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## IZBOR TERAPIJSKE METODE U PACIJENATA SA HIPODONCIJOM

### THE CHOICE OF THERAPEUTIC METHODS IN PATIENTS WITH HYPODONTIA

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#### Sažetak

**Uvod:** Hipodontija predstavlja razvojno odsustvo jednog do šest zuba. Nepoznate je etiologije, ali se dovodi u vezu sa naslednim faktorom i poremećajima tokom faze inicijacije.

**Cilj** ovog rada je bio da se na osnovu ortopantomografskih snimaka ortodontskih pacijenata proveriti učestalost hipodontije a na osnovu stomatoloških kartona izbor terapijske metode u pacijenata sa hipodontijom.

**Metod rada:** Istraživanjem je obuhvaćeno ukupno 525 pacijenata jedne privatne stomatološke ordinacije u Beogradu. Ova epidemiološka retrospektivna studija je izvedena analiziranjem ortopantomografskih snimaka a određeni podaci su prikupljeni iz zdravstvenih kartona pacijenata. Podaci su razvrstani prema starosti, polu, vilici, strani vilice, nedostajućem zubu, klasi po Angle-u i terapijskoj metodi.

**Rezultati:** Dobijeni rezultati su pokazali da je učestalost hipodontije 6.28%, i češće je zabeležena kod žena. Od terapijskih metoda najčešće je primenjivano zatvaranje prostora (61%), zatim otvaranje prostora (33%) a najmanje otvaranje i zatvaranje prostora (6%). Između terapijske metode (otvaranje i zatvaranje prostora) i zubne regije sa hipodontijom (frontalna i premolarna) je uočena statistički značajna korelacija ( $p < 0.05$ ). Hipodontija je češće bila prisutna u donjoj vilici, najčešće su nedostajali donji drugi premolari.

**Zaključak:** Zabeležena učestalost hipodontije je 6.28%. Između terapijske metode (otvaranje i zatvaranje prostora) i zubne regije sa hipodontijom (frontalna i premolarna) postoji statistički značajna korelacija. U frontalnoj regiji je češće primenjivano otvaranje prostora, dok je u premolarnoj regiji češće primenjivano zatvaranje prostora kao terapijska metoda

**Cljučne riječi:** hipodontija, hiperdoncija, oligodontija, anodontija

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#### Abstract

**Introduction:** Hypodontia is a condition where one to six teeth are missing during teeth development. Its etiology is unknown but it can be connected with congenital factor and abnormalities during initiation phase.

**The aims** of this study were to analyse prevalence of hypodontia in orthodontically patients by orthopantomography radiology and the choice of therapy method in patients with hypodontia by analysing medical documentation.

**Methods:** A together 525 patients from one Dental Office in Belgrade, were included in this research. This epidemic retrospective study was conducted by analyzing orthopantomography radiologies well as with collecting certain data from patients' medical files. All data were classified according to age, gender, jaw, jaw side, missing tooth, class according to Angle and method of therapy.

**Results:** The prevalence of hypodontia was 6.28% and it was more often registered in women population. The most common therapy methods was closing space between the teeth (61%) and opening space in (33%). There was statistically significant correlation between treatment modality (opening and closing of the space) and tooth region with hypodontia (frontal and premolar) ( $p < 0.05$ ). The occurrence of hypodontia was more obvious in lower jaw, lower second premolars were more often missing.

**Conclusion:** The prevalence of hypodontia was 6.28%. There was statistically significant correlation between treatment modality (opening and closing of the space) and tooth region with hypodontia (frontal and premolar). In the frontal region were more used opening space but in the premolar region were more used closing space.

**Key words:** hypodontia, hyperdontia, oligodontia, anodontia

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## Uvod

Hipodoncija predstavlja nedostatak jednog do šest zuba u stalnoj denticiji, nedostatak više od šest zuba oligodonciju, a potpuni nedostatak zuba anodonciju<sup>1-4</sup>. Etiologija ove anomalije je nejasna, ali je očigledna familijarna predispozicija. Ova zubna anomalija nastaje kao posledica poremećaja tokom faze inicijacije, morfološke faze razvoja zuba, apozicije tvrdih zubnih tkiva i tokom erupcije zuba<sup>5</sup>. Kod osoba sa Down- ovim sindromom se takođe često sreće hipodoncija ili oligodoncija<sup>6</sup>.

Najčešće se zapaža nedostatak trećeg molara u stalnoj denticiji (3% do 8.5% populacije), ali se to ne ubraja u hipodonciju<sup>7</sup>, dok je prevalenca u mlečnoj denticiji oko 1%<sup>8</sup>. U gornjoj vilici najčešće nedostaje lateralni sekutići drugi premolar, a u donjoj vilici drugi premolar<sup>9,10</sup>. Nedostatak zuba može biti unilateralan i bilateralan<sup>11</sup>, a istovremena pojava hipodoncije, oligodoncije i hiperdonicije kod iste osobe je posledica stanja mešovite numeričke varijacije i njena pojava je veoma retka<sup>12</sup>. Retka je i hipodoncija prvog i drugog molara, donjeg očnjaka i gornjih centralnih sekutića<sup>13</sup>.

Uprkos niskoj frekvenciji hipodoncije terapija ove anomalije je veoma komplikovana za lečenje jer dovodi do poremećaja okluzije, estetskih problema ali i razvoja drugih oralnih komplikacija<sup>14</sup>.

Kazanci i saradnici su ispitivali prevalencu hipodoncije i hiperdonicije u stalnoj denticiji kod turskih ortodonskih pacijenata i došli do podatka da je stopa učestalosti hipodoncije iznosila 4.74%<sup>15</sup>. Sisman i saradnici su ispitivali prevalencu i distribuciju hipodoncije kod 2413 ortodonskih pacijenata i ukazali na prevalencu hipodoncije od 7.54%<sup>16</sup>. Altug-Atac i Erdema su ispitivali prevalencu i distribuciju zubnih anomalija kod ortodonskih pacijenata i dobili podatak da je prevalenca hipodoncije ortodonskih pacijenata iznosila 2.63%<sup>17</sup>. Khalaf i saradnici su ukazali na prevalencu hipodoncije od 6.4%, i statistički značajne razlika ove anomalije po

## Introduction

Hypodontia is a condition where one to six teeth are missing, absence of more than six teeth isoligodontia and total absence of teeth isanodontia<sup>1-4</sup>. Etiology of this anomaly is unclear but family predisposition is obvious.

This teeth anomaly is developed as a result of abnormalities during initiation phase, due to morphology teeth development phase, apposition of firm teeth tissue and during teeth eruption<sup>5</sup>. Hypodontia or oligodontia can often be seen among people with Down syndrome too<sup>6</sup>.

Absence of third molar in constant dentition is most present and it can be seen in (3% to 8.5% ) of population, but it can not be included in hypodontia<sup>7</sup>, and prevalence in molar dentition is around 1%<sup>8</sup>. Lateral incisor is often missing in upper jaw and second premolar, while second premolar is often absent in lower jaw<sup>9,10</sup>. Absence of teeth can be unilateral and bilateral<sup>11</sup>. The appearance of hypodontia, oligodontia and hyperdontia at the same time, in same person, is the consequence of the mix numeric variation and this is very rare<sup>12</sup>. The case of hypodontia of first and second molar, lower canine and upper central incisors is very rare<sup>13</sup>.

Despite having a low frequency, hypodontia are very complicated to treat because participate in occlusion, it is aesthetic problem and contribute to the development of other oral complication<sup>14</sup>. Kazanci and his associates researched prevalence of hypodontia and hyperdontia in permanent dentition of Turkish orthodontic patients and concluded that the prevalence rate of hypodontia was 4.74%<sup>15</sup>. Sisman and his associates researched prevalence and distribution of hypodontia among 2413 orthodontic patients and the result was 7.54% of hypodontia prevalence<sup>16</sup>. Altug-Atac and Erdem had researched prevalence and distribution of dental anomalies in orthodontic patients and came to the data that prevalence orthodontic patients hypodontia was 2.63%<sup>17</sup>. Khalaf and his associates came to the data that prevalence was 6.4%, and that

kontinentima. Tako je Afrika imala najvišu prevalencu (13.4%), zatim Evropa (7%), Australija (6.3%), dok je niža prevalenca zabeležena u Severnoj (5.0%) i Latinskoj Americi (4.4%)<sup>18</sup>.

U lečenju hipodoncije postoje dva osnovna modaliteta. Zatvaranje prostora preostalim zubima, i otvaranje prostora za zub koji nedostaje da bi se dobio prostor za ugradnju implanta ili protetsku nadoknadu.

Implanti se ne ugrađuju sve do potpunog prestanka rasta i razvoja vilica (oko 20-te godine), pa se kod mlađih pacijenata sa prisutnom hipodoncijom često prave protetske nadoknade<sup>19</sup>.

Cilj ovog rada je bio da se na osnovu ortopantomografskih snimaka ortodonskih pacijenata proveru učestalost hipodoncije a na osnovu stomatoloških kartona izbor terapijske metode u pacijenata sa hipodoncijom.

### **Metod rada**

Ova epidemiološka retrospektivna studija je izvedena analiziranjem ortopantomografskih snimaka 525 pacijenata jedne privatne stomatološke ordinacije u Beogradu u poslednjih 5 godina. Podaci o polu, godinama i primenjenoj terapijskoj metodi pacijenata prikupljeni su iz zdravstvenih kartona.

Prisutni zubi (nedostatak trećih molara nije uključivan) su analizirani korišćenjem istog ortopantomograma (Planmeca Promax rendgen, Dimax 3), i pod istim uslovima na negatoskopu u poluzamračenoj sobi od strane dva istraživača. Podaci dobijeni na osnovu pregleda ortopantomografskih snimaka i zdravstvenih kartona pacijenata su razvrstani prema starosti, polu, vilici (gornja i donja), strani (leva i desna), zubnoj regiji (frontalna i premolarna), zubu, klasi po Angle-u (I, II i III klasa) i terapijskoj metodi koja je primenjivana (otvaranje, zatvaranje i otvaranje i zatvaranje prostora istovremeno).

Na osnovu dobijenih podataka određena je učestalost hipodoncije i distribucija odabrane terapijske metode (otvaranje ili zatvaranje prostora) u određenoj zubnoj regiji sa hipodoncijom (frontalna ili premolarna).

there was statistically significant difference of hypodontia prevalence across continents. The highest prevalence was registered in Africa (13.4%), then in Europe (7%), in Australia (6.3%), while lower prevalence was registered in North America (5.0%) and in Latin America (4.4%)<sup>18</sup>.

There are two main hypodontia treatment modalities. These are closing of the space with remaining teeth and opening of the space for the tooth which is missing in order to get space to insert implant or prosthetic addition.

Implants are not inserted until the jaw is fully developed (when the person is 20 years old), so younger patients with hypodontia case prosthetic additions are made<sup>19</sup>.

The aims of this study were to analyse prevalence of hypodontia by orthopantomography radiology in orthodontically patients and the choice of therapy method in patients with hypodontia by analyzing existing medical documentation.

### **Materials and methods**

This retrospective epidemiologic study is conducted by survey of 525 of one Dental Office patients in Belgrade in last 5 years, by analysing orthopantomography radiology. Data of gender, age and used therapy method were collected from patients' medical files with hypodontia.

All current teeth (excepting of third molars is not hypodontia) were analysed by using same orthopantomograph (Planmeca Promax rendgen, Dimax 3), in same conditions of analyse on the same negatoscopio in a room with subdued light, by the two investigators. The data collected by going through orthopantomography radiology, as well as from patients' medical files were classified according to age, gender, jaw (upper and lower), jaw side (right and left), tooth region (frontal and premolar), teeth, class according to Angle (I, II and III class) and therapy method (opening, closing and opening and closing of the space at the same time).

Thereafter the prevalence of hypodontia was found and distribution of the selected therapy method (opening or closing of

Statistička analiza podataka je prikazana korišćenjem Statistical Package for Social Science Program (SPSS Inc, version 20.0, Chicago, IL,USA).

Analiza zavisnosti zubne regije i terapijske metode proveravana je pomoću Hi kvadrat testa nezavisnih uzoraka.

## **Rezultati**

Od ukupno 525 pacijanata ukupno kod 33 je bila prisutna hipodoncija (12 muškaraca i kod 21 žena). Učestalost hipodoncije je iznosila 6.28%.

Kod 9 pacijenata je bila prisutna hipodoncija sa desne strane (27%), kao i kod 9 pacijenata sa leve strane (27%). Hipodoncija u obe vilice je bila prisutna kod 15 pacijenata (45.5%). Od 9 pacijenata sa hipodoncijom na levoj strani bio je 1 muškarac (11.1%) i 8 žena (88.9%). Od 9 pacijenata sa hipodoncijom na desnoj strani bilo je 6 muškaraca (66.7%) i 3 žene (33.3%). Dok je hipodonciju u obe vilice imalo 15 pacijenata od toga 5 muškaraca (33.3%) i 10 žena (66.7%).

U gornjoj vilici 5 pacijenata (38.5%) je imalo prisutnu hipodonciju sa leve, 4 (30.8%) sa desne i 4 (30.8%) sa obe strane. U donjoj vilici 4 pacijenta (26.7%) je imalo prisutnu hipodonciju sa leve, 5 (33.3%) sa desne i 6 (40.0%) sa obe strane.

Od ukupno 12 muškaraca sa hipodoncijom kod 1 je bila prisutna sa leve (8.3%), kod 6 sa desne (50.0%) a obostrano kod 5 pacijenata (41.7%). Od ukupno 21 žene kod 8 je bila prisutna sa leve (38.1%), kod 3 sa desne (14.3%) i obostrano kod 10 pacijenata (47.6%).

Kod 58% pacijenata sa hipodoncijom je bila prisutna I klasa po Angle-u, kod 36% pacijenata II klasa, a samo kod 6% pacijenata III klasa.

U donjoj vilici je najčešće bila prisutna hipodoncija (Slika 1) i to kod 45% pacijenata (12% muškarci i 33% žene). Kao terapija je najčešće primenjivano zatvaranje prostora (36% pacijenata), zatim otvaranje prostora (6% pacijenata), a najmanje je korišćeno otvaranje i zatvaranje prostora (3% pacijenata).

the space) in the specific tooth region with hypodontia (frontal or premolar) was tested. Data statistical analyses were shown by using Statistical Package for Social Science Program (SPSS Inc, version 20.0, Chicago, IL,USA).

Analyse of dependence of tooth region and therapy method was tested by using Hi square test of independent samples.

## **Results**

The occurrence of hypodontia was registered in 33 of 525 patients altogether (12 men and 21 women). Hypodontia prevalence was 6.28%.

There were 9 patients with hypodontia at right side (27%), 9 patients with hypodontia at left side (27%), while hypodontia of both sides was present in 15 patients (45.5%). We have 9 patients with hypodontia at left side there was 1 man (11.1%) and 8 women (88.9%). Also we have 9 patients with hypodontia at right side, 6 men (66.7%) and 3 women (33.3%). Hypodontia of both jaws was present in 15 patients, out of this number there were 5 men (33.3%) and 10 women (66.7%).

In the upper jaw 5 patients (38.5%) had hypodontia at the left side, 4 patients (30.8%) at the right side and 4 patients (30.8%) at both sides. In the lower jaw 4 patients (26.7%) had hypodontia at left side, 5 patients (33.3%) at right side and 6 (40.0%) at both sides.

Out of 12 men with hypodontia, in 1 man it was at left side (8.3%), in 6 men at right side (50.0%) and at both sides in 5 patients (41.7%). Out of 21 women in 8 women it was at left side (38.1%), in 3 women at right side (14.3%) and at both sides in 10 patients (47.6%).

Within 58% of total number of patients with hypodontia class according to Angle was registered, 36% of patients had class II, and only 6% of patients had class III.

Hypodontia was usually present in the lower jaw (Fig.1), at 45% of patients (12% men and 33% women). The most often was used closing space (36%), then opening space (6%) then opening and closing space (3%).

Hipodoncija je u gornjoj vilici (Slika 2) bila prisutna kod 39% pacijenata (18% muškarci i 21% žene) i takođe je najčešće primenjeno zatvaranje prostora (21% pacijenata), otvaranje prostora (15% pacijenata), a najmanje otvaranje i zatvaranje prostora (3% pacijenata). Najmanje je bilo pacijenata sa hipodoncijom u obe vilice (15%), kod 12% pacijenata primenjeno je otvaranje a kod 3% zatvaranje prostora.

Hipodoncija u frontalnoj regiji je bila prisutna u 39% (15% muškaraca i 24% žena), a u premolarnoj regiji 61% (21% muškaraca i 39% žena).

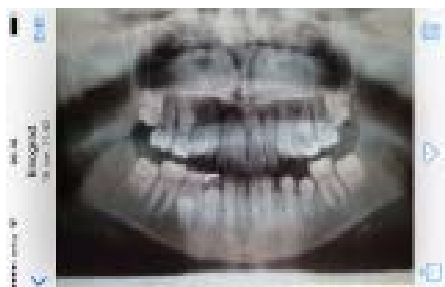
Zabeleženo je ukupno 61% hipodoncije premolara, u 12% slučajeva je (4 pacijenta) primenjeno otvaranje prostora, u 45% (15 pacijenata) zatvaranje prostora i u 3% (1 pacijent) otvaranje i zatvaranje prostora. U frontalnoj regiji je hipodoncija registrovana u 39% slučajeva (13 pacijenata) od toga kod 21% (7 pacijenata) je primenjeno otvaranje prostora, u 15% (5 pacijenata) zatvaranje prostora i kod 3% (1 pacijent) otvaranje i zatvaranje prostora.

Zatvaranje prostora kao terapijska metoda je bila primenjena u 61% slučajeva (7 muškaraca i 13 žena) a otvaranje prostora u 33% slučajeva (5 muškaraca i 6 žena) (Tabela 1).

Uočeno je da najčešće nedostaju zubi u donjoj vilici (levi i desni drugi premolar), ovo je uočeno kod 10 pacijenata (30.3%) (Tabela 2).

Od ukupnog broja pacijenata sa hipodoncijom u frontalnoj regiji je u 60% slučajeva primenjeno otvaranje prostora, u premolarnoj regiji u 68.8% slučajeva zatvaranje prostora (Tabela 3).

Analiza zavisnosti zubne regije i terapijske metode proveravana je pomoću Hi kvadrat testa nezavisnih uzoraka, i dobijen je rezultat da između njih postoji statistički značajna korelacija ( $r=0.02$ ) (Tabela 4).



Slika 1. Hipodoncija u donjoj vilici  
Figure 1. Hypodontia in lower jaw

Hypodontia in upper jaw (Fig.2) was present at 39% (18% men and 21% women) and there was used closing space (21%), opening space (15%) and opening and closing space (3%). At least there were hypodontia in both jaws (15%), 12% opening space and 3% closing space therapy method.

Hypodontia in frontal region was present in 39% (15% in men and 24% in women), while in premolar region there was 61% (21% in men and 39% in women).

We had 61% premolars hypodontia all together, in 12% (4 patients) the therapy method which was used was opening of the space, in 45% (15 patients) closing of the space and in 3% (1 patient) opening and closing of the space. In frontal region there was 39% of hypodontia altogether (13 patients), out of this number in 21% (7 patients) opening of the space was applied, in 15% (5 patients) closing of the space was used and in 3% (1 patient) opening and closing of the space was used.

In 61% cases, closing of the space as therapy method was applied (7 men and 13 women) and opening of the space in 33% cases (5 men and 6 women) (Table 1).

The teeth in lower jaw are often missing, that is, left and right second premolar, and this was noticed in 10 patients (Table 2).

Of the total number of patients with hypodontia in frontal region at 60% was used opening space therapy method, and of total number of patients with hypodontia in premolar region at 68.8% was used closing space therapy method (Table 3).

By using Hi square test was tested dependence of tooth region and therapy method and came to the conclusion that tooth region where is the missing tooth and therapy method are not independent variables and that there is statistically significant correlation between them ( $p=0.02$ ) (Table 4).



Slika 2. Hipodoncija u gornjoj vilici  
Figure 2. Hypodontia in upper jaw

**Tabela 1.** Struktura pacijenata sa hipodoncijom prema modalitetu lečenja, polu i zubnoj regiji gde nedostaje zub

**Table 1.** Structure of Patients with Hypodontia according to treatment modalities, gender and tooth region where the tooth is missing

	Zubna regija/ Tooth region						
	Front			Premolari/ Premolars			
Modalitet lečenja/ Treatment modalities	Muškarci/ Men	Žene/ Women	Ukupno/ Total	Muškarci/ Men	Žene/ Women	Ukupno/ Total	All Together
Otvaranje prostora/ Opening space	12%	9%	21%	3%	9%	12%	33%
Zatvaranje prostora/ Closing space	3%	12%	15%	18%	27%	45%	61%
Otvaranje i zatvaranje/ prostora							6%
Opening and closing space	0%	3%	3%	0%	3%	3%	100%
Ukupno/ Total	15%	24%	39%	21%	39%	61%	

**Tabela 2.** Distribucija i struktura pacijenata prema modalitetu lečenja i nedostajućem zubu

**Table 2.** Distribution and structure of the patients according to treatment modality and missing tooth

			Gornja / Upper	Vilica/ Jaw		Donja/ Lower				
				I Premor I Premor	II Premolar II Premolar					
Modalitet lečenja/ Treatment modalities	Centr. sekutić Central Incisors	Later. Sekutić Lateral Incisors	Očnja k Canine	I Premor I Premor	II Premolar II Premolar	Centr. sekutić Central incisors	Later. sekutić Laterali n isors	Očnjak Canine	I Premor I Premor	II Premor II Premor
Otvaranje prostora/ Opening space		10	1	1	4	2				3
%		47.62%	4.76%	4.76%	19.05%	9.52%				14.29%
Zatvaranje prostora/ Closing space		2			9	1	1	2		6
%		9.52%			42.86%	4.76%	4.76%	9.52%		28.57%
Otvaranje i zatvaranje prostora/ Opening and closing space		1	1							1
%	33.3%	33.3%								33.3%

**Tabela 3.** Modalitet lečenja u određenoj zubnoj regiji sa Hipodoncijom**Table 3.** Treatment modalities in specific Tooth region

			Zubna regija/ Tooth region	
			FRONTALNA/ FRONTAL	PREMOLARNA/ PREMOLAR
Modalitet lečenja	OTVARANJE PROSTORA	N	12	9
Treatment modalities	OPENING SPACE	%	60.0%	25.7%
	ZATVARANJE PROSTORA	N	6	24
	CLOSING SPACE	%	30.0%	68.8%
	OTVARANJE I ZATVARANJE PROSTORA	N	2	2
	OPENING AND CLOSING SPACE	%	10.0%	5.7%

**Tabela 4.** Hi kvadrat test**Table 4.** Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
PearsonChiSquare	7.711	2	.021
Likelihood Ratio	7.852		
Linear-by-Linear Association	3.133	2	.020
N <sup>o</sup> of Valid Cases	55	1	.077

## Diskusija

Mnogo studija se bavilo ispitivanjem hipodoncije kod ortodonskih pacijenata. U ovoj studiji su ispitani pacijenti kod kojih je već sprovedena ortodonska terapija različitim modalitetima lečenja.

U ovoj studiji je dobijena učestalost hipodoncije od 6.28%. Kazanci i saradnici su ispitivali učestalost hipodoncije i hiperdoncije kod turskih ortodonski lečenih pacijenata između 9-25 godina i ustanovili učestalost smanjenog ili povećanog broja zuba od 5.84% od ukupno 3165 pacijenata<sup>15</sup>. Karadas i saradnici su dobili rezultat da je učestalost povećanog ili smanjenog broja zuba 4.84% od ukupno 2722 pacijenata<sup>20</sup>.

## Discussion

Many studies have been dealing with hypodontia within orthodontic patients. This study was tested patients undergoing orthodontic treatment already implemented various modalities of treatment.

In this study prevalence of hypodontia was 6.28%. Kazanci and his associates researched prevalence of hypodontia and hyperdontia in Turkish orthodontically treated patients between 9-25 years and concluded that hypodontia prevalence was 5.84% of 3165 patients<sup>15</sup>. Karadas and his associates came to the data that prevalence of less or increased number of teeth was 4.84% of 2722 patients<sup>20</sup>.

Gupta i saradnici su dobili rezultat da je učestalost hipodoncije 4.19% kod Indijske populacije od ukupno 1123 pacijenata<sup>21</sup>.

Trakiniene sa saradnicima je dobio rezultat da je učestalost hipodoncije 17.11% kod ortodonski lečenih pacijenata Litvanske populacije i nije postojala statistički značajna razlika između polova<sup>9</sup>. Gabris sa saradnicima je dobio rezultat da je učestalost hipodoncije 14.69% na Univerzitetu u Budimpešti<sup>3</sup>. Sisman i saradnici su poredili učestalost hipodoncije u Turskoj populaciji sa drugim populacijama i dobili da je učestalost hipodoncije 7.54% kod ortodonski lečenih pacijenata<sup>16</sup>. Najčešće su nedostajali gornji lateralni sekutić, zatim donji drugi premolari, gornji drugi premolari i donji centralni sekutići<sup>3</sup>. Karadas i saradnici su dobili rezultat da je gornji lateralni sekutić najčešći nedostajući zub, zatim donji drugi premolar a posle njega gornji drugi premolar i donji centralni sekutić i da je hipodoncija češća sa leve nego sa desne strane, odnosno češće je unilateralna<sup>20</sup>. Ova studija kao i studija Khalaf-a i saradnika<sup>18</sup> pokazuju drugačiji rezultat odnosno prikazuju donji drugi premolar kao najčešće nedostajući zub. Ova studija prikazuje da je hipodoncija najčešća obostrano odnosno bilateralno. Dok ova studija, studija Karadas-ai saradnika<sup>20</sup> i Khalaf-ai saradnika<sup>18</sup> pokazuju da je hipodoncija češće prisutna kod žena nego kod muškaraca.

Silva M i saradnici<sup>22</sup>, Altuc-Atac<sup>17</sup> i saradnici i Peker i saradnici<sup>23</sup> su dobili rezultat da je hipodoncija češća u gornjoj nego u donjoj vilici, dok ova studija i studija Kirzioglu-ai saradnika<sup>24</sup> daju suprotan rezultat da je hipodoncija češća u donjoj nego u gornjoj vilici.

Razlike u učestalosti hipodoncije, polu kod kog je hipodoncija zastupljenija, najčešće nedostajućem zubu, vilici i strani vilice sa hipodoncijom kao i zubnoj regiji sa hipodoncijom objašnjene su populacijskom genetikom kao i veličinom uzorka. Ova studija i Fekonjina studija<sup>19</sup> daju isti rezultat da je kod pacijenata sa hipodoncijom najčešće bila prisutna I klasa po Angle-u i da je najčešće korišćeno zatvaranje prostora kao terapijska metoda. U ovoj studiji ispitivan je i izbor terapijske metode u osoba sa hipodoncijom. Установљено је да је у фронталној регији чешће примењивано отварање простора, док је у премоларној

Gupta and his associates came to the data that hypodontia prevalence in Indian population was 4.19% of total number of 1123 patients<sup>21</sup>. Trakiniene with his associates got the data that hypodontia prevalence in orthodontically treated patients at the Lithuanian population was 17.11% and there was not statistically significant difference between gender<sup>9</sup>, Gabris and his associates found that prevalence of hypodontia at the University of Budapest was 14.69%<sup>3</sup>. Sisman and his associates were compared the prevalence of hypodontia at Turkish population with other populations and they found that prevalence of hypodontia were 7.54%<sup>16</sup> in orthodontically treated patients. The most often were missing upper second incisors, than lower second premolars, upper second premolars and lower first incisors. Karadas and his associates came to the data that the upper lateral incisor is the most missing tooth, than lower second premolar and after it upper second premolar and lower central incisor and that hypodontia appears more often at left side than at right side, that is, unilateral is more common<sup>20</sup>. As well as our study Khalaf and his associates<sup>18</sup> show different result meaning represent that lower second premolar is the most missing tooth. Our study also shows that hypodontia often appears at both sides meaning bilateral. As well as our study Karadas and his associates<sup>20</sup> and Khalaf and his associates<sup>18</sup> show that hypodontia is more common among women population than men population. Silva M and his associates<sup>22</sup>, Altuc-Atac<sup>17</sup> and his associates and Peker and his associates<sup>23</sup> came to the result that hypodontia is more common in upper than lower jaw. As well as our study, Kirzioglu and his associates<sup>24</sup> present opposite result that hypodontia is more common in lower jaw than upper jaw.

The differences between prevalence of hypodontia, gender, most often missing tooth, jaw and side of jaw and tooth region with hypodontia was explained by population genetic and sample size. Our study and Fekonja's study<sup>19</sup> give the same result that patients with hypodontia most often have class I as per Angle and that closing of the space is most used as therapy method.



regiji češće primenjavano zatvaranje prostora kao terapijska metoda, što znači da između terapijske metode i zubne regije sa hipodoncijom postoji statistički značajna korelacija. Hipodoncija u frontalnoj regiji je više estetski nego funkcionalni problem<sup>19</sup>.

Estetske grane stomatologije poslednjih godina napreduju tako da se rezultati ove studije uklapaju u te tendencije.

Otvaranje prostora kao metoda izbora, za zube koji nedostaju, u frontalnoj regiji kod ovih pacijenata, obezbeđuje uslove za korektne nadoknade i kompletiranje zubnog niza<sup>19</sup>. U premolarnoj zubnoj regiji, po rezultatima ove studije, češće se pristupa zatvaranju prostora kao metodi izbora jer pacijenti pored hipodoncije često imaju i druge ortodonske anomalije. Osim toga izbegava se i izrada zubnih nadoknada.

## **Zaključak**

Zabeležena učestalost hipodoncije je 6.28%. Od terapijskih metoda najčešće je primenjavano zatvaranje prostora (61%), zatim otvaranje prostora (33%) a najmanje otvaranje i zatvaranje prostora (6%). Između terapijske metode (otvaranje i zatvaranje prostora) i zubne regije sa hipodoncijom (frontalna i premolarna) postoji statistički značajna korelacija. U frontalnoj regiji je češće primenjavano otvaranje prostora, dok je u premolarnoj regiji češće primenjavano zatvaranje prostora a zatvaranje u premolarnoj regiji.

In this study was investigated the dependence of therapy method and tooth region with hypodontia. It was found that in the frontal region were more used opening space but in the premolar region were more used closing space, which means that between therapy method and tooth region with hypodontia there is a statistically significant correlation.

Hypodontia in the frontal region is more aesthetic than the functional problem<sup>19</sup>. Aesthetic dentistry is coming to progress in the last few years, so the results of this study fit into these tendencies.

Space opening as the method of choice, for missing teeth in the frontal region in these patients provide the conditions for completing of the dental arch<sup>19</sup>.

In the premolar region, according to the results of this study, space closure was used more commonly as the method of choice, as patients, besides hypodontia, have other orthodontic anomalies. Besides, the production of dental restorations is avoided.

## **Conclusion**

The prevalence of hypodontia was 6.28%. Of therapy methods the most common was closing of the space between the teeth (61%), then opening space (33%), then opening and closing space (6%). There was statistically significant correlation between treatment modality (opening and closing of the space) and tooth region with hypodontia (frontal and premolar). In the frontal region were more used opening space but in the premolar region were more used closing space.

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