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Knowledge, Attitudes, and Practice of Clinicians Regarding Dysgeusia as a Complication of (Chemo) Radiotherapy

Znanje, stajališta i praksa liječnika o disgeuziji prouzročenoj (kemo)radioterapijom

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Abstract

Objectives: To examine the current knowledge, attitudes, and everyday practice of specialists and residents treating patients with head and neck tumors about dysgeusia that developed due to chemoradiotherapy. **Materials and Methods:** Specialists and residents treating oncologic patients with head and neck tumors were distributed anonymous questionnaires, available in both physical and online formats via Google Forms. The research was authorized under the ethics protocol number 05-PA-2-5/25. **Results:** In this study, 89 respondents (mean age 39.4 ± 11.3 years) participated, comprising 62.9% men and 31.7% women, with 13.1 ± 10.8 years of work experience. A total of 36.0% of respondents were not familiar with dysgeusia at the time of their study, and 33.7% of them were not educated about dysgeusia as a complication of chemoradiotherapy. Also, 23.6% of respondents are unfamiliar with the fact that effective therapy for dysgeusia has not yet been discovered. Only 9% of respondents agreed, and 2.3% of them strongly agreed, that verified, professional information about dysgeusia is easily available. A total of 3.6% of respondents reported that they sometimes successfully treat dysgeusia with zinc supplementation, 10.1% of them reported 'usually', and 3.4% of them 'always'. **Conclusions:** Doctors who treat oncological patients often lack specific basic knowledge, attitudes, and approaches to patients in everyday practice, which vary from doctor to doctor. To ensure a high-quality approach for the patients mentioned, it is necessary to expand research on dysgeusia and improve access to professional literature.

Received: February 16, 2026

Accepted: August 4, 2026

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MeSH Terms: Health Knowledge, Attitudes, Practice; Medical Staff; Head and Neck Neoplasms
Author Keywords: Dysgeusia; Head and neck tumors; Chemoradiotherapy; Taste disorders

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Introduction

Dysgeusia, or taste disorder, is one of the acute complications that occur during the therapy for head and neck squamous cell carcinoma (HNSCC) patients. It occurs due to the distortion or reduction of the sense of taste as a consequence of damage to the oral epithelium, taste buds, and nerves caused by radiotherapy (RT) or chemotherapy (CT) (1). There are very few studies examining taste changes asso-

Uvod

Disgeuzija, odnosno poremećaj okusne osjetljivosti, jedna je od akutnih komplikacija koje se pojavljuju tijekom liječenja pacijenata s planocelularnim karcinomima glave i vrata (HNSCC). Nastaje zbog iskrivljenja ili smanjenja osjeta okusa kao posljedica oštećenja oralnog epitela, okusnih pupoljaka i živaca, a uzrok je radioterapija (RT) ili kemoterapija (CT) (1). Vrlo je malo autora studija koji proučavaju okusne

ciated with oncology therapy, and hence this topic remains under-researched. The existing studies have shown the involvement of all basic tastes due to the exposure of the oral cavity to RT or CT (2). The basic tastes that taste buds—which are located on the tongue, the soft palate, and the epiglottis—can recognize are bitter, sour, sweet, salty, and umami.

Umami is the fifth taste, relatively new in the literature, and is described as fleshy and juicy (3). HNSCC patients are exposed to high and frequent radiotherapy doses, and a large number of patients receive systemic therapy in the form of CT, which results in several adverse effects on the body. Chemoradiotherapy (CRT), through its direct cytotoxicity and antiproliferative effects, disrupts taste bud renewal, causing damage and, consequently, leading to their loss and altered sense of taste (dysgeusia), reduced sensitivity to taste stimuli (hypogeusia), or loss of taste sensitivity (ageusia) (4). Dysgeusia is a common undesirable symptom in 60 to 95% of patients who undergo radiotherapy, and at the same time, one of the most neglected symptoms during and after CRT in oncological patients (5). Dysgeusia appears as early as the second week of therapy, and the total number of taste buds significantly reduces between the first and second radiotherapy (RT) fractions. Mirza et al. (2008) state that the number of taste buds stabilizes within six months after the end of RT (1,6). Taste sensitivity usually returns within two to six months after the end of chemoradiotherapy (CRT); however, in some patients, taste impairment can be permanent (2). Radiation doses over 60 Gy significantly worsen taste loss during the third and fourth weeks of therapy; therefore, the third week of treatment is referred to in the literature as the “critical week.” The longer the exposure time to CRT, the more severe the taste impairment becomes (1). Often, patients are not sufficiently informed about possible CRT side effects and complications, and therefore are not able to cope with an altered health status, which significantly reduces the quality of life (12). Although official guidelines for the management of patients with dysgeusia do not exist, some scientific papers outline self-care strategies that can reduce symptom severity, such as consuming cold or lukewarm food, eating smaller meals more frequently, seasoning food, staying hydrated, and avoiding food with strong smells. Also, it is recommended to maintain proper oral hygiene and remove plaque from the coated tongue (7). The purpose of this research was to analyze the current knowledge, attitudes, and everyday clinical practice of specialists and residents who treat head and neck tumor patients regarding dysgeusia as a complication of CRT. This study aimed to identify knowledge gaps among doctors and differences in their attitudes and practices in oncological patient care, both of which are driven by a lack of professional literature and guidelines for patient management.

Materials and Methods

This study was approved by the Ethics Committee of the School of Dental Medicine, University of Zagreb, under the ethical protocol number 05-PA-2-5/25. Specialists and res-

promjene nastale zbog onkološke terapije i zato je ova tema limitirana. U dosadašnjim studijama istaknuta je važnost svih osnovnih okusa zbog izloženosti usne šupljine RT-u, odnosno CT-u (2). Osnovni okusi koje okusni pupoljci, a smješteni su na bazi jezika, mekom nepcu i epiglottisu, mogu raspoznati jesu gorko, kiselo, slatko, slano i umami. Umami je peti okus koji je u literaturi razmjerno nov te se opisuje kao mesnat, sočan okus (3). Pacijenti koji boluju od HNSCC-a izloženi su visokim i čestim dozama radioterapije, a mnogi primaju i sistemno liječenje u obliku kemoterapije koje za posljedicu ima niz negativnih učinaka na organizam. Kemo-radioterapija (CRT) izravnim citotoksičnim i antiproliferativnim djelovanjem onemogućuje obnovu stanica okusnih pupoljaka poslije izazvanog oštećenja i posljedično rezultira njihovim gubitkom te promijenjenim osjetom okusa (disgeuzija), smanjenom osjetljivošću na okusne podražaje (hipogeuzija) ili gubitkom okusne osjetljivosti (ageuzija) (4). Disgeuzija je često nepoželjan simptom kod 60 do 95 % onkoloških bolesnika koji su bili na radioterapiji, a ujedno jedan od najzanimljivijih tijekom CRT-a i poslije te terapije (5). Pojavljuje se već tijekom drugoga tjedna terapije jer se ukupni broj okusnih pupoljaka značajno smanjuje od njezine prve do druge frakcije. Mirza i suradnici navode da se broj okusnih pupoljaka stabilizira unutar 6 mjeseci poslije završetka RT-a (1, 6). Okusna osjetljivost obično se vraća 2 do 6 mjeseci poslije završetka CRT-a, a kod nekih pacijenata može biti doživotna (2). Dokazano je da doze zračenja iznad 60 Gy uzrokuju značajno pogoršanje gubitka okusa tijekom trećega i četvrtoga tjedna terapije i zato se treći tjedan u literaturi navodi kao *kritični tjedan*. Što je vrijeme izlaganju CRT-u duže, to su teži oblici disgeuzije (1). Često pacijenti nisu dovoljno obaviješteni o mogućim nuspojavama i komplikacijama CRT-a pa se ne znaju nositi s promijenjenim zdravstvenim stanjem, što znatno smanjuje kvalitetu života (12). Iako službene smjernice za postupak s pacijentima kod kojih se pojavila disgeuzija ne postoje, neki autori u svojim radovima navode *self-care* strategije koje mogu smanjiti izraženost simptoma kao što su konzumiranje hladnih ili mlakih jela, više manjih obroka, dodavanje začina u jela, redovita hidratacija i izbjegavanje jela s intenzivnim mirisom. Također se preporučuje održavati pravilnu oralnu higijenu i uklanjati naslage s obloženog jezika (7). Svrha ovog istraživanja jest ispitati trenutno znanje, stajališta i svakodnevnu praksu specijalista i specijalizanata koji liječe pacijente s tumorima glave i vrata o disgeuziji nastaloj zbog CRT-a. Ciljevi istraživanja bili su upozoriti na nedovoljnu informiranost liječnika te na razlike u stajalištima i praksi u brizi za onkološke bolesnike zbog nedostatka stručne literature i preporuka za postupanje s takvim pacijentima.

Materijali i postupci

Ovo istraživanje odobrilo je Etičko povjerenstvo Stomatološkog fakulteta Sveučilišta u Zagrebu – broj protokola 05-PA-2-5/25. Liječnicima specijalistima i specijalizantima ko-

idents treating oncologic patients with head and neck tumors were distributed anonymous questionnaires, available in both physical and online formats via Google Forms. This study involved specialists and residents in maxillofacial surgery, oncology and radiotherapy, oral medicine, oral surgery and otorhinolaryngology. The survey questionnaires were designed based on the KAP (knowledge, assessment, practice) questionnaire and contain 37 questions divided into four parts. The first part consists of 8 questions related to the general data of the respondents: age, gender, years of work experience, specialization, current level of education, and questions about previous education and familiarity with dysgeusia caused by CRT. The second part comprises 11 questions on dysgeusia, with respondents choosing one or more correct answers. The third part consists of 7 questions related to respondents' attitudes, in which respondents have marked statements on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The fourth part consists of 11 practice questions, in which respondents graded statements using a Likert scale from 1 (never) to 5 (always). Statistical analysis was performed using Microsoft Excel. Descriptive statistical methods were used to summarize the data. Categorical variables were presented as absolute and relative frequencies, whereas numerical variables were summarized using the arithmetic mean, standard deviation, and median.

Results

In this study, 101 respondents participated. 12 questionnaires were excluded due to incomplete data or failure to meet the study criteria for treatment of patients with head and neck tumors.

Table 1 presents the general data of the respondents. In this research, 89 respondents participated, with a mean age of 39.4 ± 11.3 years, 62.9% of them were men, and 37.1% of them were women, with 13.1 ± 10.8 years of working experience. A total of 36.0% of respondents were not familiar with dysgeusia at the time of their study, and 33.7% of them were not educated about dysgeusia as a complication of chemoradiotherapy (Figure 1). Only 5.6% of respondents were unfamiliar with the definition of dysgeusia as a taste disorder. A total of 42.7% of respondents correctly identified all five basic tastes: bitter, sour, sweet, salty, and umami (Figure 2). Furthermore, 98.9% of respondents recognized phantogeusia as the perception of a taste in the absence of stimuli, and ageusia as the complete loss of taste. Finally, in a multiple-choice question, 68.5% of respondents indicated that zinc deficiency can cause dysgeusia. Drug-induced dysgeusia, according to studies, is most often caused by medications for malignant disease treatment and immunomodulators, followed by medications for systemic infections and by drugs that affect the nervous system, which 78.7% of respondents recognized. The application of different solutions is not in accordance with the 5.6% of respondents who reported the most common method for diagnosing dysgeusia. According to 56.2% of respondents, patients who develop dysgeusia should be recommended aromatic, highly seasoned foods, cold meals, and smaller, more frequent portions (Figure 3).

ji liječe onkološke bolesnike s tumorima glave i vrata putem Google obrasca poslani su anonimni upitnici dostupni u fizičkom i elektroničkom obliku. U istraživanju su sudjelovali liječnici specijalisti i specijalizanti maksilofacijalne kirurgije, onkologije i radioterapije, oralne medicine, oralne kirurgije i otorinolaringologije. Anketni upitnici oblikovani su na temelju upitnika KAP (knowledge, assessment, practice) i sadržavaju 37 pitanja podijeljenih u 4 dijela. Prvi dio sastoji se od 8 pitanja o općim podacima ispitanika. To su dob, spol, godine radnog iskustva, specijalizacija i specijalistički stupanj te pitanja o dosadašnjoj edukaciji i obaviještenosti o disgeuziji prouzročenoj CRT-om. Drugi dio sadrži 11 pitanja vezanih za znanje o disgeuziji, a ispitanici su trebali zao kružiti jedan ili više točnih odgovora. Treći dio sastoji se od 7 pitanja o stajalištima ispitanika u kojemu su trebali ocijeniti tvrdnje Likertovom ljestvicom od 1 (uopće se ne slažem) do 5 (u cijelosti se slažem). Četvrti dio sastoji se od 11 pitanja vezanih za praksu ispitanika u kojemu su ispitanici ocijenili tvrdnje vrednovane Likertovom ljestvicom od 1 (nikada) do 5 (uvijek). Statistička analiza obavljena je u programu Microsoft Excel. Za opis podataka korištene su metode deskriptivne statistike. Kategorijski podatci prikazani su apsolutnim i relativnim frekvencijama, a numerički aritmetičkom sredinom, standardnom devijacijom i medijanom.

Rezultati

Istraživanju je pristupio 101 ispitanik. Dvanaest anketnih upitnika nije uključeno u istraživanje zbog nepotpunih odgovora i neispunjavanja kriterija da liječe bolesnike s tumorima glave i vrata.

U tablici 1. opći su podatci o ispitanicima. U istraživanju je sudjelovalo 89 ispitanika srednje dobi ($39,4 \pm 11,3$ godina) i to 62,9 % muškaraca i 37,1 % žena s radnim iskustvom od $13,1 \pm 10,8$ godina. Tijekom studija 36,0 % ispitanika nije bilo upoznato s disgeuzijom, a 33,7 % nije educirano o disgeuziji kao posljedici kemoradioterapije (Slika 1.). Samo 5,6 % ispitanika nije znalo da se disgeuzija definira kao poremećaj u okusnoj osjetljivosti. Njih 42,7 % prepoznalo je sve osnovne okuse (gorko, kiselo, slatko, slano, umami) koje osjetne stanice mogu prepoznati (Slika 2.). 98,9% ispitanika prepoznalo je fantogeuziju kao prisutnost određenoga okusnoga osjeta u odsutnosti okusnoga podražaja, te ageuziju kao gubitak okusne osjetljivosti. Među više ponuđenih nutrijenata, 68,5 % ispitanika odabralo je odgovor da manjak cinka potiče pojavu disgeuzije. Disgeuziju prouzroče nu lijekovima, prema istraživanjima, najčešće izazivaju lijekovi za zloćudne bolesti i imunomodulatori, zatim lijekovi za tretiranje sustavnih infekcija te oni s djelovanjem na živčani sustav koje je prepoznalo 78,7 % ispitanika. Primjena različitih otopina, prema mišljenju 5,6 % ispitanika, nije najčešća metoda u dijagnosticiranju disgeuzije. Prema stajalištu 56,2 % ispitanika trebalo bi pacijentima s disgeuzijom preporučiti aromatičnu i jako začinjenu hranu, hladna jela te više manjih obroka (Slika 3.), a 23,6 % ispitanika nije znalo da učinkovite terapije za disgeuziju još nema (Slika 4.). 76,4% ispitanika smatra da se disgeuzija povlači nekoli-

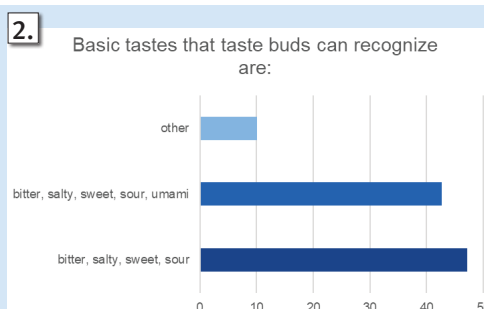
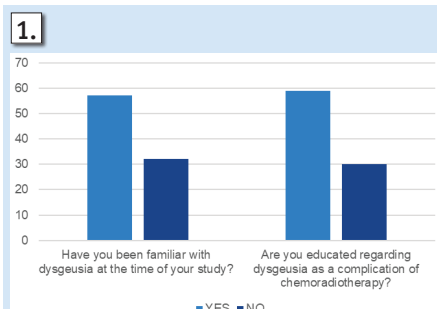


Figure 1. Familiarity with dysgeusia.

Slika 1. Upoznatost s disgeuzijom.

Figure 2. Knowledge of the basic tastes.

Slika 2. Znanje o osnovnim okusima.

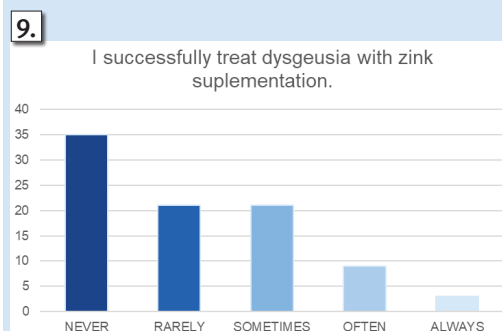
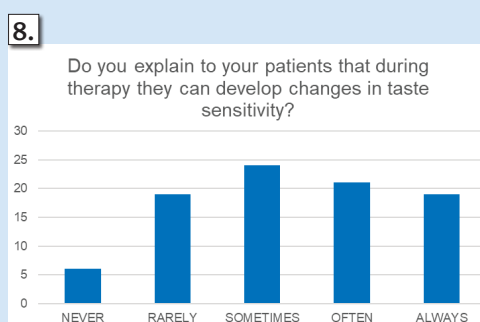
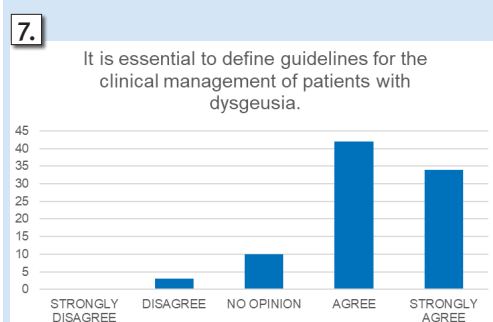
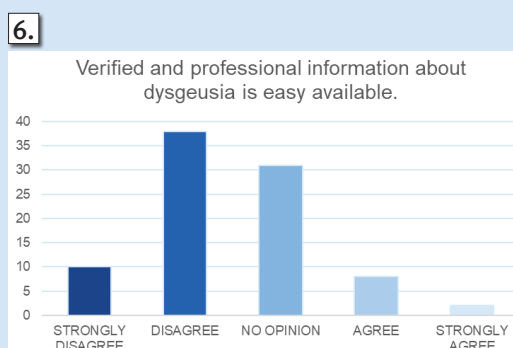
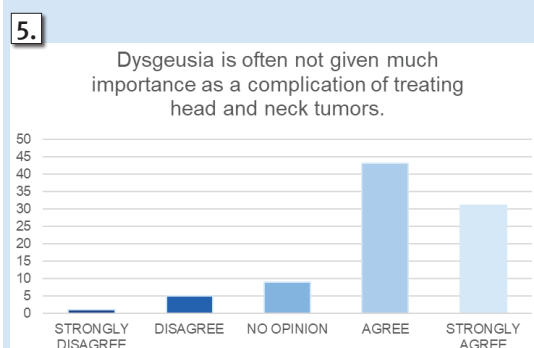
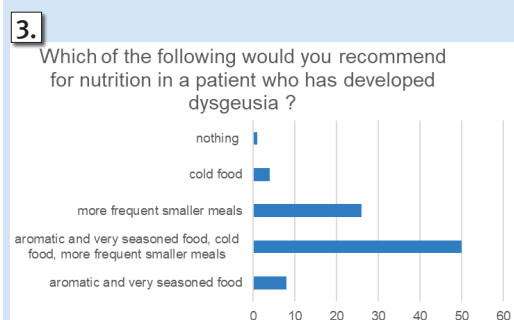


Figure 3. Nutrition recommendations for dysgeusia patients.

Slika 3. Preporuke u prehrani kod pacijenata s disgeuzijom.

Figure 4. Knowledge of effective treatment of dysgeusia

Slika 4. Znanje o učinkovitoj terapiji disgeuzije.

Figure 5. Attitudes toward dysgeusia as a complication of chemoradiotherapy.

Slika 5. Stav o disgeuziji kao komplikaciji kemoradioterapije.

Figure 6. Attitudes toward availability of verified and professional information about dysgeusia.

Slika 6. Stav o dostupnosti provjerenih i stručnih informacija o disgeuziji.

Figure 7. Attitudes toward defining guidelines for the clinical management of patients with dysgeusia.

Slika 7. Stav o izradi smjernica za zbrinjavanje pacijenata s disgeuzijom.

Figure 8. Informing patients about the possibility of developing dysgeusia in practice.

Slika 8. Informiranje pacijenata, o vjerojatnosti razvoja disgeuzije, u praksi.

Figure 9. Zinc supplementation in practice.

Slika 9. Suplementacija cinkom u praksi.

Table 1 General characteristics
Tablica 1. Opći podatci

Category	Groups	Number of respondents	Average	SD	Median
Age		89	39.38	11.33	36
Sex	M	56	62.92		
	F	33	37.08		
Current level of education	Specialist	48	53.93		
	Resident	41	46.07		
Specialization	Maxillofacial surgery	18	20.23		
	Oncology	10	11.24		
	Oral surgery	11	12.36		
	Oral medicine	11	12.36		
	Otorhinolaryngology	39	43.82		
Work experience		89	13.1	10.8	10

Table 2 Category: Attitudes
Tablica 2. Kategorija stavovi

Question number	Attitude questions	Average	SD	Median	MOD
1	Dysgeusia is the least harmful head and neck CRT complication.	3.29	0.944	3	4
2	Dysgeusia is often not given much importance as a complication of treating head and neck tumors.	4.1	0.88	4	4
3	Loss or altered sense of taste can deeply affect nutrition, the outcome of treatment and patients' everyday life.	4.08	0.869	4	4
4	Optimal oral hygiene and tongue brushing can affect the improvement of taste sensitivity in patients with dysgeusia.	3.69	0.748	4	4
5	Verified and professional information about dysgeusia is easily available.	2.48	0.893	2	2
6	It is necessary to continue research on therapeutic approaches that would successfully treat patients with dysgeusia.	4.26	0.699	4	4
7	It is essential to define guidelines for the clinical management of patients with dysgeusia.	4.2	0.771	4	4

Table 3 Category: Practice
Tablica 3. Kategorija praksa

Question number	Practice questions	Average	SD	Median	MOD
1	Do you explain to your patients that during therapy, they can develop changes in taste sensitivity?	3.32	1.221	3	3
2	Patients undergoing head and neck (chemo)radiotherapy complain on dysgeusia as a complication of treatment.	3.27	0.902	3	3
3	I diagnose dysgeusia based on the patient's subjective experience.	3.82	0.96	4	4
4	If the patient complains of altered taste, I search for information about the disorder in professional literature and the latest research.	3.44	1.158	4	4
5	I successfully treat dysgeusia with zinc supplementation.	2.15	1.154	2	1
6	I don't treat dysgeusia, but rather advise patients that their taste will recover in a few months after CRT.	3.53	0.841	4	4
7	If the patient complains of altered taste, I motivate him that it is important to maintain good oral hygiene.	3.75	1.003	4	4
8	If the patient complains of altered taste, I recommend which foods should be consumed.	3.44	1.044	3	3
9	If the patient stops eating and develops eating disorders as a result of a taste disorder, I advise him to seek a mental health professional.	3.44	1.34	4	4
10	If dysgeusia persists longer than expected, I consult colleagues who surely have experience in treating dysgeusia.	3.92	1.16	4	5
11	If dysgeusia persists for a longer time, I refer him to a neurologist.	3.59	1.221	3.5	5
12	If dysgeusia persists for a longer time, I refer him to an oral medicine specialist.	3.76	1.232	4	5

Additionally, 23.6% of respondents were unaware that an effective therapy for dysgeusia has not yet been discovered (Figure 4). Regarding the recovery timeline, 76.4% of respondents believed that dysgeusia resolves a few months after the end of CRT, while 15.7% stated that it resolves within a few weeks.

The results of the *Attitudes* category are shown clearly in Table 2. Only 9.0% of respondents strongly agreed that dysgeusia is the least harmful head and neck CRT complication, while 34.8% of them agreed. The vast majority of respondents agreed that dysgeusia is often not given sufficient importance as a complication in the treatment of head and neck tumors (Figure 5). Regarding information availability, only 9.0% of respondents agreed—and just 2.3% strongly agreed—that verified and professional information about dysgeusia is easily accessible (Figure 6). Furthermore, 51.7% of respondents agreed and 38.2% strongly agreed that continued research into therapeutic approaches is necessary to successfully treat these patients. Finally, a strong majority indicated that defining guidelines for clinical management is

ko mjeseci poslije završetka CRT-a, a 15,7 % smatra da nestaje za nekoliko tjedana.

Rezultati kategorije *Stajališta* pregledno su prikazani u tablici 2. Samo 9,0 % ispitanika u cijelosti se slaže s izjavom da je disgeuzija najmanje štetna od svih komplikacija CRT-a, odnosno 34,8 % slaže se s tom tvrdnjom. Velika većina ispitanika slaže se s tvrdnjom da se disgeuziji često ne posvećuje dovoljna pozornost kao nuspojavi pri liječenju tumora glave i vrata (Slika 5.). Samo 9,0 % ispitanika slaže se, a njih 2,3 % u cijelosti se slaže da su provjerene i stručne informacije o disgeuziji lako dostupne (Slika 6.). 51,7 % ispitanika slaže se, a 38,2 % u cijelosti se slaže da je nužno nastaviti istraživati terapije koje bi uspješno djelovale na liječenje bolesnika s disgeuzijom. 47,2 % ispitanika slaže se, a 38,2 % u cijelosti se slaže da je potrebno odrediti preporuke za klinički rad s pacijentima koji boluju od disgeuzije (Slika 7.).

Rezultati iz kategorije *Praksa* pregledno su prikazani u tablici 3. Samo 21,4 % ispitanika uvijek objasni pacijentima da se tijekom terapije mogu pojaviti promjene u okusnoj osjetljivosti (Slika 8.). 37,1 % ispitanika tvrdi da često postav-

essential, with 47.2% of respondents agreeing and 38.2% of them strongly agreeing (Figure 7).

The results of the *Practice* category are clearly shown in Table 3. Only 21.4% of respondents always explain to their patients that changes in taste sensitivity may develop during therapy (Figure 8). Regarding diagnosis, 37.1% of respondents reported that they often—and 27.0% always—diagnose dysgeusia based on the patient's subjective experience. When patients complain of altered taste, 20.2% of respondents stated they always consult professional literature and current research, while 30.3% do so frequently. Finally, regarding management, 23.6% of respondents indicated that they sometimes successfully treat dysgeusia with zinc supplementation, compared to 10.1% who do so often, and 3.4% who always achieve successful outcomes (Figure 9). A total of 49.4% of respondents stated that they frequently leave dysgeusia untreated, while 7.9% never provide treatment; instead, they advise patients that taste usually returns spontaneously a few months post-therapy. If dysgeusia persists longer than expected, 23.6% of respondents reported that they often—and 49.6% always—consult colleagues with experience in managing these patients. Furthermore, when the condition is prolonged, 31.8% of specialists in maxillofacial surgery, oncology, and otorhinolaryngology indicated that they frequently refer the patient to an oral medicine specialist, while 33.3% always do so.

Discussion

Altered taste has been studied for several decades, but it gained renewed significance during and after the COVID-19 pandemic, as it emerged as one of the most prominent symptoms. This topic experienced exponential growth: in 2020, the number of publications was ninefold higher than in 2019, and by 2021, it had increased fourteenfold. Wai Kan Yeung et al. (2023) state that taste disorder research was “revived” during the COVID-19 pandemic, noting that three-quarters of the published papers were original articles (12). As cancer treatment-induced dysgeusia represents only a relatively small proportion of the overall literature on dysgeusia, research interest has increasingly expanded to other etiological factors and medical conditions associated with taste dysfunction, including medications, infections, and burning mouth syndrome (23–25). As research has grown, current findings indicate that dysgeusia as a CRT complication remains under-recognized and overshadowed by other complications, despite doctors often treating these patients. Notably, one-third of respondents were unfamiliar with dysgeusia during their studies, and another third did not receive any formal education about dysgeusia as a complication of oncological treatment. Given that dysgeusia, as a medical term, is relatively new and has been studied for only a few decades, it is not surprising that some specialists and residents are unfamiliar with it. In 2022, Galaniha et al. conducted a study to assess clinicians' knowledge and experience in treating patients with taste loss and to identify potential gaps in the availability of educational materials and diagnostic tools. The results showed that respondents lacked knowledge of taste and taste disorder termi-

lja dijagnozu disgeuzije na temelju pacijentova subjektivnog doživljaja a, 27,0 % tvrdi da to čini uvijek. Ako se pacijent žali na poremećaj okusa, 20,2 % ispitanika uvijek potraži informacije o poremećaju u stručnoj literaturi i u najnovijim istraživanjima, 30,3 % to čini često, a 23,6 % povremeno. Njih 10,1 % često, te 3,4 % uvijek uspješno liječi disgeuziju propisivanjem suplementacije cinkom (Slika 9.). Istaknimo da 49,4 % ispitanika tvrdi da često, te 7,9 % da nikada ne liječi disgeuziju, nego kažu pacijentima da se okus u većini slučajeva spontano vraća nekoliko mjeseci poslije terapije. Ako pacijentu disgeuzija traje dulje od očekivanja, 23,6 % ispitanika tvrdi da se uvijek savjetuje s kolegama za koje su sigurni da imaju iskustva u pristupu pacijentima s tim poremećajem, a često to čini 49,6 % ispitanika. Ako se pacijentu disgeuzija dulje ne smiruje, 31,8 % ispitanika iz specijalizacija maksilofacijalne kirurgije, onkologije i otorinolaringologije tvrdi da često upućuju pacijenta na pregled specijalistu oralne medicine, a 33,3 to čini uvijek.

Rasprava

Poremećaj okusa proučava se posljednjih nekoliko desetljeća, a dobio je na važnosti tijekom pandemije COVID-a 19 i poslije nje jer je bio jedan od istaknutijih simptoma. Ta tema doživjela je značajnu pozornost u razdoblju od 2020. s 9 puta većim brojem publikacija, a do 2021. godine s 14 puta većim brojem publikacija nego u 2019. godini. Wai Kan Yeung i suradnici (2023.) navode da je istraživanje poremećaja okusa *oživiljeno* tijekom pandemije koronavirusa čemu pridonosi i činjenica da su tri četvrtine radova bili izvorni članci (12). Budući da je disgeuzija prouzročena onkološkom terapijom razmjerno rijetko obrađena u sveukupnoj literaturi o disgeuziji, sve se veći istraživački interes usmjerava na druge etiološke čimbenike i medicinska stanja povezana s poremećajem osjeta okusa, među kojima su lijekovi, infekcije i sindrom pekućih usta (23 – 25). Rezultati sadašnjeg istraživanja pokazuju da je disgeuzija kao komplikacija CRT-a pala u drugi plan u usporedbi s ostalim nuspojavama, iako se liječnici u svakodnevnoj praksi mogu susresti s pacijentima kod kojih se ona može pojaviti. Zapaženo je da jedna trećina ispitanika tijekom studija nije bila informirana o disgeuziji, a isto tako jedna trećina nije uopće educirana o disgeuziji kao komplikaciji tijekom onkološkog liječenja. S obzirom na to da je medicinski pojam disgeuzije razmjerno nov i proučavan posljednjih nekoliko desetljeća, ne iznenađuje činjenica da postoje specijalisti i specijalizanti koji ga ne poznaju. Godine 2022. Galaniha i suradnici proveli su istraživanje kojemu je svrha bila procijeniti znanje i iskustvo kliničara u liječenju pacijenata s gubitkom okusa i identificirati potencijalne nedostatke u dostupnosti edukativnih materijala i dijagnostičkih alata. Rezul-

nology (13). Galaniha et al.'s and the present research showed that a high percentage of respondents are familiar with the term dysgeusia. In Galaniha et al.'s research, 2/3 of respondents reported asking their patients whether they have experienced changes in taste sensitivity in everyday practice. On the other hand, the present research showed that only a fifth of respondents always ask patients about the development of dysgeusia, indicating substantial variation in responses and suggesting that clinicians are not sufficiently sensitized to dysgeusia as a CRT complication. Also, half of the respondents agree, and a third strongly agree, that dysgeusia is often not given great importance as a head and neck CRT side effect. The research showed that only one-third of respondents agree with the statement that dysgeusia is the least harmful of all complications of head and neck tumor CRT. Although taste disorder, as a CRT side effect, is often overshadowed by oral mucositis and xerostomia, whose symptoms are more pronounced and severe, 97.8% of doctors report that their patients in everyday practice complain of dysgeusia during therapy (15). More than half of the respondents were unable to recognize basic tastes detected by taste buds. Only 42.7% of respondents recognized that it was salty, sweet, sour, bitter, and umami, which we can attribute to the fact that umami is a newly discovered taste. It is of vital importance to identify the specific type of taste loss in order to estimate the recovery time of the corresponding taste buds. The most common taste alteration noticed is bitterness (100%), followed by saltiness (77.8%), spiciness (70.4%), and sweetness (40.7%). Taste buds responsible for recognizing sweetness exhibit the fastest recovery, whereas those that perceive bitterness take the longest to recover (8). Taste buds that recognize umami taste recover delayed, and in some patients, never recover (18). More than half of the respondents claimed that they do not treat dysgeusia but instead advise patients that their taste will recover in a few months after CRT. Togni et al. (2021) concluded that, except for the dose of radiation greater than 60 Gy and volume radiation exposure, one of the factors that worsen the disorder is smoking. It turned out that a severe form of dysgeusia develops in 100% of smokers compared to 9% of non-smokers. Compared with Galaniha et al., who objectively diagnosed dysgeusia using clinical tests (self-assessment questionnaires, taste sensitivity tests with different solutions, electrogustometry, various psychophysical methods), in the context of the present study, specialists and residents most often diagnose dysgeusia based on patients' subjective reports. A total of 94.4% of respondents recognized that using various solutions to test sensitivity is the most common method for diagnosing taste disorders. However, in clinical practice, respondents rarely implement these diagnostic tests themselves; routinely relying only on the patient's subjective reporting of dysgeusia. Additionally, CRT-induced dysgeusia is frequently associated with concomitant oral and gastrointestinal complications, including malnutrition, loss of appetite, food aversion, difficulty swallowing and chewing, pain, and dryness of the mouth and throat (12).

The first step in providing support is to inform the patient that they may experience taste changes as early as the first week of therapy, which are likely to worsen during CRT.

tati su pokazali da ispitanicima nedostaje znanje o okusima i u terminologiji poremećaja okusa (13). Istraživanje Galanihe i suradnika te sadašnje istraživanje pokazali su da visok postotak ispitanika zna za pojam disgeuzije. U tom istraživanju dvije trećine ispitanika navodi da u svakodnevnoj praksi pitaju pacijente jesu li im se pojavile promjene u okusnoj osjetljivosti. S druge strane, sadašnje istraživanje pokazalo je da samo petina ispitanika uvijek pita pacijente o pojavi disgeuzije, što upućuje na iznimno veliku razliku u odgovorima, odnosno da specijalisti nisu dovoljno senzibilizirani za disgeuziju kao komplikaciju CRT-a. Također polovina ispitanika slaže se da se disgeuziji često ne posvećuje dovoljna pozornost kao nuspojavi pri liječenju onkoloških bolesti glave i vrata, a trećina ispitanika s time se u cijelosti slaže. Istraživanje je pokazalo da se samo trećina ispitanika slaže s tvrdnjom da je disgeuzija najmanje štetna od svih komplikacija CRT-a tumora glave i vrata. No bez obzira na činjenicu da se poremećaj okusne osjetljivosti, kao nuspojava CRT-a, pojavljuje u sjeni oralnoga mukozitisa i kserostomije čiji su simptomi izraženiji i neugodniji, 97,8 % liječnika prijavljuje da se pacijenti u svakodnevnoj praksi žale na disgeuziju tijekom terapije (15). Više od polovine ispitanika nije uspjelo prepoznati osnovne okuse koje osjetne stanice mogu detektirati. Samo je njih 42,7 % prepoznalo da je riječ o slanom, slatkom, kiselom, gorkom i umamiju što možemo pripisati tome da je umami jedan od novoistraženih okusa. Veoma je važno prepoznati o kojemu gubitku okusa je riječ kako bi se moglo procijeniti vrijeme oporavka okusnih pupoljaka specifičnih za prepoznavanje određenog okusa. Najčešći osnovni okus čija je alteracija uočena jest gubitak gorkoga okusa (100 %), zatim slijede slani (77,8 %), ljuți (70,4 %) i slatki okus (40,7 %). Najbrže se oporavljaju okusni pupoljci koji prepoznaju slatki okus, a najsporije pupoljci za gorko (8). Okusni pupoljci koji prepoznaju umami oporavljaju se odgođeno te se kod nekih pacijenta nikad ne oporave (18). Više od polovine ispitanika tvrdi da ne liječe disgeuziju, nego kažu pacijentima da će im se okus vratiti nekoliko mjeseci poslije završetka CRT-a. Togni i suradnici (2021.) zaključili su da, osim same doze zračenja veće od 60 Gy i volumne izloženosti zračenju, jedan od čimbenika koji pogoršava poremećaj jest i pušenje. Pokazalo se da se teški oblik disgeuzije pojavljuje kod 100 % pušača, u odnosu prema 9 % nepušača. U usporedbi s Galanihom i suradnicima koji dijagnozu disgeuzije postavljaju objektivno na temelju kliničkih testova (upitnici *self-assessment*, testovi okusne osjetljivosti primjenom različitih otopina, elektrogustometrija, razne psihofizičke metode), specijalisti i specijalizanti odgovorili su da dijagnozu disgeuzije uglavnom postavljaju isključivo na temelju pacijentova subjektivnog doživljaja. Najčešću metodu dijagnostike u poremećaju okusa prepoznalo je 94,4 % ispitanika, a to je primjena različitih otopina kako bi se uočila okusna osjetljivost. Ispitanici ne posežu za kliničkim testovima i minimalno se osvrću na dijagnostiku disgeuzije. Nadalje, disgeuzija prouzročena CRT-om često se povezuje s neželjenim poremećajima digestivnoga trakta kao što su pojava malnutricije, gubitak teka, odbojnost prema hrani, poteškoće pri gutanju i žvakanju, bolovi, te suhoća usta i grla (12).

Prvi korak u pružanju podrške jest informiranje pacijenta da im se već u prvom tjednu terapije mogu pojaviti promjene

According to Mathlin et al. (2023), 40% of patients who developed dysgeusia reported not receiving advice on coping with these taste changes.

The next step is to introduce self-care strategies; Rehwaltd et al. (2009) and Togni et al. (2021) have suggested potentially practical strategies for managing specific taste changes after chemotherapy. The study results showed that patients benefited from avoiding foods with strong odors, blending foods, having smaller, more frequent meals, drinking water with meals, and practicing oral hygiene before meals (7,14). The difference between the recommendations of the aforementioned studies is the consumption of spicy foods: Togni et al. recommend it, while Rehwaltd et al. do not. In the current study, more than half of the respondents recommend combining aromatic and very spicy foods, cold foods, and more frequent, smaller meals. Furthermore, maintaining oral hygiene is one of the recommended self-care strategies. It is advised to maintain oral hygiene with a soft toothbrush and fluoride toothpaste, along with gentle brushing of the tongue to remove plaque. Interdental brushing is mandatory, together with rinsing the oral cavity using alcohol-free mouth rinses (19, 28). Sevryugin et al. (2021) emphasize the importance of ensuring adequate salivation, maintaining proper oral hygiene, and consuming soft, semi-solid food (22). Standardized strategies are essential, as they assist clinicians in effectively managing patients with dysgeusia.

The third step in treating dysgeusia is prevention. It is essential that the oncology team optimize treatment planning to achieve the highest possible therapeutic efficacy while minimizing radiation exposure to the floor of the mouth and tongue mucosa, thereby reducing the incidence and severity of treatment-related dysgeusia and xerostomia (27). Barasch et al. (2025) mentioned various preventive strategies, but these have not been sufficiently researched, and data is lacking regarding whether they are evidence-based. Radioprotective measures include the protection of healthy cells from radiation exposure, particularly the taste buds and salivary glands. Reported radioprotective agents include sodium selenite during radiation therapy, amifostine, which reduces acute radiation-induced side effects but its use causes nausea, vomiting, and hypotension, and a lithium-containing mucoadhesive hydrogel as a relatively new agent (20). Zheng et al. (2025) proposed this agent as a highly effective solution to reduce radiation-induced side effects. It is based on the proposed mechanism that lithium citrate attenuates X-ray radiation and thereby prevents apoptosis in non-target irradiated cells, stimulating cell proliferation and regeneration of mucosa. As a result, ulcerations are reduced, and taste buds are protected. Another positive characteristic of this agent is its biocompatibility, stability under moist conditions, and mucosal retention. Saliva is very important for oral cavity health because it enables substrate access to taste buds, reduces alteration in microbiota, and contains growth factors involved in mucosal repair. In case of hyposalivation, prescribing salivary stimulants such as pilocarpine, cevimeline, and bethanechol is beneficial (21).

Halyard et al. (2007) conducted a study to determine whether zinc supplementation could prevent the onset of

okusa te da će se tijekom daljnjih terapija samo pogoršavati. Prema Mathlinu i suradnicima (2023.), 40 % pacijenata kojima se pojavila disgeuzija izjavili su da nisu dobili savjet kako prihvatiti te promjene okusa.

Drugi korak jest predstavljanje *self-care* strategija. Rehwaltd i suradnici (2009.) te Togni i suradnici (2021.) predložili su potencijalno korisne strategije za upravljanje specifičnim promjenama okusa poslije kemoterapije. Rezultati istraživanja pokazali su da je pacijentima pomoglo izbjegavanje jela s jakim mirisom, blendanje hrane, manji i češći obroci, pijeње vode uz obrok te oralna higijena prije obroka (7, 14). Razlika u preporukama navedenih istraživanja jest konzumacija začinjene hrane koju Togni i suradnici preporučuju, a Rehwaltd i suradnici ne savjetuju. U sadašnjem istraživanju više od pola ispitanika preporučuje kombinaciju aromatične i jako začinjene hrane, hladna jela te više manjih obroka. Nadalje, održavanje oralne higijene jedna je od preporučenih *self-care* strategija. Preporučuje se održavati oralnu higijenu mekanom četkicom i fluoridnom pastom uz nježno čišćenje jezika kako bi se uklonile naslage. Također je potrebno interdentalno čišćenje i ispiranje usne šupljine bezalkoholnim vodicama za ispiranje usta (19, 28). Sevryugin i suradnici (2021.) ističu važnost osiguravanja odgovarajuće salivacije, održavanje pravilne oralne higijene te konzumaciju mekane, polukrute hrane (22). Ujednačene strategije važne su jer pomažu kliničarima u pružanju pomoći pacijentima s disgeuzijom.

Treći korak u zbrinjavanju disgeuzije jest prevencija. Iznimno je važno da onkološki tim optimizira plan liječenja kako bi se postigao najbolji terapijski uspjeh i smanjila izloženost dna usne šupljine i sluznice jezika zračenju, čime se reducira incidencija i težina terapijom prouzročene disgeuzije i kserostomije (27). Barasch i suradnici (2025.) navode različite preventivne strategije, no nisu dovoljno istražene pa nema dovoljno podataka o tome jesu li utemeljene na dokazima.

Radioprotektivne mjere uključuju zaštitu zdravih stanica od zračenja, posebice okusnih pupoljaka i žlijezda slinovnica. Radioprotektivna sredstva koja se spominju u literaturi uključuju primjenu natrijeva selenita tijekom radioterapije, amifostin jer reducira pojavu akutnih nuspojava zračenja, ali može prouzročiti mučninu, povraćanje i hipotenziju te mukoadhezivni hidrogel na bazi litija kao relativno novi agens (20).

Zheng i suradnici (2025.) predložili su taj agens kao vrlo učinkovitu metodu za smanjenje nuspojava izazvanih zračenjem. Temelji se na pretpostavljenom mehanizmu djelovanja prema kojemu litijev citrat ublažava djelovanje rendgenskoga zračenja te na taj način sprječava apoptozu neciljnih stanica izloženih zračenju, a potiče proliferaciju stanica i regeneraciju sluznice. Kao rezultat toga reducira se pojava ulceracija te okusni pupoljci ostaju zaštićeni.

Još jedno pozitivno obilježje toga sredstva jest njegova biokompatibilnost, stabilnost u vlažnim uvjetima te retencija na sluznici. Slina je veoma važna u održavanju zdravlja oralne šupljine zato što omogućuje pristup supstrata okusnim pupoljcima, reducira nastanak promjena u mikrobioti te sadržava čimbenike rasta uključene u obnovu sluznice. U slu-

dysgeusia in patients with head and neck tumors undergoing CRT. The results showed that zinc supplementation did not prevent taste alteration (16). Given the lack of concrete evidence, further research is needed.

The fourth step is treating developed dysgeusia. Despite the lack of clear clinical evidence of an effective therapy for taste disorders, numerous authors have described various therapeutic approaches. Supportive therapy is recommended due to its low costs, wide availability, and its associated minimal adverse effects. Non-pharmacological therapy includes acupuncture and photobiomodulation, while pharmacological therapy includes various agents such as zinc and its compounds, gabapentin, clonazepam, pregabalin, monosodium glutamate, lactoferrin, miracle berry (*Synsepalum dulcificum*), megestrol acetate, and theophylline. Zinc supplementation is the most widely recognized method for dysgeusia prevention and therapy. In the literature, various zinc-containing preparations are mentioned, such as zinc aspartate, sulfate, gluconate, acetate, picolinate, and carnosine. The fact that zinc deficiency can lead to the development of dysgeusia resulted in "the myth of zinc effect", which is why some doctors prescribe zinc supplementation as dysgeusia therapy (26). In the Cochrane Systematic Review conducted by Kumbargere Nagraj et al. (2017), the conclusion is that there is no strong evidence that zinc supplementation is effective for treating dysgeusia (10). Reports in the literature show both improved and unchanged taste after taking zinc sulfate. The reasons for these outcomes are unclear; it is not known if they result from physiological recovery of taste buds, a placebo effect, or a direct effect of zinc supplementation (16, 17). More than three-quarters of respondents are aware that an effective treatment for dysgeusia has not yet been discovered. However, according to the survey results, 3.4% of respondents report always successfully treating dysgeusia with zinc supplementation, 10.1% often, and 23.6% sometimes. This leads us to conclude that some respondents prescribe supplementation despite the lack of scientific support for the therapy's effectiveness. These research results also confirm the professional literature limitation. Few respondents agree that verified, professional information on dysgeusia is available. A total of 47.2% agree, and 38.2% of respondents strongly agree that guidelines are needed for clinical work with dysgeusia patients. Although very few respondents view further research into dysgeusia therapies as unnecessary, most cite a lack of specific knowledge, limited literature, and inconsistent attitudes and practices. These gaps underscore the need for clear recommendations for managing patients with taste disorders.

To prevent a domino effect of adverse outcomes for the body and avoid risking systemic health, patients need referral to further specialist treatment tailored to their symptoms. More than half of respondents report consulting colleagues with experience treating this disorder regularly. Most respondents advise patients to seek a mental health professional if they stop eating or drinking, leading to eating disorders after developing dysgeusia. Persistent dysgeusia can cause reduced appetite, lower nutrient intake, social isolation, and depression (13). Modern medicine increasingly emphasizes

čaju hiposalivacije korisno je propisati salvirane stimulanse poput pilokarpina, cevimeлина i betanehola (21).

Halyard i suradnici (2007.) proveli su istraživanje u kojem su htjeli dokazati može li suplementacija cinkom prevenirati nastanak disgeuzije kod pacijenata s tumorima glave i vrata koji su na CRT-u. Rezultati su pokazali da suplementacija cinkom nije prevenirala nastanak alteracije okusa (16). S obzirom na to da nema konkretnih dokaza, potrebno je nastaviti s daljnjim istraživanjima.

Četvrti je korak zbrinjavanje i liječenje nastale disgeuzije. Unatoč tomu što nema učinkovite terapije utemeljene na dokazima, mnogobrojni autori opisuju različite terapijske pristupe. Potporna terapija preporučuje se zbog niske cijene, široke dostupnosti i povezana je s minimalnim štetnim nuspojavama. Nefarmakološki pristup obuhvaća akupunkturu i fotobiomodulaciju, a farmakološki uključuje različita terapijska sredstva: cink i njegove spojeve, gabapentin, klonazepam, pregabalin, mononatrijev glutamat, laktoferin, miracle berry (*Synsepalum dulcificum*), megestrol acetat i teofilin. Suplementacija cinkom najprepoznatljivija je i najraširenija metoda prevencije u zbrinjavanja disgeuzije. U literaturi navode se različiti oblici preparata koji sadržavaju cink, kao što su cinkov aspartat, sulfat, glukonat, acetat, pikolinat i karnozin. Podatak da manjak cinka može potaknuti pojavu disgeuzije, rezultirao je nastankom *mita o učinku cinka*, što je potaknulo neke liječnike da propisuju suplementaciju cinkom kao terapiju za disgeuziju (26). U Cochraneovu Systematic Reviewju koji su proveli Kumbargere Nagraj i suradnici (2017.) zaključeno je kako nema čvrstih dokaza da je suplementacija cinkom kao terapija za disgeuziju djelotvorna (10). U literaturi se mogu pronaći različiti slučajevi u kojima se navodi poboljšanje osjeta okusa poslije uzimanja cinkova sulfata, ali i slučajevi kada nije bilo poboljšanja. Mehanizmi nisu razjašnjeni pa se ne zna je li riječ o fiziološkom oporavku okusnih pupoljaka, placebo ili učinku suplementacije cinka (16, 17). Više od tri četvrtine ispitanika znalo je da učinkovite terapije za disgeuziju još nema. No prema rezultatima istraživanja 3,4 % ispitanika tvrdi da uvijek uspješno liječi disgeuziju propisivanjem suplementacije cinkom, 10,1 % to čini često, a 23,6 % katkad. To nas navodi na zaključak da dio ispitanika propisuje suplementaciju unatoč medicinskoj neutemeljenosti kad je riječ o djelotvornosti terapije. Problem vezan za limitiranost stručne literature potvrdili su i rezultati ovog istraživanja. Samo se mali broj ispitanika slaže da su provjerene i stručne informacije o disgeuziji lako dostupne. Da je potrebno odrediti smjernice za klinički rad s pacijentima koji boluju od disgeuzije, slaže se 47,2 % ispitanika, a u cijelosti se slaže njih 38,2 %. Iako vrlo malo ispitanika smatra da su daljnja istraživanja terapijskih mogućnosti liječenja disgeuzije nepotrebna, većina pokazuje manjak specifičnih znanja, ističe ograničenu dostupnost literature te neujednačena stajališta i postupke u kliničkoj praksi. Navedeni nedostaci upućuju na to da su potrebne preporuke za zbrinjavanje pacijenata s poremećajima osjeta okusa te ističu važnost daljnjih istraživanja.

Kako bi se spriječio domino-efekt niza negativnih učinaka na organizam i ugrožavanja sistemskog zdravlja, pacijenta je potrebno usmjeriti na daljnju specijalističku obradu ovi-

prevention over cure, especially in head and neck oncology. Referring patients for dental treatment before therapy helps avoid preventable complications and may mitigate unavoidable ones. Preparing patients for possible outcomes during and after CRT reduces the impact of side effects, supporting better mental and physical health and quality of life.

Referrals to oral medicine specialists for persistent dysgeusia are common, with about a third of respondents always making such referrals, and another third often making them. These trends reflect the growing recognition of multidisciplinary care. As this area evolves, expanding research and evidence-based practice remain essential.

Conclusion

Dysgeusia, or taste disturbance, is an acute side effect of chemoradiotherapy for head and neck tumors, which is often neglected. Specialists and residents who treat oncological patients lack basic knowledge, such as the ability to recognize basic tastes. Attitudes and approaches to patients in everyday practice vary from clinician to clinician. It is promising that specialists and residents are willing to educate themselves on the topic and believe that recommendations for clinical work would be helpful to them. In conclusion, to ensure a high-quality approach to patients with HNSCC undergoing CRT, it is necessary to increase research on dysgeusia and to expand access to professional literature.

Conflict of interest: The authors declare no conflicts of interest.

Ethical approval: This study was approved by the Ethics Committee of the School of Dental Medicine, University of Zagreb, under the ethical protocol number 05-PA-2-5/25

Institutional Review Board Statement: This study was approved by the Ethics Committee of the School of Dental Medicine, University of Zagreb, under the ethical protocol number 05-PA-2-5/25.

Author's contribution: Conceptualization M.P., D.R.; Methodology - M.P, D.R; Formal Analysis - M.P, D.R.; Research - M.P., D.R. I.F.L., A.F., M.P.; Data Curation - M.P, D.R; Writing and Preparation of Original Draft - M.P, D.R; Writing and Review and Editing - M.P., D.R. I.F.L., A.F., M.P; Visualization - I.F.L., A.F., M.P; Supervision - I.F.L., A.F., M.P; Project Administration - M.P. All authors participated in writing and revising the final version of the manuscript.

sno o simptomatologiji. Više od polovine ispitanika tvrdi da se često savjetuje s kolegama za koje su sigurni da imaju iskustva u pristupu pacijentima s tim poremećajem. Većina preporučuje pacijentima psihološku pomoć ako prestanu jesti i piti te se pojavi poremećaj prehrane kao posljedica disgeuzije. Činjenica je da perzistentna disgeuzija može smanjiti potrebu za jelom, pa se smanjuje unos hranjivih tvari te se pojavljuju socijalna izolacija i depresija (13). U suvremenoj medicini fokus se sve češće usmjerava na preventivu u odnosu prema kurativi. Iako se sve komplikacije zasad ne mogu prevenirati, vrlo je važno prije početka terapije pacijenta poslati na stomatološku obradu kako bi se prevenirale moguće komplikacije, a one nezaobilazne potencijalno minimizirale. Pravodobno informiranje pacijenta o komplikacijama tijekom CRT-a i poslije toga postupka smanjuje učinak nuspojava, poboljšava mentalno i fizičko zdravlje te kvalitetu života.

Otprilike trećina liječnika redovito, a druga trećina često upućuje pacijente s perzistentnom disgeuzijom specijalistima oralne medicine. Takvi podatci pokazuju sve izraženiju svijest o važnosti multidisciplinarnog pristupa u zbrinjavanju tih bolesnika. S obzirom na neprestani razvoj toga područja, ključno je poticati daljnja istraživanja i terapijske pristupe utemeljene na medicinskim dokazima.

Zaključak

Disgeuzija, odnosno poremećaj okusne osjetljivosti, akutna je i često zanemarena nuspojava tijekom kemoradioterapije tumora glave i vrata. Liječnicima specijalistima i specijalizantima koji liječe onkološke bolesnike nedostaju određena osnovna znanja kao što su prepoznavanje osnovnih okusa. Stajališta i pristup pacijentima u svakodnevnoj praksi različiti su i ovise od liječnika do liječnika. Obećava činjenica da su liječnici specijalisti i specijalizanti voljni educirati se o toj temi i smatraju da bi im bile korisne preporuke za klinički rad. Zaključno, da bi se osigurao kvalitetan pristup bolesnicima s HNSCC-om na CRT-u potrebno je intenzivirati istraživanja o disgeuziji te omogućiti veću dostupnost stručne literature.

Sukob interesa: Autori nisu bili u sukobu interesa.

Etička potvrda: Ovu studiju odobrilo je Etičko povjerenstvo Stomatološkog fakulteta Sveučilišta u Zagrebu – broj protokol 05-PA-2-5/25.

Doprinos autora: M. P., D. R. – konceptualizacija, metodologija, formalna analiza, kuriranje podataka, priprema i pisanje izvornoga teksta; M. P., D. R. I. F. L., A. F., M. P. – istraživanje; M. P., D. R. I. F. L., A. F., M. P. – pisanje teksta te pregled i uređivanje; I. F. L., A. F., M. P. – vizualizacija; I. F. L., A. F., M. P. – nadzor; M. P. – administracija projekta. Svi autori sudjelovali su u pisanju teksta i reviziji konačne verzije.

Sažetak

Svrha istraživanja: Željelo se ispitati trenutačno znanje, stajališta i svakodnevnu praksu specijalista i specijalizanata koji liječe pacijente s tumorima glave i vrata o disgeuziji koja se pojavila zbog kemoradioterapije. **Materijali i postupci:** Liječnicima specijalistima i specijalizantima koji liječe onkološke bolesnike s tumorima glave i vrata poslani su putem Google obrasca anonimni upitnici u fizičkom i elektroničkom obliku. Istraživanje je odobrilo Etičko povjerenstvo Stomatološkog fakulteta Sveučilišta u Zagrebu pod brojem protokola 05-PA-2-5/25. **Rezultati:** U istraživanju je sudjelovalo 89 ispitanika srednje dobi (39,4±11,3 godina) – 62,9 % muškaraca i 37,1 % žena s radnim iskustvom od 13,1±10,8 godina. Tijekom studija 36,0 % ispitanika nije bilo informirano o disgeuziji kao što i 33,7 % nije educirano o toj pojavi kao posljedicu kemoradioterapije. Dodajmo da 23,6 % ispitanika nije znalo da učinkovite terapije za disgeuziju još nema. Samo 9 % ispitanika složilo se, a 2,3 % njih u cijelosti se složilo da su provjerene i stručne informacije o disgeuziji lako dostupne. Da propisivanjem suplementacije cinkom povremeno liječi disgeuziju istaknulo je 3,6 % ispitanika, 10,1 % to čini često, a 3,4 % na taj je način uvijek uspješno suzbijuje. **Zaključak:** Liječnicima koji liječe onkološke bolesnike nedostaju određena osnovna znanja i stajališta, a i pristup pacijentima u svakodnevnoj praksi različit je i ovisi od liječnika do liječnika. Kako bi se osigurao kvalitetan pristup tim pacijentima, potrebno je više istraživanja o disgeuziji te veća dostupnost stručne literature.

Zaprimljen: 16. veljače 2026.

Prihvaćen: 4. kolovoza 2026.

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Autorske ključne riječi: disgeuzija, tumor glave i vrata, kemoradioterapija, poremećaj okusa

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