UPOREDNA ANALIZA PREVALENCIJE KARIJESA PRVIH STALNIH MOLARA KOD DECE MLAĐEG I STARIJEG ŠKOLSKOG UZRASTA

COMPARATIVE ANALYSIS OF THE FIRST PERMANENT MOLARS CARIES PREVALENCE IN YOUNGER AND OLDER SCHOOL CHILDREN

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Sažetak

Uvod. Podaci o stanju zdravlja prvih stalnih molara kod dece našeg područja su oskudni. Stoga se nameće potreba za podrobnijom analizom stanja zdravlja ovih zuba kod dece našeg regiona, kao i za utvrđivanjem najkritičnijeg perioda u kome dolazi do značajnog porasta prevalencije karijesa ovih zuba.

Cilj. Cilj istraživanja bio je da se na uzorku dece sa teritorije Niša izvrši uporedna analiza prevalencije, proseka i strukture karioznih, ekstrahovanih i plombiranih prvih stalnih molara kod dece mlađeg u odnosu na decu starijeg školskog uzrasta.

Materijal i metode. Istraživanjem je obuhvaćeno 1119 ispitanika, uzrasta od 7 do 14 godina. Ispitanici su prema uzrastu podeljeni u dve grupe: na ispitanike mlađeg i ispitanike starijeg školskog uzrasta. Stomatološki pregled učenika izvršen je upotrebom sonde i stomatološkog ogledalca, a stanje zdravlja ispitivanih zuba registrovano je upotrebom Klein-Palmer-ovog KEP sistema.

Rezultati. Istraživanjem su utvrđene visoke vrednosti parametara prevalencije karijesa prvih stalnih molara koje rastu sa uzrastom ispitanika. Kod ispitanika uzrasta 8, 9 i 10 godina registrovane su statistički značajno veće vrednosti ispitivanih parametara prevalencije karijesa ispitivanih zuba u odnosu na ispitanike uzrasta od 7 godina. Kod ispitanika starijeg školskog uzrasta, statistički značajno veće vrednosti registrovane su samo za KIz i KIp-a i to samo kod ispitanika uzrasta od 14 godina u odnosu na ispitanike uzrasta od 11 godina. Sa uzrastom ispitanika, procenat karioznih prvih stalnih molara se smanjuje a povećava procenat plombiranih i ekstrahovanih prvih stalnih molara.

Zaključak. Rezultati pokazuju da je period između 7 i 10 godina starosti dece najkritičniji i najznačajniji za primenu preventivno profilaktičkih mera i postupaka, koji imaju za cilj očuvanje zdravlja prvih stalnih molara.

Ključne reči: prvi stalni molari, prevalencija karijesa, deca

Abstract

Introduction. The data on the health-condition of the first permanent molars among children in our region is scarce. Therefore, the need for more thorough analysis of the state of health of these teeth in the children from our region imposes itself, along with the need to determine the most critical period in which a significant increase in caries prevalence of these teeth takes place.

Aim. The aim of the research was to perform a comparative analysis of the prevalence, average rate and structure of decay, missed and filled first permanent molars in the children of the younger school age in relation to those of the older school age.

Material and methods. The research included 1.119 examinees, aged from 7 to 14 years. Examinees were divided into two groups according to their age: examinees of the younger school age and older school age. Dental check-up of the students was performed by means of a dental probe and mirror and the health condition of the examined teeth was registered by means of Klein-Palmer's DMF system.

Results. The research determined high values of the examined parameters of the first permanent molars caries prevalence which increases with the age of the examinees. In the examinees of the age of 8, 9, and 10, statistically more significant values of the examined teeth caries prevalence parameters were registered, in relation to the examinees of seven years of age. In the examinees of the older school age, statistically significantly higher values were registered only for TCI and ACI and only in the examinees aged 14 in relation to the examinees aged 11. With the age, the percent of decay is decreases, while the percent of filled and extracted first permanent molars increases.

Conclusion. Results show that the period between 7 and 10 years of age is the most critical and the most important period for the implementation of preventive-prophylactic measures aimed to preserve the health of the first permanent molars.

Key words: first permanent molars, caries prevalence, children

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Uvod

Prvi stalni molari su najčešće prvi stalni zubi koji niču u ustima deteta. Ovi funkcionalno značajni zubi čoveka predstavljaju i veoma značajne indikatore za pojavu karijesa stalnih zuba i značajne pokazatelje uspešnosti primene preventivno-profilaktičkih i terapijskih mera[1,2]. Zbog svega navedenog, ispitivanje prevalencije karijesa ovih zuba bio je predmet istraživanja brojnih autora koji su konstatovali da prevalencija karijesa prvih stalnih molara kontinuirano raste sa uzrastom ispitanika. Istraživanja su pokazala da već u uzrastu od šest godina, kada ovaj zub najčešće niče, između 5 i 12% dece ima makar jedan kariozni, ekstrahovani ili plombirani (KEP) prvi stalni molar[3,4]. Procenat dece uzrasta od 12 godina, koji imaju makar jedan KEP na prvim stalnim molarima, uglavnom premašuje 50%. Međutim, većina podataka o prevalenciji karijesa prvih stalnih molara je starijeg datuma i oni se uglavnom odnose na zemlje razvijenog sveta, dok su podaci o stanju zdravlja ovih zuba kod dece na našem području prilično oskudni. Stoga se nameće potreba za podrobnijom analizom stanja zdravlja prvih stalnih molara kod dece našeg regiona, kao i za utvrđivanjem najkritičnijeg perioda u kome dolazi do značajnog porasta prevalencije karijesa ovih zuba.

Cilj

Cilj ovog istraživanja bio je da se na uzorku dece sa teritorije Grada Niša izvrši uporedna analiza prevalencije, proseka i strukture karioznih, ekstrahovanih i plombiranih (KEP) prvih stalnih molara kod dece mlađeg u odnosu na decu starijeg školskog uzrasta.

Materijal i metode

Istraživanjem su obuhvaćeni učenici tri osnovne škole lokalizovane na teritoriji Grada Niša. Direktori škola, kao i roditelji učenika-ispitanika, dali su pisanu saglasnost za učešće učenika u ovom istraživanju, a Etički komitet Medicinskog fakulteta Univerziteta u Nišu je odobrio ovo istraživanje (Br.01-244-4/2012).

Istraživanjem je obuhvaćno 1119 ispitanika, 568 dečaka (50.76%) i 551 devojčica (49.24%), uzrasta od 7 do 14 godina. Svi ispitanici su pre-

Introduction

The first permanent molars are most often the first permanent teeth that come through in a child's mouth. These functionally significant human teeth are also very significant indicators of both the caries activity of permanent teeth and the efficacy of applying preventive, prophylactic and therapeutic mesures[1, 2]. Due to everything listed above, the examination of caries prevalence in these teeth was the research subject of many authors who concluded that the first molars caries prevalence rises continuously along with the age of the examinees. Researches have shown that already at the age of six, when this tooth generally comes through, between 5% and 12% of children has at least one decayed, missed or filled (DMF) first permanent molar.[3, 4] The percent of children aged 12 who have at least one DMF on the first permanent molars, mainly exceeds 50%. However, most data on the first molars caries prevalence is outdated and it mainly refers to the developed countries, whereas the data on the health-condition of these teeth among children in our region is rather scarce. Therefore, the need for more thorough analysis of the state of health of the first permanent molars in children from our region imposes itself, along with the need to determine the most critical period in which a significant increase in caries prevalence of these teeth takes place.

Aim

The aim of this research was to perform a comparative analysis of the prevalence, average rate and structure of decay, missed and filled (DMF) first permanent molars in the children of the younger school age in relation to those of the older school age.

Material and methods

This research included the students of three elementary schools located at the territory of the city of Niš. School principals together with the parents of the students-examinees gave written consent for students' participation in this research, and the Ethical Committee of the Faculty of Medicine University of Niš approved the research (No. 01-244-4/2012).

The research included 1.119 examinees, 568 boys (50.76%) and 551 girls (49.24%) aged from 7 to 14. All the examinees were divided

ma uzrastu podeljeni u dve grupe: prvu grupu je činilo 559 ispitanika mlađeg školskog uzrasta, starosti od 7 do 10 godina, dok je drugu grupu činilo 560 ispitanika starijeg školskog uzrasta, starosti od 11 do 14 godina. Sve tri osnovne škole, čiji su učenici obuhvaćeni istraživanjem, poseduju stomatološku službu sa stomatološkom ordinacijom, tako da su učenici bili pod redovnim stomatološkim nadzorom.

Sistematski stomatološki pregled učenika izvršen je u prostorijama školskih stomatoloških ordinacija, upotrebom sonde i stomatološkog ogledalca, u periodu januar-jun 2012. godine. Sistematski pregled je obavio specijalista Preventivne i dečje stomatologije i lekar na ovoj specijalizaciji a stanje zdravlja prvih stalnih molara registrovano je upotrebom Klein-Palmerovog KEP sistema. Pregledom su obuhvaćeni samo ispitanici kod kojih su iznikla sva četiri prva stalna molara. Prevalencija karijesa je izražena statističkim koeficijentima: karijes indeks osoba (KIo) i karijes indeks zuba (KIz); indeksom i merom prosečnih vrednosti, karijes indeks prosek (KIp) i pokazateljem strukture karioznih, ekstrahovanih i plombiranih zuba (struktura KEP-a).

Statistička analiza dobijenih podataka izvršena je Microsoft Excel 2007 programu. Podaci su prikazani standardnim metodama deskriptivne statistike (procentualna zastupljenost, srednja vrednost (X), standardna devijacija (SD)). Statistička značajnost dobijenih rezultata utvrđena je Studentovim t-test-om. Dobijeni rezultati su prikazani tabelarno i grafički.

Rezultati

U ispitivanoj grupi dece mlađeg i starijeg školskog uzrasta, utvrđene su visoke vrednosti ispitivanih parametara prevalencije karijesa (KIo, KIz i KIp-a) koje se povećavaju sa uzrastom ispitanika (Tabela 1).

Kod ispitanika mlađeg školskog uzrasta, starosti 7 godina, KIo iznosi 37.81%, KIz 19.33% a KIp 0.78. Sa uzrastom ispitanika, vrednosti ispitivanih parametara prevalencije karijesa prvih stalnih molara rastu i u uzrastu od 10 godina dostižu vrednosti za KIo 68.02%, KIz 49.82% KIp 1.99. Kod ispitanika uzrasta 8, 9 i 10 godina registrovane su statistički značajno veće vrednosti ispitivanih parametara prevalencije karijesa prvih stalnih molara

into two groups according to their age: the first group comprised 559 examinees of the younger school age, ranging between 7 and 10 years of age, whereas the second group consisted of 560 older school age examinees, ranging between 11 and 14 years of age. All the three primary schools, the students of which were included in the research, are in possession of their own dental service with a dental practice, so that the students were under the constant dental supervision.

General dental check-up of the students was performed in the premises of the school's dental practice, by means of a dental probe and mirror, in the January- June period of the year 2012. The general check-up was performed by a preventive and pediatric dentistry specialist and a doctor on this specialization, and the health condition of the first permanent molars was registered by means of Klein-Palmer's DMF system. The check-up included only the examinees in whom all the first four permanent molars had come through. The caries prevalence was expressed in statistical coefficients: the person caries index (PCI) and teeth caries index (TCI); by an index and measure of average values, average caries index (ACI) and an indicator of the structure of decay, missed and filled (DMF structure) teeth.

Statistical analysis of the obtained data was done in the Microsoft Excel 2007 programme. The data was displayed by standard methods of descriptive statistics (estimated presence, average value (X), standard deviation (SD)). Statistical significance of the obtained results was determined by the Student's t test. The obtained results were displayed by tables and graphs.

Results

In the examined groups of children of younger and older school age, high values of the examined parameters of caries prevalence (PCI, TCI, and ACI) were found, which increases with the age of the examinees (Table 1).

In the examinees of the younger school age, aged 7, PCI was 37.81%, TCI was 19.33% and ACI was 0.78. The examined parameters values of the first permanent molars caries prevalence increased with the age of the examinees, and at the age of 10 they reached the values for PCI 68.02%, TCI 49.82%, ACI 1.99 In the examinees of the age 8, 9, and 10, statistically more of significant values of the examined first permanent molars caries prevalence parametres were

Tabela 1. *Prevalencija karijesa prvih stalnih molara u ispitivanoj grupi dece po Klein-Palmer-u*
Table 1. *Decay prevalence of 1st permanent molars in examined group in children by Klein-Palmer*

	Starost u god. (n) / Age (n)	KIo % PCI %	KIz % TCI %	KIp ACI
Mlađi školski uzrast / Younger school age	7 godina / years (129)	37.81	19.33	0.78
	8 godina / years (137)	52.55	32.12	1.28
	9 godina / years (146)	62.82	39.68	1.59
	10 godina / years (147)	68.02	49.82	1.99
Stariji školski uzrast / Older school age	11 godina / years (146)	74.35	52.40	2.09
	12 godina / years (132)	77.86	56.14	2.25
	13 godina / years (143)	79.72	58.39	2.33
	14 godina / years (139)	79.86	66.19	2.65

Tabela 2. *Odnos KIo i KIz između određenih uzrasnih grupa*
Table 2. *Relation of PCI and TCI between determined age groups*

Komparirani uzrast / Compared age	Karijes indeks osoba (KIo) / Person Caries Index (PCI)				Karijes indeks zuba (KIz) / Tooth Caries Index (TCI)		
	KIo % PCI %	t	p vrednost p value		KIz % PCI %	t	p vrednost p value
7 god. (n=129) 8 god. (n=137)	37.81 52.55	2.44	p=0.015*		19.33 32.12	2.42	p=0.016*
7 god. (n=129) 9 god. (n=146)	37.81 62.82	4.28	p<0.001*		19.33 39.68	3.81	p<0.001*
7 god. (n=129) 10 god. (n=147)	37.81 68.02	5.26	p<0.001*		19.33 49.82	5.65	p<0.001*
10 god. (n=147) 11god. (n=146)	68.02 74.35	1.01	p=0.313		49.82 52.40	0.44	p=0.660
11 god. (n=146) 12 god. (n=132)	74.35 77.86	0.69	p=0.491		52.40 56.14	0.63	p=0.529
11 god. (n=146) 13 god. (n=143)	74.35 79.72	1.01	p=0.313		52.40 58.39	0.39	p=0.696
11 god.(n=146) 14 god. (n=139)	74.35 79.86	1.11	p=0.268		52.40 66.19	2.39	p=0.017**

*statistički značajno veće vrednosti u odnosu na ispitanike uzrasta 7 godina / * Statistically higher values in relation to examined age of 7

** statistički značajno veće vrednosti u odnosu na ispitanike uzrasta 11 godina / * Statistically higher values in relation to examined age of 11

Tabela 3. *Odnos KIp-a između određenih uzrasnih grupa*
Table 3. *Relation of ACI between determined age groups*

Komparirani uzrast/ Compared age	n	KIp ACI	SD	t	p vrednost p value
7 god./years 8 god./years	129 137	0.78 1.28	1.17 1.52	2.96	p=0.003*
7 god./years 9 god./years	129 146	0.78 1.59	1.17 1.52	4.83	p<0.0001*
7 god./years 10 god./years	129 147	0.78 1.99	1.17 1.63	6.99	p<0.0001*
10 god./years 11god./years	147 146	1.99 2.09	1.63 1.55	0.53	p=0.596
11 god./years 12 god./years	146 132	2.09 2.25	1.55 1.55	0.85	p=0.396
11 god./years 13 god./years	146 143	2.09 2.33	1.55 1.55	1.31	p=0.191
11 god./years 14 god./years	146 139	2.09 2.65	1.55 1.57	3.02	p=0.002**

*statistički značajno veće vrerdnosti u odnosu na ispitanike uzrasta 7 godina; ** statistički značajno veće vrerdnosti u odnosu na ispitanike uzrasta 11 godina
* statistically significant values in relation to the examinees aged 7; ** statistically significantly higher values in relation to the examinees aged 11

u odnosu na ispitanike uzrasta od 7 godina (Tabela 2 i 3).

Nije registrovana statistički značajna razlika u prevalenciji karijesa prvih stalnih molara između ispitanika uzrasta 10 i 11 godina, odnosno na prelazu mlađeg u stariji školski uzrast (Tabela 2 i 3).

Kod ispitanika starijeg školskog uzrasta su takođe registrovane visoke vrednosti ispitivanih parametara prevalencije karijesa prvih stalnih molara koje rastu sa uzrastom ispitanika (Tabela 1). U uzrastu od 11 godina KIo iznosi 74.35%, KIz 52.40% i KIp 2.09, da bi u uzrastu ispitanika od 14 godina ispitivani parametri dostigli maksimalne vrednosti i to za KIo 79.86%, KIz 66.19% i KIp 2.65. Međutim, statistički značajno veće vrednosti registrovane su samo za KIz i KIp-a i to samo kod ispitanika uzrasta od 14 godina u odnosu na ispitanike uzrasta od 11 godina (Tabela 2 i 3).

U svim uzrastima ispitanika registrovana je veća prevalencija karijesa prvih stalnih molara kod devojčica nego kod dečaka (Tabela 4).

Struktura KEP-a u ispitivanoj grupi dece pokazuje da se sa uzrastom ispitanika procenat karioznih prvih stalnih molara smanjuje a povećava procenat saniranih-plombiranih i

registered, in relation to the examinees aged seven years (Table 2 and 3).

A statistically significant difference in the first permanent molars caries prevalence was not registered between the examinees of 10 and 11 years of age, that is, at the transition from younger to older school age (Table 2 and 3).

In the examinees of older school age, high values of the examined first permanent molars caries prevalence parameters were registered, which increased with the age of the examinees (Table 1). At the age of 11, PCI was 74.35%, TCI 52.40% and ACI 2.09, and in the examinees aged 14, the examined parameters reached the maximum values - for PCI 79.86%, TCI 66.19% and ACI 2.65. However, statistically significantly higher values were registered only for TCI and ACI and only in the examinees aged 14, in relation to the examinees aged 11 (Table 2 and 3).

At all the ages of the examinees, a higher first permanent molars caries prevalence was registered in girls (Table 4).

The DMF structure in the examined children group showed that with the age the percentage of caries-infected first permanent molars decreases, and the percent of the cured-filled and

Tabela 4. *Odnos prevalencije karijesa prvih stalnih molara između dečaka i devojčica u ispitivanoj grupi dece*
Table 4. *Decay prevalence relation of 1st permanent molars between girls and boys in the examined group*

	Starost (n) / Age (n)	Pol / Gender	KIo % / PCI %	KIz % / TCI %	KIp / ACI
Mlađi školski uzrast / Younger school age	7 godina/ years	Dečaci/ Boys Devojčice/ Girls	36.66 38.98	18.33 20.00	0.75 0.80
	8 godina/ years	Dečaci/ Boys Devojčice/ Girls	51.94 52.54	30.19 34.74	1.21 1.39
	9 godina/ years	Dečaci/ Boys Devojčice/ Girls	54.43 71.43	36.49 45.12	1.38 1.81
	10 godina/ years	Dečaci/ Boys Devojčice/ Girls	66.67 70.66	44.00 52.96	1.76 2.12
Stariji školski uzrast / Older school age	11 godina/ years	Dečaci/ Boys Devojčice/ Girls	68.35 81.57	49.36 56.25	1.97 2.25
	12 godina/ years	Dečaci/ Boys Devojčice/ Girls	74.07 80.88	54.62 57.35	2.18 2.29
	13 godina/ years	Dečaci/ Boys Devojčice/ Girls	71.43 87.67	48.57 67.80	1.94 2.71
	14 godina/ years	Dečaci/ Boys Devojčice/ Girls	77.02 85.29	62.83 64.53	2.51 2.68

ekstrahovanih prvih stalnih molara (Grafikon 1). Kod ispitanika mlađeg školskog uzrasta, i to u periodu između 7 i 9 godina, registrovana je nepovoljna struktura KEP-a (veći procenat karioznih u odnosu na procenat saniranih prvih stalnih molara), dok je kod ispitanika mlađeg školskog uzrasta starosti 10 godina, kao i svih ispitanika starijeg školskog uzrasta, registrovana povoljna struktura KEP-a (veći procenat saniranih od procenta karioznih zuba). Procenat ekstrahovanih prvih stalnih molara sa uzrastom ispitanika raste. U uzrastu od 7 godina 1.08% prvih stalnih molara je ekstrahovano, dok je kod ispitanika uzrasta od 14 godina registrovano čak 9.28% ekstrahovanih prvih stalnih molara (Grafikon 1). Nije zabeležena statistički značajna razlika u strukturi KEP-a prvih stalnih molara između dečaka i devojčica ni u jednom uzrastu ispitanika (p>0.05).
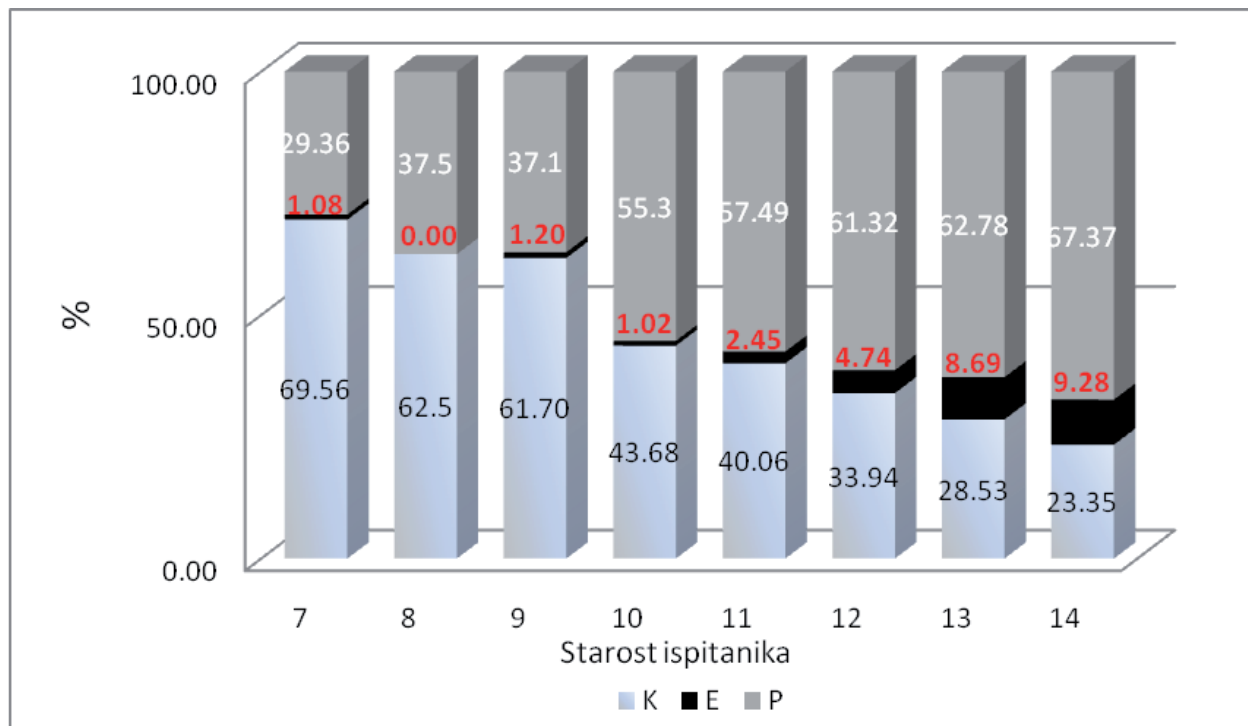
Diskusija

Sprovedeno istraživanje, kojim su bila obuhvaćena deca mlađeg i starijeg školskog uzrasta sa teritorije Grada Niša, ukazuje na visoku prevalenciju karijesa prvih stalnih

extracted permanent molars increases (Graph 1). Among the examinees of the younger school age, in the period between 7 and 9, an unfavorable DMF structure was registered (a higher percent of caries-infected in relation to the percent of the cured first permanent molars), whereas in the examinees of the younger school age of 10 and all the examinees of the older school age a favorable DMF structure was registered (a higher percent of cured than the percent of caries-infected teeth). The percent of extracted first permanent molars increases with the age of the examinees. At the age of 7, 1.08% of the first permanent molars were extracted, whereas in the examinees at the 14 years of age, even 9.28% of the extracted first permanent molars were registered (Graph 1). No statistically significant difference was registered in the DMF structure of the first permanent molars between boys and girls, regardless of their age (p>0.05).

Discussion

The conducted research, which included the children of younger and older school age from the territory of the city of Niš, indicated a high

Grafikon 1. *Struktura KEP-a prvih stalnih molara u grupi dece uzrasta od 7-14 godina*
Figure 1. *DMF structure of 1st permanent molars in the group of children aged 7-14 years*

molara u svim ispitivanim uzrastima. Već u uzrastu ispitanika od 7 godina KIo prvih stalnih molara iznosi 37.81%, KIz 19.33% a KIp 0.78. Ispitivani parametari prevalencije karijesa prvih stalnih molara rastu sa uzrastom ispitanika, u uzrastu od 10 godina skoro da udvostručuju svoje vrednosti da bi u uzrastu od 14 godina dostigle maksimalne vrednosti i to za KIo 79.86%, KIz 66.19% i KIp 2.65. Međutim, podaci o prevalenciji karijesa prvih stalnih molara kod dece školskog uzrasta drugih zemalja uglavnom su starijeg datuma, pa je te rezultate nemoguće uporediti sa rezultatima koji su dobijeni ovim istraživanjem. S druge strane, zahvaljujući jakim preventivnim programima, u zemljama razvijenog sveta beleži se konstantno opadanje prevalencije karijesa stalnih zuba, a samim tim i prvih stalnih molara, što dodatno otežava komparaciju dobijenih rezultata. Slično je i sa pojedinim zemljama našeg okruženja, kao što je npr. Hrvatska, gde je 2007. godine registrovana značajna redukcija prevalencije karijesa prvih stalnih molara u odnosu na 1977. godinu, što autori tumače jakim preventivnim programima koji su sprovedeni tokom ovog perioda[2]. Podaci o stanju zdravlja prvih stalnih molara sedmogodišnjaka[5] i dece mlađeg školskog uzrasta našeg regiona[6] iz

first permanent molars caries prevalence at all the ages examined. Already, in the examinees aged 7, PCI of the first permanent molars is 37.81%, TCI 19.33% and ACI 0.78. The examined parameters of the first permanent molars caries prevalence increase with the examinees age, at the age of 10 they almost double their value, so that they would reach, at the age of 14, their maximum values for PCI79.86%, TCI 66.19% and ACI 2.65. However, the data on the first permanent molars caries prevalence among the school-age children in other countries are mostly outdated, so it is impossible to compare those results with the ones obtained by this research. On the other hand, due to strong preventive programmes, in the developed countries a constant decrease in the permanent teeth caries prevalence is registered, and at the same time of the first permanent molars as well, which additionally makes the comparison of the obtained results even more difficult. It is a similar situation with the countries of our surrounding as is the case with Croatia where a significant reduction of the first permanent molars caries prevalence was registered, in relation to 1977, which was interpreted by authors by strong preventive programmes which were conducted during this period[2]. The data on the health state of the first

2000, odnosno 2004. godine, sugerišu na značajnu redukciju prevalencije karijesa ovih zuba. Međutim, pored toga, zbog oskudnosti podataka starijeg datuma o prevalenciji karijesa prvih stalnih molara dece našeg regiona uzrasta od 7 do 14 godina, teško je precizirati ukupnu efikasnost primene preventivnih programa na našem području praćenjem prevalencije karijesa ovih zuba.

Rezultati dobijeni ovim istraživanjem pokazuju da prevalencija karijesa prvih stalnih molara raste sa uzrastom ispitanika, na šta su i ranije ukazali drugi autori[7,8]. U mlađem školskom uzrastu, kod ispitanika uzrasta 8, 9 i 10 godina registrovana je statistički značajno veća prevalencija karijesa prvih stalnih u odnosu na uzrast dece od 7 godina. Dobijeni rezultati se mogu objasniti činjenicom da pomenuti period odgovara fazi posteruptivne maturacije, kada je osetljivost zuba na dejstvo kariogenih nadražaja najveća[9]. Stoga, ovo statistički značajno povećanje prevalencije karijesa prvih stalnih molara u uzrastu od 8 do 10 godina može se smatrati očekivanim i u skladu je sa nalazima drugih autora, prema kojima je osetljivost prvih stalnih molara na kariogene nokse najveća od prve do četvrte godine nakon erupcije i da se ona zatim smanjuje[10]. Kod dece starijeg školskog uzrasta se sa porastom godina ispitanika kontinuirano nastavlja i porast prevalencije karijesa prvih stalnih molara ali bez statističke značajnosti. U ovom periodu, statistički značajno veće vrednosti registrovane su samo za KIz i KIp kod ispitanika starosti 14 godina u odnosu na ispitanike starosti od 11 godina.

Prevalencija karijesa prvih stalnih molara u svim uzrastima ispitanika bila je veća kod devojčica nego kod dečaka, što je u skladu sa podacima iz dostupne literature[11], te dobijeni rezultati sugerišu na potrebu za nešto intenzivnijim zdravstveno-vaspitnim radom sa devojčicama nego sa dečacima u svim uzrastima ispitanika.

Analizom strukture KEP-a utvrđeno je da se sa uzrastom ispitanika procenat karioznih prvih stalnih molara kontinuirano smanjuje a povećava procenat saniranih (plombiranih i ekstrahovanih) prvih stalnih molara. Nepovoljna struktura KEP-a je registrovana samo kod ispitanika mlađeg školskog uzrasta, starosti od 7 do 9 godina, dok ja ona u svim ostalim uzrastima bila povoljna. Kako su ovim

permanent molars in seven-year-olds[5] and the children of the younger school age of our region[6], from 2000, that is, 2004, suggest a significant reduction of caries prevalence in these teeth. However, regardless of these data, due to the outdated data scarcity on the first permanent molars caries prevalence in the children of our region aged from 7 to 14, it is difficult to determine the total efficiency of these preventive programmes application in our region by monitoring these teeth caries prevalence.

The results obtained by this research show that the first permanent molars caries prevalence increases with the examinees age, the fact to which some other authors also pointed[7,8]. At the younger school age, with the examinees of 8, 9 and 10 years of age, statistically more significant the first permanent molars caries prevalence was registered, compared to the children aged 7. The obtained results can be explained by the fact that the mentioned period corresponds to the phase of post-eruptive maturation when teeth sensitivity to the effect of cariogenic stimulations is the highest[9]. Therefore, this statistically significant increase of the first permanent molars caries prevalence at the age of 8-10 years of age can be considered expected and in accordance with the findings of other authors according to whom the sensitivity of the first permanent molars to cariogenic stimuli is highest at 1-4 years after eruption, after which it decreases[10]. As for the children of the older school age, with the increase in the age of the examinees continuously goes the increase in the first permanent molars caries prevalence, but without any statistical significance. In this period, statistically significantly higher values were registered only for TCI and ACI in the examinees aged 14 in relation to the examinees aged 11.

The first permanent molars caries prevalence at all the ages of the examinees was higher in the girls compared to boys, which is in accordance with the data from the available literature (11), so the obtained results point to the necessity for a somewhat more intensive medically-educational work with girls compared to boys of all ages.

Analyzing the DMF, it was determined that with the examinees age, the percent of the caries-infected first permanent molars decreased, while the percent of the cured (filled and extracted) first permanent molars increased. An unfavourable DMF structure was only registered in the examinees of the younger school age, 7-9 years old, whereas in all the other ages it was a favorable one. Since this research in-

istraživanjem obuhvaćeni učenici osnovnih škola koje poseduju svoju stomatološku službu, dobijeni rezultati nedvosmisleno pokazuju kontinuiranu brigu školskih stomatologa i istovremeno potvrđuju značaj školske stomatološke nege u očuvanju usta i zuba, na šta su i ranije ukazali drugi autori[12,13].

Međutim, i pored toga, zabrinjavajući je podatak da se procenat ekstrahovanih prvih stalnih zuba kontinuirano povećava sa uzrastom ispitanika i da u uzrastu ispitanika od 14 godina dostiže vrednost od čak 9.28%. Zbog izuzetnog funkcionalnog značaja prvih stalnih molara, ekstrakcija ovih zuba iz ortodontskih razloga je jako retka i ograničena[14]. S druge strane, negativne posledice ekstrakcije prvih stalnih molara su mnogobrojne, i pre svega uslovljene brojem i vremenom njihove ekstrakcije. Istraživanje Albadri-ja[15] i sar. je pokazalo da je u čak 70% slučajeva karijes sa lošom prognozom razlog ekstrakcije prvih stalnih molara a u 11% slučajeva je to molarno incizalna hipomineralizacija. Takođe, ova grupa autora je sugerisala da je prosečno vreme ekstrakcije prvih stalnih molara uzrast od 11 godina, što je znatno kasnije od vremena koje se preporučuje u slučaju kada je neophodna ekstrakcija ovih zuba, a to je uzrast između 8. i 10. godine[16]. Ovim istraživanjem je utvrđeno da se u mlađem školskom uzrastu, u proseku, godišnje ekstrahuje oko 1% prvih stalnih molara, da bi već u uzrastu od 11 godina 2.45% prvih stalnih molara bilo ekstrahovano. Nadalje, sa svakom godinom, procenat ekstrahovanih prvih stalnih molara se skoro udvostručava i u uzrastu od 14 godina dostiže vrednost od čak 9.28%. Može se pretpostaviti da su komplikacije karijesa glavni razlog ekstrakcije prvih stalnih molara u ispitivanoj grupi dece.

Zaključak

Ovim istraživanjem je utvrđena:
• Visoka prevalencija karijesa prvih stalnih molara u ispitivanoj grupi dece koja raste sa uzrastom ispitanika.
• Najintenzivniji porast prevalencije karijesa ovih zuba registrovan je u mlađem školskom uzrastu, gde su kod ispitanika uzrasta 8, 9 i 10 godina registrovane statistički značajno veće vrednosti parametara prevalencije karijesa u odnosu na uzrast od 7 godina.
• U starijem školskom uzrastu, statistički značajno veće vrednosti registrovane su samo

cluded the students who have their own dental service, the obtained results unequivocally point to continuous care of school dentists, at the same time confirming school dental care significance in preserving the mouth and teeth, to which the other authors have pointed before[12, 13].

Nevertheless, apart from that, what is alarming is the fact that the percent of the extracted first permanent molars is being continually increasing with examinees age and that in the examinees of the age of 14, the value of even 9.28% is reached. Due to the extraordinary significance of the first permanent molars, the extraction of these teeth for orthodontic reasons is very rare and limited[14]. On the other hand, negative consequences of the extraction of the first permanent molars are numerous, and primarily conditioned by the number and time of their extraction. The research by Albadri[15] et al. has shown that even in 70% of cases, caries with bad prognosis is the reason for the extraction of the first permanent molars, and in 11% of cases that is molar–incisor hypomineralization. In addition, this group of authors suggested that the average time of the first permanent molars extraction is the age of 11, which is substantially later than the time recommended in case when the extraction of these teeth is necessary, and that is the age between year 8 and 10[16]. By means of this research it was found that at younger school age, on average, about 1% of the first permanent molars is annually extracted, and at the age of 11 2.45% of the first permanent molars is extracted. Furthermore, with every year of age, the percent of the extracted first permanent molars is almost doubled and at the age of 14 it reaches the value of even 9.28%. It can be assumed that caries complications are the main reasons for extracting the first permanent molars in the examined group of children.

Conclusion

This research determined the following:
• A high first permanent molars caries prevalence in the examined group of children, which grows with the examinees age.
• The most greatest increase in caries prevalence of these teeth was registered in younger school age, where as in the examinees aged 8, 9 and 10 statistically significantly higher parameter values of caries prevalence were registered in relation to those under the age of 7.

za KIz i KIp dece uzrasta 14 godina u odnosu na uzrast od 11 godina.

- Sa uzrastom ispitanika procenat karioznih zuba se smanjuje a povećava procenat saniranih (plombiranih i ekstrahovanih) zuba.

- Registrovan je visok procenat ekstrahovanih zuba, čije se vrednosti u starijem školskom uzrastu, sa svakom godinom starosti ispitanika, skoro udvostručuju,

Ovim istraživanjem je nedvosmisleno potvrđen značaj i uloga školske stomatološke nege u očuvanju oralnog zdravlja, ali je ovo istraživanje istovremeno ukazalo i na neophodnost primene profilaktičkih mera i postupaka koje imaju za cilj očuvanje zdravlja prvih stalnih molara. Na osnovu dobijenih rezultata, može se smatrati da je period između 7 i 10 godina starosti dece najkritičniji i najznačajniji za primenu preventivno-profilaktičkih mera i postupaka koje imaju za cilj očuvanje zdravlja ovih, biološki i funkcionalno, veoma značajnih zuba.

- In the older school age, statistically significantly higher values were registered only for TCI and ACI of children of 14 in relation to those of 11 years of age.

- With the age of the examinees, the percent of caries-infected teeth decreases and the percent of the cured (filled and extracted) teeth increases.

- A high percent of the extracted teeth was registered, the values of which will be in the older school age doubled on annual basis.

By this research, the significance and the role of school dental care in preserving oral health was unequivocally affirmed, but this research has also pointed to the necessity of applying prophylactic measures and actions the purpose of which is to preserve the health of the first permanent molars. Based on the results, it can be considered that the period between 7 and 10 years of age is the most critical and the most important period for the application of preventive-prophylactic measures aimed to preserve the health of these, biologically and functionally, very important teeth.

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