The assessment of primary teeth condition in 6 year-old children in Podgorica municipality

Mirjana Đuričković, Mirjana Ivanović, Zorica Popović

1University of Montenegro, Faculty of Medicine, Department of Dentistry, Podgorica, Montenegro; 2University of Belgrade, Faculty of Dental Medicine, Clinic of Preventive and Paediatric Dentistry, Belgrade, Serbia

SUMMARY

Introduction The most frequent oral disease in children is tooth decay. The aim of this study was to determine the health status of primary teeth in 6 year-old children.

Material and method The study included 203 children of both genders living in the territory of Podgorica municipality. Only children whose parents gave consent were included. The parameters used for assessing oral health condition were: number of decayed, missing, and filled teeth due to caries (dmft) and Significant Caries Index (SiC). One dentist clinically examined all respondents in accordance with methodology and criteria of the World Health Organization (WHO).

Results The average value of dmft in 6-year-olds in Podgorica was 4.9. On average, 80.3% of examined children had dental decay. The SiC Index was 8.3. Among examined children, 12.3% had at least one tooth with fissure sealant. In dmft structure dominated untreated decay (92.6%).

Conclusion Results showed high prevalence of primary teeth decay in 6 years old children, indicating the absence of preventive measures and programs in Montenegro.

Keywords: children; dental decay; primary teeth; 6 year-olds

INTRODUCTION

Oral health is an important part of general health and as such is of primary importance for the functioning and quality of life. Preventive programs can improve oral health significantly with low financial implications [1].

Dental decay is the most common oral disease. It is a chronic, infectious, progressive, multifactorial disease, where nutrition plays a key role in its development. Children are particularly predisposed to the development of dental decay. Its complications have significant effect on overall child health, nutrition, growth and weight [2, 3, 4]. Also, dental decay causes discomfort, pain, sleeping problems, learning and absence from school [5, 6, 7]. Odontogenic infections as a result of untreated dental decay are the most common cause of hospitalization of young children [7].

Primary teeth are extremely important for nutrition and speech, they preserve space for permanent teeth and serve as guides, and there is also aesthetic role. In addition, primary teeth condition influences permanent teeth health as well. Oral hygiene habits and children's diet are encouraged by the family [8]. Early start of dental decay is an indicator of missed opportunities for preventive care and endangers children's general health. Therefore, it is necessary to include preventive-prophylactic methods early in life. Epidemiological data provide insight into disease developing and can be used to create preventative programs with the aim of improving oral health [9].

Montenegro health system is currently focused on a curative approach rather than preventative measures. Montenegro is an area with low fluoride content in drinking water (from 0.05 to 0.2mg / L).

The aim of this study was to determine the health status of primary teeth in 6 year-old children.

METHODOLOGY

The survey included 203 children of both genders living in the territory of Podgorica Municipality, who came to dental examinations at the Faculty of Medicine, during 2017. Only children who were not older than 6 years were included in the study, medically healthy and without a mental, physical and sensory handicap. One dentist according to the principles of good clinical practice performed all clinical exams. Kappa statistics were used to test the researcher reliability. Kappa’s value was 0.94.

The parameters used to assess oral health condition were: number of decayed, missing, and filled teeth due to caries (dmft) and Significant Caries Index (SiC), according to the World Health Organization recommendations [10]. All children that participated in the study were screened with standard dental diagnostic tools on dry teeth, in dental chair using overhead light. Clearly visible lesions with formed cavity on the tooth surface were registered as tooth decay, while changes in the transparency or initial demineralization of enamel with intact surface, without cavitation, was registered as healthy tooth. The state of deciduous dentition was estimated using the dmft index as described by the WHO criteria and procedures for ep-
RESULTS

A total of 203 children, 99 girls and 104 boys from urban and suburban areas of Podgorica municipality were examined. No statistically significant difference was found in regards to gender and place of residence ($\chi^2$ test, $p > 0.05$). The distribution of six-year-olds according to gender and place of residence is shown in Table 1.

On average, 80.3% of examined children had dental decay. The average value of dmft index in 6-year-olds in Podgorica was 4.9 (4.5 to 5.6). Lower dmft index was recorded in girls compared to boys. Also, children from urban residence had lower values of this index than the children from the suburban residences. However, there were no statistically significant differences in the values of this index in relation to sex and place of residence ($t$-test, $p > 0.05$; Table 2).

In the dmft structure dominated decayed teeth (92.6%) followed by filled teeth (5.7%) and small percentage of extracted teeth (1.2%). Statistically significant differences were not found in the dmft structure in relation to the gender and place of residence (Table 3).

$SiC$’s subgroup included 67 children. The index (upper third of the frequency allocation dmft) was 8.36. Among the examined children, 12.3% had at least one tooth with fissure sealant.

DISCUSSION

Primary teeth are very important. They stimulate normal growth and development of jaws, allow chewing, participate in speech development, preserve the space for their successors, and participate in aesthetic appearance. Healthy primary teeth allow permanent teeth to grow in healthy environment. The condition of deciduous dentition is largely reflected on the state of permanent dentition.

The results of our study showed that primary teeth did not receive adequate attention. The percentage of children with all healthy teeth in our study was low (19.9%). High values of dmft index indicated high distribution of decay in primary teeth both in boys and girls, with somewhat worse picture in Podgorica’s suburban area. When compared with similar epidemiological studies from neighboring countries, it is not encouraging picture. Average values of number of decayed primary teeth per respondent ranged from 4.17 in Republika Srpska, while the percentage of children with all healthy teeth was 3.94% [8]. In Serbia, 20.6% of children aged 6 years had all healthy teeth [13]. In Croatia, the value of the dmft index for six-year-olds was 4.7 [14], while in Kosovo the value of the dmft index ranged from 6.31 for boys to 6.56 for girls [15]. The average dmft index for children from Poland was 5.56 [16]. However, in developed countries dmft index ranged from 2.1 in Austria [17], 2.0 in Australia [18], 1.9 in Switzerland [19], 0.9 in Germany [20].

Special attention was paid to high-risk individuals, and an analysis of the average dmft index of one third of
CONCLUSION

The main reasons for poor oral health in 6-year old children are the absence of population prevention programs and dental services oriented mostly toward treating disease. It is therefore necessary to propose a plan of preventive activities towards the education of parents and children.

REFERENCES

1. Peterson PE. Global policy for improvement of oral health in the 21st century—implications to oral health research of World Health Assembly 2007. World Health Organization. Community Dent Oral Epidemiol. 2009; 37(1):1–8. [DOI: 10.1111/j.1600-0528.2008.00448.x]

2. Heinrich-Weltzien R, Monse B, Benzian H, Heinrich J, Kromeyer-Hauschild K. Association of dental caries and weight status in 6- to 7-year-old Filipino children. Clin Oral Investig. 2013; 17(6):1515–23. [DOI: 10.1007/s00784-012-0849-3] [PMID: 23053701]

3. Duijster D, Sheeham A, Hobell MH, Itochon G, Monse B. Associations between oral health-related impacts and rate of weight gain after extraction of pulpally involved teeth in underweight preschool Filipino children. BMC Public Health. 2013; 13:533. [DOI: 10.1186/1471-2458-13-533] [PMID: 23371717]

4. Benzian H, Monse B, Heinrich-Weltzien R, et al. Untreated severe dental decay: a neglected determinant of low Body Mass Index in 12-year-old Filipino children. BMC Public Health. 2011; 11:558. [DOI: 10.1186/1471-2458-11-558] [PMID: 21752286]

5. Leal SC, Bronkhorst EM, Fan M, Frencken JE. Untreated cavitated dentine lesions: impact on children’s quality of life. Caries Res. 2012; 46(2):102–6. [DOI: 10.1159/000336387] [PMID: 22398411]

6. Serwan A, Faust S, Mulligan R. The impact of oral health on the academic performance of disadvantaged children. Am J Public Health. 2012; 102(9):1729–34. [DOI: 10.2105/AJPH.2011.300478] [PMID: 22813093]

7. Agaku IT, Olutola BG, Adisa AG, Obadan EM, Vardavas CI. Association between unmet dental needs and school absenteeism because of illness or injury among U.S. school children and adolescents aged 6-17 years, 2011–2012. Prev Med. 2015; 72:83–8. [DOI: 10.1016/j.ypmed.2014.12.037] [PMID: 25575801]

8. Janković S, Davidović B, Tpmić S. Assessment of Decisive Denti-tion in 6-10 Year Old School Children. Stomatološki glasnik Srbije. 2012, 59(4):189–93. [DOI: 10.2298/sgs1204183]

9. Martinović B, Ilic A, Vrčko B, Milojković Z, Stošović-Kalezić I, Mladenović R, et al. The status of dental health in children aged 12 and 15 years. Praxis Medica. 2016; 45(1):11–5. [DOI: 10.5937/pramed160111M]

10. World Health Organization. Oral Health Surveys. Basic Methods. 4th edn. Geneva: World Health Organization, 1997.

11. Bratthall D. Introducing the Significant Caries Index together with a proposal for a new oral health goal for 12-year-olds. Int Dent J. 2000; 50:378–84. [DOI: 10.1111/j.1875-595X.2000.tb00572.x] [PMID: 11197197]

12. Nishi M, Spjernswärd J, Carlsson P. Brønsted L. Dental caries experience of some countries and areas expressed by the Significant Caries Index. Community Dent Oral Epidemiol. 2002; 30:296–301. [DOI: 10.1034/j.1600-0528.2002.00054.x] [PMID: 12147171]

13. Ivanović M, Carević M, Marković D. Protokoli u stomatologiji. Beograd: Stomatološki fakultet; 2009.

14. Jokić Ni, Bakarčić D, Janković S, Malaretésči G, Dabo J, Majstorović M, et al. Dental caries experience in Croatan school children in Primorsko-Goranska county. Eur J Public Health. 2013; 23:139–42. [DOI: 10.1016/j.ejpdp.2013.01.002] [PMID: 23799065]

15. Ferizi L, Dragidda F, Skaka G, Bimbashi V, Mirasori S. Oral Health Status Related to Social Behaviors among 6 - 11 Year Old Schoolchildren in Kosovo. Acta stomatol Croat. 2017; 51(2):122–32. [DOI: 10.15644/asc51/2/5]

16. Bagińska J, Rodakowska E, Wilczyńska-Borawska M, Jamiołkowski M, Index of clinical consequences of untreated dental caries (pufa) in primary dentition of children from north-east Poland. Adv Med Sci. 2013; 58(2):442–7. [DOI: 10.2478/v10039-012-0075-x] [PMID: 23741899]

17. Armfield JM, Spencer AJ, Berennan DA. Dental Health of Australia’s 2-Heinrich-Weltzien R, Monse B, Benzian H, Heinrich J, Kromeyer-Hauschild K. Association of dental caries and weight status in 6- to 7-year-old Filipino children. Clin Oral Investig. 2013; 17(6):1515–23. [DOI: 10.1007/s00784-012-0849-3] [PMID: 23053701]

18. Personal Communication – Dr Andrea Bodenwinkler, GOG. 2012.

19. Armfield JM, Spencer AJ, Berennan DA. Dental Health of Australian’s teenagers and pre teen children: the Child Dental Health Survey, Australia 2003-04. Dental Statistics and Research Series no. 52. Cat no Den 199. Canberra: AOHW. (Full Report)

20. Whelton H, Crowley E, O’Mullane D, Harding M, Guiney H, Cronin M, et al. North South Survey of Children’s Oral Health in Ireland 2002. Dublin: Department of Health and Children; 2006.

21. Grund K, Goddon I, Schüler M, Lehmann T, Heinrich-Weltzien R. 20. Grund K, Goddon I, Schüler M, Lehmann T, Heinrich-Weltzien R. Clinical consequences of untreated dental caries in German 5- and 8-year-olds. BMC Oral Health. 2015; 15:140. [DOI: 10.1186/s12903-015-0121-8] [PMID: 26538196]

22. Whelton H, Crowley E, O’Mullane D, Harding M, Guiney H, Cronin M, et al. North South Survey of Children’s Oral Health in Ireland 2002. Dublin: Department of Health and Children; 2006.

23. Đorđević A. Parents´ Knowledge about the Effects of Oral Hygiene, Proper Nutrition and Fluoride Prophylaxis on Oral Health in Early Childhood. Balk J Dent Med. 2018: 25(1):15–19.

Received: 25.12.2018 • Accepted: 29.01.2019
Procena stanja mlečnih zuba kod dece uzrasta šest godina na teritoriji opštine Podgorica

Mirjana Đuričković, Mirjana Ivanović, Zorica Popović

1Univerzitet Crne Gore, Medicinski fakultet, studijski program Stomatologija, Crna Gora; 2Univerzitet u Beogradu, Stomatološki fakultet, Klinika za dečju i preventivnu stomatologiju, Beograd, Srbija

KRAKAT SADRŽAJ

Uvod
Najčešće oralno oboljenje kod dece je karijes zuba. Cilj ove studije je bio utvrđivanje stanja zdravlja mlečnih zuba dece uzrasta šest godina.

METODOLOGIJA

Istraživanjem je obuhvaćeno 203 dece oba pola koja žive na teritoriji opštine Podgorica. U istraživanju su bila uključena samo ona dece čiji su roditelji svojim potpisom dali saglasnost. Parametri korišćeni za procenu stanja oralnog zdravlja bili su indeksi prosečnog broja karijehnih (kep) i indeksi značajnog karijesa (SiC). Jedan stomatolog klinički je pregledao sve ispitanike u skladu sa metodologijom i kriterijumima Svetske zdravstvene organizacije (SZO).

Rezultati
Procent zuba sa obolelim mlečnim zubima iznosio je 80,3%. Prosečan broj obolelih zuba po ispitaniku iznosio je 4,9. SiC je iznosio 3,6. Među ispitancom decom 12,3% je imalo najmanje jedan zub sa prisutnim zalivačem fisura. U strukturi kep-a dominirao je nesanirani karijes (92,6%).

Zaključak
Naši rezultati pokazali su veliku prevalenciju karijesa mlečnih zuba kod dece uzrasta šest godina, što upućuje na nepoštovanje preventivnih mera i programa u Crnoj Gori.

Kljune reči: dece; karijes; mlečni zubi; šestogodišnjaci

UVOD

Oralno zdravlje je važan deo opštog zdravlja i kao takvo je od primarnog značaja za funkcionalisanje i kvalitet života. Kvalitet oralnog zdravlja se može poboljšati na ekonomičan način, koristeći preventivne programe [1].

Najčešća bolest usne duplje je karijes zuba. Karijes je hronično, infektivno, progresivno, multikaualzno oboljenje, pri čemu ishrana ima ključnu ulogu u njegovom razvoju. Deca su posebno preispitanera za razvoj dentalnog karijesa. Komplikacije dentalnog karijesa imaju značajan uticaj na opšte zdravlje dece, ishranu, rast i telesnu težinu [2, 3, 4] i zdravlje dece. Probleme sa spavanjem, učenjem i odsustvom iz škole [5, 6, 7].

Primarni zubi su izuzetno važni, jer oni učestvuju u funkciji ishrane, govora, čuvaju mesto za stalne zube i služe im kao vođi. U zvezi sa karijesom, registrovani kao zdravi zubi

METODOLOGIJA

Istraživanjem je obuhvaćeno 203 dece oba pola koja žive na teritoriji opštine Podgorica. Zdravstveni sistem Crne Gore trenutno je fokusiran na kućno zdravlje. Kvalitet oralnog zdravlja se može poboljšati na ekonomičan način, koristeći preventivne programe [1].

Zaključak
Naši rezultati pokazali su veliku prevalenciju karijesa mlečnih zuba kod dece uzrasta šest godina, što upućuje na nepoštovanje preventivnih mera i programa u Crnoj Gori.
dobijeni broj predstavlja podskup SiC, te tako dobijeni rezultat kep/kep-a za ovaj podskup predstavlja vrednost SiC [11, 12].
Statistička obrada podataka urađena je u programu SPSS v.11.5 for Windows (SPSS Inc., Chicago, IL, USA). Za opis rezultata korišćene su metode deskriptivne i analitičke statistike. Za testiranje statističke značajnosti u prosečnim vrednostima između dva nezavisna uzorka korišćen je Studentov t-test i χ2 test. Vrednosti p manje od 0,05 smatrale su se statistički značajnim.

REZULTATI

Ukupno je pregledano 203 dece, 99 devojčica i 104 dečaka iz gradskog i prigradskog dela podgoričke opštine. Analizom podataka utvrđeno je da ne postoji statistički značajna razlika kada su u pitanju pol i mesto stanovanja (χ² test, p > 0,05). Za stupljenost ispitivanih šestogodišnjaka prema polu i tipu naselja prikazana je u Tabeli 1.
Procenat dece sa obolelim mlečnim zubima iznosio je 80,3%. Najniži procenat dece sa obolelim zubima zabeležen je kod dečaka, a najviši kod dečaka. Statistički značajnih razlika u vrednostima ovog indeksa nije bilo u odnosu na pol i mesto stanovanja (t-test, p > 0,05; Tabela 2).
Prosečan broj obolelih mlečnih zuba po ispitaniku iznosio je 4,9, a kretao se od 4,5 do 5,6. Vrednosti ovog indeksa u odnosu na pol bile su veoma ujednačene. Deca gradskog područja imala su niže vrednosti ovog indeksa u odnosu na svoje vršnjake iz prigradskog naselja, ali ta razlika nije bila statistički značajna (t-test, p > 0,05). Vrednosti kep indeksa u odnosu na pol i mesto stanovanja prikazane su u Tabeli 2.

U strukturi kep-a dominirao je nesanirani karijes (92,6%), zatim slede zubi sa ispunima (5,7%) i mali postotak ekstrahiранih zuba (1,2%). Statistički značajne razlike nisu zabeležene u strukturi kep-a u odnosu na pol i mesto stanovanja (Tabela 3).
Podskup SiC-a činio je 67 dece. SiC indeks (gornja trećina frekvencije raspodele kep-a) iznosio je 8,36.

Bilo je 12,3% dece koja su imala makar jedan prisutan zalivač fisura u ustima.

DISKUSIJA

Mlečni zubi su veoma značajni. Oni podstiču normalan rast i razvoj vilice, omogućavaju žvakanje, učestvuju u razvoju govora, aklizi fisura u ustima.

Diskutovani su razlogi neuspjeha u prevenciji karijesa kod dece, ali i šireg područja. Dobijene vrednosti kep-a upućuju na visoku rašprostranjenost karijesa u našem istraživanju, ali je nizak i iznosio je 19,9%. Dobijene vrednosti KIP-a imaju veliku vrednost, ali nema uvek objasnjenja za neke od razlika.

Rezultati za ovaj podskup podguraju slične vrednosti kao i u drugim podskupovima, ali su sigurno manje u odnosu na vrednosti kep indeksa u drugim podskupovima. Procesne vrednosti ovog indeksa broja obolelih mlečnih zuba po jednom ispitaniku kretale su se u rasponu od 4,17 u Republici Srpskoj, dok je procenat dece sa svim zdravim zubima iznosio 3,94% [8].

U Srbiji je 20,6% dece u prosečnim vrednostima zabeleženo 4,9, a kretao se od 4,5 do 5,6. Vrednosti ovog indeksa u odnosu na pol i mesto stanovanja prikazane su u Tabeli 1. Vrednosti kep indeksa u odnosu na pol i mesto stanovanja prikazane su u Tabeli 2.

Vrednosti kep indeksa u odnosu na pol i mesto stanovanja (t-test, p > 0,05; Tabela 2).

Ukupno je pregledano 203 dece, 99 devojčica i 104 dečaka iz gradskog i prigradskog dela podgoričke opštine. Analizom podataka utvrđeno je da ne postoji statistički značajna razlika kada su u pitanju pol i mesto stanovanja (χ² test, p > 0,05). Za-vrstu rečenica i kontrola ishrane su veoma značajne u prevenciji oralnih oboljenja [23]. Zato je neophodno predložiti plan preventivnih aktivnosti usmerenih na edukaciju roditelja i dece.