4).

Kad je riječ o znanju o prevenciji i ranom otkrivanju raka usne šupljine, većina studenata četvrte godine (72,95 %) i trećina (30,58 %) onih s pete godine smatrala je da ne znaju dovoljno o toj bolesti. Tek manji broj njih s pete godine smatrao je da ima dovoljno znanja o prevenciji i ranom otkrivanju raka i u usporedbi sa studentima četvrte godine ta je razlika bila značajna (studenti pete godine 9,41 %, studenti četvrte godine 0,81 %, $p < 0,0001$). Gotovo sedamdeset posto

the opportunity to examine patients with potentially malignant disorders (16) (the fifth year 18.82% and the fourth year 1.64%, $p < 0.0001$).

Regarding the clinical appearance of oral cancer, a significantly greater number of students of the fifth year felt very well or well informed (students of the fourth year 10.65%, students of the fifth year 47.05%, $p < 0.0001$) compared to the students of the fourth year.

Question 7, 'What changes within the mouth would you associate with the oral cancer?', provided answers as shown in Figure 2. A significantly greater number of students of the fifth year identified erythroplakia (the fifth year students 69.41%, the fourth year students 18.85%, $p < 0.0001$) as oral lesion associated with the oral cancer.

Considering leukoplakia, a significantly greater number of students of the fifth year recognized non-homogeneous leukoplakia as an oral lesion associated with the oral cancer (the fifth year students 88.23%, the fourth year students 47.54%, $p = 0.0080$), while students of the fourth year showed better results in identifying homogeneous leukoplakia and Candidal leukoplakia. When asked who should treat patients with oral lesions (Question 8), the majority of both student groups selected Oral Medicine as the point of referral for such a patient (see Figure 3). On question 9, most students of both years have chosen plastic surgeon as a specialist to whom they would send a patient suspected of having an oral cancer (Figure 4).

Regarding the knowledge on prevention and early detection of oral cancer 72.95% of the fourth year students and 30.58% of the fifth year students, respectively, felt that they did not have sufficient knowledge, although a minority of

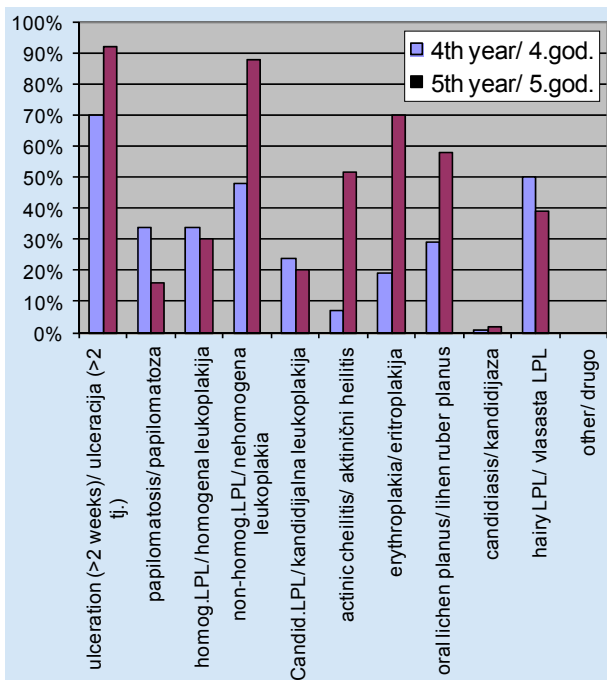
UPITNIK

- Godina studija _____ Dob _____ Spol M Ž
- Da li rutinski kod svakog pacijenta pregledate i oralnu sluznicu?
DA NE (zaokružite)
 - Ako je vaš odgovor na prvo pitanje NE da li pregledavate oralnu sluznicu pacijenata koji ulaze u kategoriju visokog rizika za oralni karcinom?
DA NE
 - Što smatrate čimbenicima rizika za oralni karcinom? (navedite)
.....
 - Upozoravate li i savjetujete vaše pacijente o izbjegavanju čimbenika rizika?
DA NE
 - Imate li tijekom studija priliku vidjeti pacijenta s oralnim prekanceroznim lezijama?
RIJETKO ČESTO
Ako je vaš odgovor često navedite s kojim prekanceroznim lezijama i na kojim zavodima?
.....
 - S obzirom na prepoznavanje kliničke slike oralnog karcinoma osjećate li se:
 - izvrsno informiranim
 - dobro informiranim
 - slabo informiranim
 - nedovoljno informiranim
 - Koje bi promjene na oralnoj sluznici povezali s oralnim karcinomom?
 - ulceraciju koja ne cijeli dulje od dva tjedna uz terapiju
 - papilomatoznu promjenu koju ne možemo sastrugati sa sluznice
 - homogenu leukoplakiju
 - nehomogenu leukoplakiju
 - kandidijalnu leukoplakiju
 - aktinični heilitis
 - eritroplakiju
 - oralni lichen planus
 - kandidijazu
 - vlasastu leukoplakiju
 - drugo.....
 - Tko bi, po vašem mišljenju, trebao liječiti pacijenta s oralnim lezijama:
 - svaki stomatolog
 - liječnik opće prakse
 - samo specijalist za bolesti usta
 - oralni kirurg
 - Kome bi uputili pacijenta u kojeg bi posumnjali u oralni karcinom:
 - drugom stomatologu
 - specijalistu oralne medicine
 - spec.maksilofacijalnom kirurgu
 - spec.otorinolaringologu
 - spec.oralnom kirurgu
 - spec.plastičnom kirurgu
 (brojevima od 1-6 označite redoslijed)
 - Smatrate li da imate dovoljno znanja o prevenciji i liječenju oralnog karcinoma?
DA NE nisam siguran/sigurna
 - Dobijete li dovoljno informacija tijekom studija o oralnom karcinomu?
DA NE
 - Želite li dobiti više informacija o prekanceroznim i kanceroznim lezijama?
DA NE
Ako ste zaokružili DA recite kojim načinom:
 - informativnim i popularnim člancima
 - organiziranim tečajevima trajne edukacije
 - sudjelovanjem u organiziranom istraživanju
 Ako imate drugih prijedloga i sugestija molim navedite:
.....
 - Kakvo znanje očekujete dobiti tijekom studija o prevenciji oralnog karcinoma?
.....
 - Što za vas znači prevencija oralnog karcinoma tj.što sve uključuje?
.....
 - Kakvo znanje očekujete dobiti tijekom studija o ranoj detekciji oralnog karcinoma?
.....
 - Što za vas znači rana detekcija oralnog karcinoma tj.što sve uključuje?
.....

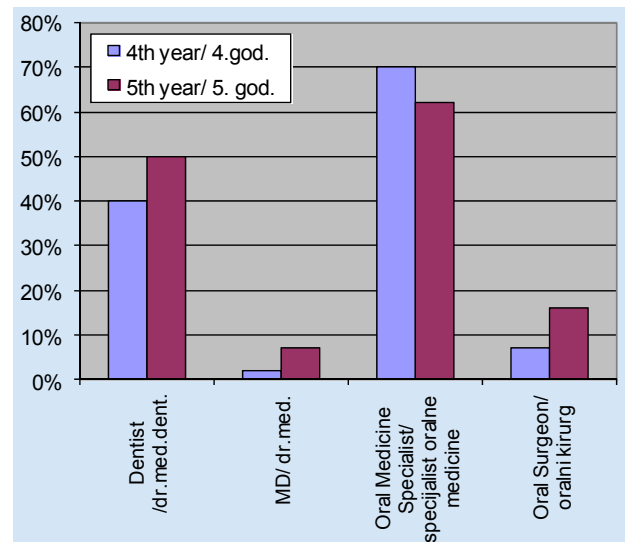
QUESTIONNAIRE

- Year of study _____ Age _____ Gender M F
- Do you examine patients' oral mucosa routinely? YES or NO
 - If your answer is NO to question 1., do you screen the oral mucosa if the patients are in high risk categories? YES or NO
 - What would you consider as risk factors for oral cancer?
.....
 - Do you advise patients about the risk factors for oral cancer?
YES or NO
 - Have you had the opportunity to examine patients with oral precancerous lesions during study? RARELY or FREQUENTLY
If your answer is frequently, name what type of lesions do you see and at which departments
.....
 - As regards the clinical appearance of oral cancer, do you feel?
 - Very well informed
 - Well informed
 - Adequately informed
 - Poorly informed
 - What changes within the mouth would you associate with oral cancer?
 - ulceration which is not healing after two weeks of therapy
 - papilomatous lesion which cannot be removed from the oral mucosa
 - homogeneous leukoplakia
 - non- homogeneous leukoplakia
 - Candidal leukoplakia
 - actinic cheilitis
 - erythroplakia
 - oral lichen planus
 - candidiasis
 - hairy leukoplakia
 - other....
 - Who, in your opinion, should treat patients with oral lesions:
 - Every Dentist
 - General Practitioner
 - Only Oral Medicine Specialist
 - Oral Surgeon
 - Where would you refer a patient if you suspected an oral malignancy?
 - Other Dentist
 - Oral Medicine Specialist
 - Maxillofacial Surgeon
 - Otolaryngologist
 - Oral Surgeon Specialist
 - Plastic Surgeon Specialist
 (numbers 1-6 indicate the order)
 - Do you feel that you have sufficient knowledge concerning prevention and management of oral cancer?
YES NO I am not sure
 - Do you get enough information during study of oral cancer?
YES NO
 - Would you like to get more information on precancerous and cancerous lesions? YES NO
If so, which format would you prefer:
 - Information pack
 - continuous education seminars
 - participation in an organized research
 If you have other suggestions please name them
.....
 - What knowledge do you expect to get during your study on prevention of oral cancer?
.....
 - What do you mean by prevention of oral cancer, that is, what does it involve?
.....
 - What knowledge do you expect to get during the study of early detection of oral cancer?
.....
 - What do you mean by early detection of oral cancer, that is, what does it involve?
.....

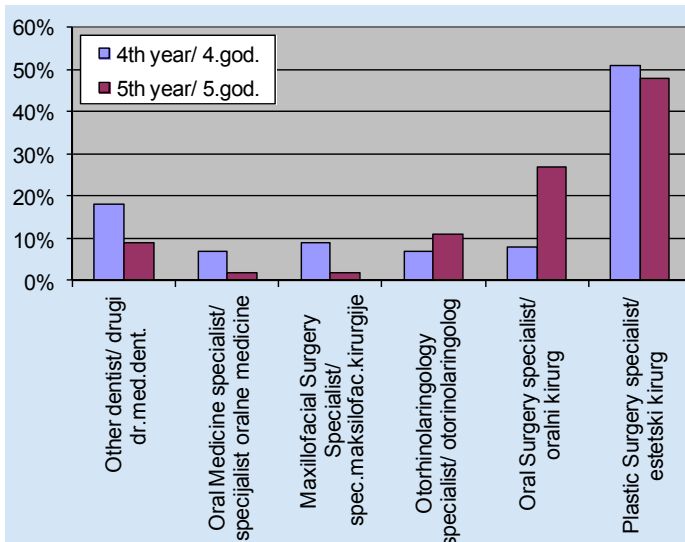
Slika 1. Upitnik
Figure 1 Questionnaire



Slika 2. Oralne promjene koje anketirani studenti povezuju s rakom usne šupljine
Figure 2 Distribution of answers regarding oral changes associated with oral cancer



Slika 3. Liječnik specijalist kojem bi studenti četvrti i pete godine poslali pacijenta s oralnim lezijama
Figure 3 Point of referral for a patient with oral lesions, selected by students of the fourth and fifth year



Slika 4. Liječnik specijalist kojem bi studenti četvrti i pete godine poslali pacijenta sa sumnjom na rak usne šupljine
Figure 4 Point of referral where they would send a patient suspected of having oral cancer, selected by students of the fourth and fifth year

(69,67 %) studenata četvrti godine i 42,35 posto studenata pete godine izjavilo je da tijekom studija nisu dobili dovoljno informacija o raku usne šupljine. Više od 90 posto studenata obiju godina navelo je da želi više naučiti o prevenciji i ranom otkrivanju raka, a kao najpopularniji način za to studenti četvrti godine naveli su informativni letak, a studenti pete godine tečajeve trajne izobrazbe.

Na pitanja kakvo znanje očekuju da će tijekom studija dobiti o prevenciji raka i što za njih znači prevencija raka usne šupljine, studenti nisu dali jasne odgovore. Kao mjere prevencije većina je navela savjete pacijentima da prestanu pušiti i redovite kontrole kod stomatologa. Taj podatak slaže se s odgovorom na osmo pitanje i pokazuje da studenti sma-

students of the fifth year felt that they had sufficient knowledge regarding prevention and early detection of oral cancer compared to the students of the fourth year and this difference was significant (the fifth year students 9.41%, the fourth year students 0.81%, $p < 0.0001$). Almost seventy percent (69.67%) of the fourth year students and 42.35% of the fifth year students declared they did not get enough information regarding oral carcinoma during their study. Over ninety percent of both groups of students requested further information on prevention and early detection of oral cancer with an information pack being the most popular form of further information for the fourth year students and permanent education courses for the fifth year students.

traju da su liječnik opće dentalne medicine i specijalist oralne medicine ključni u otkrivanju i liječenju oralnih lezija.

Na pitanje kakvo znanje očekuju tijekom studija o ranom otkrivanju raka, studenti su uglavnom odgovarali kako žele steći dovoljno znanja za rad u ordinaciji. Na posljednje pitanje - što za njih znači rano otkrivanje raka usne šupljine, uglavnom su navodili rane stomatološke preglede, otkrivanje i biopsiranje sumnjivih lezija i postavljanje dijagnoze u ranom stadiju.

Rasprava

Rezultati ovog istraživanja pokazali su da studenti pete godine imaju više znanja o raku usne šupljine nego studenti četvrte godine, što se i moglo očekivati s obzirom na dvostruko veću satnicu kliničke nastave iz oralne medicine i više kliničkog rada s pacijentima u usporedbi sa studentima četvrte godine, pa se očekuje da će imati i veću svijest o raku usne šupljine. Studenti dentalne medicine počinju učiti oralnu medicinu na četvrtoj godini i to tako da u prvom semestru slušaju samo predavanja, a od drugoga, uz predavanja, pohađaju i kliničke vježbe koje se nastavljaju i tijekom dva semestra pete godine. Na kliničkim vježbama studenti četvrte i pete godine uključeni su u rad s pacijentima iz dnevne kazuistike Zavoda za oralnu medicinu, tako da je vjerojatno da će svi tijekom nastave vidjeti pacijenta s rakom usne šupljine.

Tijekom kliničkih vježbi svaki student dužan je provesti cijeli dijagnostički postupak najmanje jednog bolesnika - od uzimanja anamneze, kliničkog pregleda i kliničkih testova do planiranja oralno-medicinske terapije. U ranijim istraživanjima, u kojima su uspoređivalo znanje studenata medicine i dentalne medicine, istaknuto je da veću svijest i znanje o oralnom karcinomu imaju studenti dentalne medicine, što je i očekivano s obzirom na prirodu studija. Istraživanja u kojima su se uspoređivala znanja o oralnom karcinomu među studentima dentalne medicine različitih sveučilišta, pokazala su da studenti viših godina (11, 16) znaju više o oralnom karcinomu, što je u skladu s našim rezultatima. Tu činjenicu potvrđuje rezultat našeg istraživanja da studenti pete godine bolje poznaju rizične čimbenike te prepoznaju morfološke promjene na sluznici usne šupljine i potencijalno zloćudne lezije koje mogu prethoditi raku usne šupljine.

Pušenje kao rizični čimbenik u slučaju raka dobro su prepoznali studenti obiju godina. Taj podatak je usporediv s podacima iz drugih istraživanja (6). Studenti pete godine postigli su bolje rezultate u prepoznavanju alkohola kao rizičnog čimbenika sa sličnom (18), višom (6) ili nižom učestalošću (10, 19) u usporedbi u drugim studijama. Tek vrlo malo studenata četvrte godine navelo je alkohol kao rizični čimbenik

On descriptive questions such as what kind of knowledge they expect to get during their study in the prevention of oral cancer and what they mean under prevention of oral cancer, the students did not give clear answers. Regarding measures of prevention of oral cancer, most of students mentioned counselling on smoking cessation and regular check-ups with their dentist. This answer is consistent with the response to the eighth question and shows that they believe that a general dentist and a specialist in oral medicine are crucial in the detection and treatment of oral lesions.

On descriptive questions such as what kind of knowledge of early detection of oral cancer they expect to get during their study, most of the students responded that they would like to get sufficient knowledge to be able to work in practice. On the last question, what early detection of oral cancer means for them, they mainly reported early dental examinations, detection and biopsy of suspicious lesions and the diagnosis at an early stage.

Discussion

The results of this study have shown that students of the fifth year of dental study have more knowledge about oral cancer than the students of the fourth year. Students of the fourth year are not expected to have equal competence as more hours of teaching take place in the fifth year. It is obvious that the fifth year students will have more exposure due to the two times longer hourly rate of clinical practice and more patient-oriented teaching in oral medicine and therefore they are expected to be more aware. Dental students begin to learn oral medicine in the 4th year with only theory classes during the first semester, accompanied by clinical practice in the second semester which continues during the two semesters of the fifth year. During clinical exercises, students of the fourth and fifth years are involved in clinical work treating patients of the Department of Oral Medicine, so it is likely that all students will have an opportunity to see a patient with oral cancer.

During clinical exercises, each student is obliged to perform the entire diagnostic procedure from taking a medical history, performing physical examination and carrying out clinical tests to planning oral medicine therapy. Previous studies that compared medical and dental students' knowledge have shown greater awareness and knowledge of oral cancer in dental students, which is also expected given the nature of the study itself. Studies that have assessed knowledge of oral cancer among dental students from different universities have shown a better understanding of these issues among students of senior years of study (11, 16), which is consistent with our results. This fact is confirmed by the result of our study that fifth year students showed a better knowledge on risk factors and identification of morphological changes and potentially malignant disorders of oral mucosa that may precede the oral cancer.

Smoking tobacco as a risk factor for oral cancer was identified well by students of both years. This is comparable with data from other studies (6). Fifth year students showed better results in identification of alcohol as a risk factor with simi-

za razvoj raka usne šupljine. Taj rezultat upućuje na to da je potrebno tijekom teoretske nastave isticati sinergijsko djelovanje alkohola i duhana u razvoju oralnih prekanceroznih i kanceroznih lezija, što treba potkrijepiti istraživanjima u kojima je dokazano da zajednički učinak duhana i alkohola povećava rizik od oralnog karcinoma (8, 20) i do stotinu puta (21).

Rezultat da studenti pete godine mnogo češće imaju mogućnost pregledati bolesnike s prekanceroznim oralnim lezijama u odnosu na studente četvrte godine, ne iznenađuje s obzirom na dvostruko veću satnicu kliničkih vježbi, što je u skladu s rezultatima iz dostupne literature (6). Mnogo više studenata pete godine dobro je ili čak vrlo dobro poznavalo kliničku sliku raka usne šupljine. Također su bili uspješniji u prepoznavanju eritroplakije i nehomogene leukoplakije kao prekanceroznih lezija. Studenti četvrte godine postigli su bolje rezultate u prepoznavanju kandidijalne leukoplakije i homogene leukoplakije kao prekanceroznih lezija. To se slaže s podacima iz literature u kojoj se ističe da su studenti završnih godina pokazali bolje znanje o rizičnim čimbenicima i kliničkim karakteristikama prekancerozne lezije (11, 17).

No, iznenađuje da su studenti obiju godina naveli estetskog kirurga kao specijalista kojem bi poslali pacijenta za kojeg su posumnjali da ima rak usne šupljine (slika 4). Taj rezultat ne možemo usporediti sa sličnima iz literature (10).

Kad je riječ o znanju o prevenciji i ranom otkrivanju raka, većina studenata obiju godina smatrala je da nemaju dovoljno znanja o tome i da nisu dobili dovoljno informacija tijekom studija. Taj rezultat zabrinjava i upozorava da tijekom teoretske nastave, seminara i kliničkog rada studentima treba proslijediti više informacija o raku usne šupljine te im omogućiti da sudjeluju u preventivnim i *screening*-programima raka usne šupljine. Tijekom kliničkih vježbi, uz pomoć nastavnika, student treba steći vještinu u obavljanju detaljnog i sveobuhvatnog kliničkog intraoralnog pregleda prema regijama te, uz inspekciju, palpirati sva dostupna područja usne šupljine (usne, bukalnu i vestibularnu sluznicu, sluznicu gingive i nepca, jezik i dno usne šupljine). Ekstraoralni pregled, osim inspekcije, treba sadržavati i palpaciju limfnih čvorova glave i vrata. Student treba naučiti kako se obavljaju klinički dijagnostički testovi bojenja plavim toluidinom te uzimanje biopsije i eksfolijativno-citološkog obriska uz pomoć citološke četkice za daljnju dijagnostiku, uključujući i genetičke analize. U kliničku nastavu treba uvrstiti nacionalne preventivne i *screening*-programme te međunarodne promotivne i preventivne aktivnosti kao što je OHANCAW (od engl. Oral, Head and Neck Cancer Awareness Week; međunarodni tjedan svijesti o raku usne šupljine, glave i vrata).

Teoretska nastava treba pružiti recentne informacije o istraživanjima patogeneze prekanceroznih i zloćudnih promjena, o dijagnostici, epidemiologiji, preventivnim programima i mogućnostima liječenja oralnih komplikacija, te o kemo- i radioterapiji raka. Poznavanje molekularnih mehanizama nastanka zloćudnih promjena omogućuje studentu bolje razumijevanje dijagnostičkih postupaka te njihovu adekvatnu i racionalnu primjenu, osobito u budućoj samostalnoj kliničkoj praksi. Kontinuirana provjera znanja o mogućim uzrocima raka, rizičnim čimbenicima, prepoznavanje

lar (18), higher (6) or lower frequencies (10, 19) compared to other studies. A very small number of fourth year students identified alcohol as a risk factor for oral cancer. During theoretical lectures the synergistic effect of tobacco and alcohol in the development of oral precancerous and cancerous lesions should be more emphasised and corroborated with the results of studies that have shown that the synergistic effect of tobacco and alcohol increases the risk of oral cancer (8, 20) up to one hundred times (21).

Considering longer hourly rate of clinical practice it is not surprising that significantly more fifth year dental students than the fourth year students reported having had the opportunity to examine patients with potentially malignant disorders, which is consistent with results from the available literature (6). A significantly greater number of fifth year dental students felt very well or well informed regarding the clinical appearance of oral cancer and were more successful in identification of erythroplakia and non-homogeneous leukoplakia as precancerous lesions. Fourth year students showed better results in identification of Candidal leukoplakia and homogeneous leukoplakia as precancerous lesions. This is in consistence with data from the literature where students of the final years showed greater knowledge of risk factors and clinical features of the precancerous lesion (11, 17). It is surprising that most of the students of both years have chosen a plastic surgeon as a specialist to whom they would send a patient suspected of having an oral cancer (Figure 4), which is not consistent with data from the literature (10).

Regarding knowledge on prevention and early detection of oral cancer, the majority of students of both years felt that they did not have sufficient knowledge on prevention and early detection of oral cancer and even determined that they did not get enough information during their studies. This finding should be taken seriously and should encourage further improvement in providing information on oral cancer during lessons, seminars and clinical work as well as giving them an opportunity to participate in oral cancer prevention programs. The curriculum needs to be strengthened both in clinical practice and in theoretical lectures. During clinical practices, under the supervision of faculty, students should acquire skills to perform a thorough and comprehensive intraoral physical examination by regions and to palpate all areas available to palpation (lips, buccal and vestibular mucosa, palate, sublingual region and the tongue). Extraoral examination should also include a detailed inspection and palpation of lymph nodes of the head and the neck. The students should learn how to perform clinical diagnostic procedures such as vital tissue staining with toluidine blue, biopsy and exfoliative cytology with cytobrush technique for further diagnostic procedures including molecular diagnostics. During clinical work they should also be included in national preventive and screening programs for oral cancer and in the international preventive and promotional activities such as Oral, Head and Neck Cancer Awareness Week (OHANCAW). During the theoretical lectures the student should be informed on the pathogenesis of oral premalignant disorders and oral cancer, diagnostics, epidemiology of oral cancer, preventive programs and management of complications

ranih lezija na sluznici koje sadržavaju zloćudni potencijal te obavljanje dijagnostičkih kliničkih testova tijekom semestra, daje studentima informaciju o njihovom napretku i razini znanja i vještina koje su stekli te ih može uputiti i na dodatno učenje. Osim toga studentu može biti motivacija i upućivanje u pretraživanje literature, seminarski radovi i prikazi kliničkih slučajeva. Završna provjera znanja o oralnim bolestima u sklopu oralne medicine, uključujući prekancerozne lezije i rak usne šupljine, treba obuhvaćati usmeni, pismeni i praktični dio ispita. Prednost usmene provjere znanja jest procjena postignutih kliničkih, dijagnostičkih i komunikacijskih vještina koje student treba usvojiti tijekom edukacije i primijeniti u budućoj samostalnoj kliničkoj praksi.

Zaključak

Zadaća liječnika dentalne medicine u ranom otkrivanju i prevenciji raka usne šupljine vrlo je važna. On prvi može otkriti sumnjivu i asimptomatičnu leziju na sluznici usne šupljine i zato bi studenti dentalne medicine trebali steći dovoljno znanja i potrebnih vještina tijekom diplomske nastave da mogu prepoznati kliničku sliku i rizične čimbenike raka usne šupljine. Pušenje i alkohol glavni su rizični čimbenici za razvoj raka usne šupljine i liječnici dentalne medicine trebaju biti uključeni u odgovarajuće programe savjetovanja te u screening-programe. Ovo istraživanje pokazuje da je znanje studenata o raku usne šupljine proporcionalno broju sati kliničke nastave te da se nedostaci u znanju i uz postojeću satnicu mogu izbjeći ako se promijeni i dopuni sadržaj nastavnog programa.

Sukob interesa

Autori izjavljuju da ne postoji sukob interesa.

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of cancer therapy. Also, students should know to whom dentists should refer patients with oral malignancies and who the first point of referral is. The knowledge about the molecular mechanisms of oral precancerous disorders that precede oral carcinoma is also needed in order to better understand diagnostic procedures and to be able to apply them appropriately.

Students' knowledge about aetiology, risk factors, prevention, early detection and diagnostics of oral potentially malignant disorders and oral cancer should be evaluated during classes, through literature reviews, written essays and case reports. At the end of the classes of oral medicine, the students' knowledge needs to be verified both in writing and orally.

Conclusion

The role of dental practitioners in early detection and prevention of oral cancer is very important. A dentist is often the first to see suspicious but asymptomatic oral lesions and therefore dental students should get sufficient knowledge during their undergraduate education about clinical appearance, risk factors and prevention of the oral cancer. Smoking and alcohol use are the main risk factors for oral and oropharyngeal cancers and dental practitioners should be included in risk advising and screening programs. This study highlights the need to improve dental students' knowledge about the appearance of potentially malignant disorders and oral cancer, and appropriate early diagnostics of patients with such oral lesions as well as strengthening the curriculum in practical and theoretical classes.

Competing interests

The authors declare that they have no competing interests.

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Abstract

Objective of work: The aim of this study was to assess undergraduate dental students' knowledge on prevention and early detection of oral cancer at the School of Dental Medicine, University of Zagreb, Croatia. **Materials and Methods:** A questionnaire which tested oral cancer awareness was given to undergraduate dental students of the 4th and 5th year during practicals in oral medicine. A total of 207 students participated in this survey, 122 students of the fourth year (94.6% of the total number of 4th year students) and 85 students of the fifth year (95.5% of the total number of 5th year students). **Results:** The response of both groups was very high (95%). Students of the 5th year showed more knowledge about oral cancer because they have twice the hourly rate of practicals and more patient-oriented teaching in oral medicine. In comparison with the 4th year, students of the 5th year are more informed about the recognition of clinical appearance of oral cancer and type of oral lesions associated with oral cancer, identification of alcohol as a risk factor and to whom the patient should be referred for treatment. **Conclusion:** Gaps in student's knowledge about oral cancer highlight the areas that need to be strengthened in dental curriculum regarding oral cancer education. Higher hourly rate of student's clinical work focused on this issue contributed to a better understanding and awareness of oral cancer.

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Key words

Mouth Neoplasms; Students, Dental; Croatia

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