Oral Health in Children with Intellectual Disabilities in Banja Luka Municipality

ABSTRACT

Introduction: Dental care for people with mental disabilities is an integral part of the comprehensive medical care. Mentally challenged people, in addition to mental have, in cases of severe psychophysical development disorders, motor disturbances as well, which prevent them from adequately maintaining oral hygiene and general health. In institutions where these people are located, there is often no dental service or dentist to take care of their oral health.

Aims of the study: The basic goal of the research is to determine the oral health condition of the intellectually disabled children in the municipality of Banja Luka.

Patients and Methods: The study was conducted on 65 children (26 females and 39 males), age range: 5 to 15 years old. According to a type of disability by 10th International classification of the diseases, children were divided into two groups: group 1/F71(n=35) and group 2/F72 (n=30). Dental check assessed: teeth number, presence of decayed, missing/extracted teeth and radices relictæ, presence and number of crowns, gingival index-GI and plaque index-PI.

Results: The analysis showed there was no significant difference in the number of decayed, extracted, filled teeth and there were no significant differences in the values of DMFT, gingival and plaque index.

Conclusion: Children with mental disabilities in the municipality of Banja Luka have a bad state of the mouth and teeth. In relation to the degree of mental disability of children, there was no significant difference in the number of decayed, extracted, filled teeth, DMFT, gingival and plaque index.

Key words:

children with mental disabilities, tooth decay, DMFT

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Introduction

Oral health, as an integral part of general health and wellbeing of a human,¹ has a great influence on everyday functioning and life quality of intellectually disabled people

which are in general additionally worsened by diseases of other systems and organs.² There is a continuous increase in number of intellectually disabled people, which is contrary to the development degree of health protection.

Nevertheless, the development of medical science today significantly influences the prolongation of lifespan of such people, although the insufficient attention is paid to their oral health. Reasons for bad oral health of such people are numerous and complex. Namely, intellectually disabled people are most often accommodated in special institutions and rarely in households. In such special institutions there is often no dental service, i.e. dentist to take care of their oral health.¹ With such people who live with their parents or legal guardians, the oral care is taken by their parents, i.e. guardians who usually do not cooperate properly with the dentist and are not correctly informed about the importance of oral health preservation.

Oral hygiene of intellectually disabled people is worse than the one of healthy people and they suffer from more developed paradontium diseases than healthy people. Being occupied by primary mental disease and ignorant of the importance of dental health, parents or guardians are usually insignificantly motivated to preserve the oral health of intellectually disabled children. Such people have aggravated cooperation with dentists and there are also not many dentists who work with intellectually disabled children. Low level of oral hygiene, great caries and paradontal diseases prevalence are characteristic of intellectually disabled people. Such people almost always maintain the oral hygiene insufficiently, as they are not capable of learning nor understanding the importance of oral hygiene practice.³ Special courses and other educational tools are necessary for the nurses in order to enable them to understand the importance of oral health and to manage the correct techniques of oral hygiene practice.^{4,5}

Health and educational work referring to oral health of intellectually disabled people should be an integral part of their primary disease treatment, i.e. should be within the already prescribed therapy in order to improve the overall quality of their life.^{6,7}

Damaged oral health is additionally aggravating the nutrition and communication with such patients.⁸ Furthermore, such patients often take numerous medicines which can also influence the oral health (reduce salivation, cause gum infection, lead to bone resorption and to paradontopathy). Taking of analgetics can also hide certain disease symptoms in these patients.⁹

Hypersalivation leads to reduction in salivary activity of cleaning thus having a dental plaque accumulate in marginal gingival area. The consequences of hypersalivation are inadequately buffered acids produced by increasing number of bacteria, which, in the end, cause teeth decay.¹⁰

Most of these people are often either toothless or with few teeth, suffering from extensive acute caries, high KEP index and developed periodontium diseases.¹¹

Dental care of intellectually disabled people represents the biggest problem, as well as challenge for the dentist. It is very important for the dentist to win their sympathy, i.e. to establish friendly relationship. Intellectually disabled people are hyperactive and upset while being at the dentist, they have unpredicted emotional reaction and attention shortage.¹²

Noninvasive dental interventions, such as machine-used removal of soft layers, tartar or local fluoride application can be made in high percentage of intellectually disabled children at the dental clinic.¹³

Regarding intellectually disabled children of younger age who do not accept cooperation, a short dental intervention can be made with the help of parent or guardian having a child in their lap with their legs over the legs of the child and fixing the arms and body of the child with their hands. In this way, a dental check-up can be made together with some preventive measures, drainage or tooth extraction. With intellectually disabled children of older age, the presence of parents/guardians is requested, i.e. the presence of the person who brought the patient, so that he/she could prevent the possible violent behaviour of the patient.¹⁴

In cases when it is impossible to provide conventional dental treatment, sedation or general anesthesia is used. There are few publications on oral health of intellectually disabled people in the world and especially in our country.

Aims of the study

The basic goal of the research is to determine the oral health condition of the intellectually disabled children in Banja Luka municipality.

Patients and Methods

This research involved 65 intellectually disabled respondents, out of which 26 were females (40%) and 39 male (60%), at the age of 5 - 15 years, i.e. average age 10 years. The research comprised children living with parents/guardians and children accommodated with the following institutions: PI Centre "Zaštiti me" and Institution of physical medicine and rehabilitation "Dr Miroslav Zotović" Banjaluka. The respondents were divided into two groups according to the level of the intellectual disability as defined by the 10th audit of the International disease classification (MKB-10). There were 35 respondents with F71-diagnosis - moderate intellectual disability and 30 respondents with the diagnosis F72- severe intellectual disability. Their teeth condition was examined and determined at the Maxiofacial Surgery Clinic of the Clinical Centar Banja Luka and the teeth treatment was conducted in the period between January 1st, 2012 and December 31st, 2012.

A dental mirror, a probe and artificial light were used in the dental examination, as recommended by the World Health

Organisation. Upon the dental examination, the dental record was filled in

(number of teeth, caries presence, existing fillings, number of extracted teeth, remained teeth radices relicae, possible presence of dental prostheses).

KEP index was used in the estimation of teeth condition. All parents/guardians were familiar with the purpose of the research and confirmed by their signatures their participation in the research.

Löe and Silnes gingival index was used for the estimation of the gingiva condition and the dental plaque presence was also established using the Silnes oe.

All the data were processed using standard procedures of descriptive and comparative statistics. Within the descriptive statistics, the average value was determined as well as standard deviation, and within the comparative statistics: Kruskal-Wallis test, Student test and χ^2 -test.

Results

The analysis showed that there was no significant difference in the number of caries affected, extracted or filled teeth, in comparison to the level of intellectual disability of the children. The average value of the caries affected teeth in children with mild intellectual disability amounted to 8.5, whereas, in the case of children with more severe intellectual disability, it amounted to 8.7. The average value of the extracted teeth in children with mild intellectual disability amounted to 0.3, whereas in children with severe intellectual disability, it amounted to 0.4. The average value of the filled teeth in children with mild intellectual disability amounted to 0.25, whereas in children with severe intellectual disability, it amounted to 0.17.

On the basis of the conducted Student test there was no statistically significant difference in the number of caries affected, extracted and filled teeth in relation to the level of intellectual disability in children (Table 1.).

Table 1. Results DMFT index in relation to the degree of mental disability of children

	Degree of mental disability	N	$\bar{x}$	SD
Decayed	deminshed	36	8.472	4.266
	weighs	29	8.759	5.138
Extracted	deminshed	36	.306	.856
	weighs	29	.448	1.021
Filled	deminshed	36	.250	.770
	weighs	29	.172	.658
DMFT	deminshed	36	9.028	4.253
	Weighs	29	9.379	5.596
	deminshed	36	9.028	4.235

There was no significant difference in KEP values in children with different level of intellectual disability. Regarding the children with mild intellectual disability, the average value of KEP amounted to 9 whereas in those having severe intellectual disability, it amounted to 9.4.

There was no statistically significant difference in KEP values in relation to the level of intellectual disability as shown by conducted Student test (Table 1.).

The results showed that the respondents with severe intellectual disability had higher average value of Caries tooth index (KIZ-a) (40) than those with mild intellectual disability who had their average value KIZ-a (35). This difference was not statistically significant ($t = 1.009$; $p < 0.317$) (Table 2.).

Table 2. Value PCC in children respondents in relation to the degree of disability

		KIZ					
		N	$\bar{x}$	SD	Med	Min	Maks
Degree of mental disability	weighs	29	40.55	23.92	32.00	11.54	96.43
	deminshed	36	35.42	17.04	35.10	12.50	87.50
	total	65	37.71	20.39	32.00	11.54	96.43

The average value of gingival index in children with mild intellectual disability amounted to 1.2 ± 0.6 whereas in children with severe intellectual disability, it amounted to 1.4 ± 0.6 . The average value of plaque index in children with mild intellectual disability amounted to 1.8 ± 0.5 whereas in children with severe intellectual disability, it amounted to 1.9 ± 0.7 .

Figure 1. Gingival index of children in relation to the degree of mental disabilities

Figure 2. The plaque index of children in relation to the degree of mental disability

According to the Student's *t*-test there was no statistically significant difference in the values of gingival and plaque index in the children groups in relation to the level of their intellectual disability.

Discussion

The results of this research shows that children with severe intellectual disability had more caries affected and extracted teeth as well as higher average KEP values, but there was no statistically significant difference in the number of extracted, filled and caries affected teeth in relation to their level of intellectual disability.

The study conducted in Turkey by Altun and his coworkers showed that the level of oral hygiene practice significantly worsened with the age and that KEP was increasing. Namely, having examined 160 schoolage children with intellectual disability, they found out that the average KEP value in children up to six (6) years was 2,04, in children up to 12 years 2,24, and with those up to 26 years even 11,9, which was in accordance with our results and was explained by inadequate oral hygiene and longer presence of teeth plaque.¹⁵

Long stay at home combined with consumption of nibbles and sweetened drinks influenced increased caries occurrence.¹⁶ Butts' findings show that only 17% of intellectually disabled children who lived at home had no caries, whereas 38% of those accommodated with institutions had healthy teeth. The reasons for this were consumptions of nibbles and sweetened drinks while at home, as well as irregular teeth brushing.¹⁷ Research conducted by Cutreess confirmed our results.¹⁸

In her research, Jovicic found out that there was no statistically significant difference between the condition of milk teeth of health and intellectually disabled children at the

age 3-6 years, i.e. between different groups of intellectually disabled children. The condition of periodontium was much worse in children affected by cerebral paralysis and those intellectually disabled than in healthy children.¹⁹

The research conducted in Croatia focused on the estimation of health condition of mouth cavity and teeth with intellectually disabled children and those healthy ones. The average KEP index value with intellectually disabled children amounted to 1,41 for mixed dentition and 6,39 for permanent dentition. Regarding healthy children, these values amounted to 1,23 for mixed dentition and 4,76 for permanent dentition. The results did not show statistically significant difference in caries intensity in different researched groups. Intellectually disabled children showed significantly worse oral hygiene practice than healthy children.²⁰

In their research conducted in Srbija, Gajić and Stevanović concluded that there was statistically significant percentage of untreated milk teeth caries in intellectually disabled children in relation to the controlled group of healthy children. Intellectually disabled children also showed increased prevalence of parodontal diseases, especially those accommodated with social institutions. There was also a big difference in KEP structure with intellectually disabled people, i.e. much lower percentage of filled teeth and much more caries affected teeth.²¹

The research conducted by Kocic and his coworkers was contrary to the aforementioned. According to Kocic, the greatest milk teeth caries prevalence was noticed in children with mild intellectual disability, then in physically disabled children and the lowest caries prevalence was noticed in children with severe intellectual disability whose milk teeth were in the best health. It was further found out that there was no difference in the average number of damaged permanent teeth upon examined child at the age of 7-8 years, among physically disabled children (KIp=5,1), children with mild intellectual disability (KIp=5,6) and group of healthy children (KIp=5,7).²²

The obtained results showed that children with severe intellectual disability had more plaque and higher gingival index in relation to children with mild intellectual disability. However, this difference was not statistically significant.

Most authors agree with the conclusion that the oral hygiene condition of intellectually disabled people is getting worse with age. Inadequate oral hygiene leads to dental plaque occurrence. The longer it exists, it causes more serious diseases of hard, as well as soft tissues.²³⁻²⁶

Lack of oral hygiene can be caused by ignorance of nurses and other personnel working in institutions which accommodate intellectually disabled people.^{27,28} However, there is no reason to suspect that these people are

neglected by personnel. The fact is that the personnel do not have sufficient knowledge and education on how to treat intellectually disabled people and how to offer them the most adequate dental service in sense of adequate and correct oral hygiene.^{29,30}

The education was provided during the first control which was scheduled seven days after an intervention carried out in general anesthesia. Within this research the education by means of lectures and brochures on correct oral hygiene and its importance was provided to people taking care of intellectually disabled ones. It was noticed that it came to much better cooperation, especially in people with mild intellectual disability. This small, but important step in communication is ascribed to positive experience during mouth and teeth treatment in general anesthesia.

The available literature on this topic suggests that efficient instructions for oral cavity hygiene maintenance should actively include psychiatric patients. Furthermore, it points out the necessity for specific preventive dental programmes with the aim to improve behaviour of this population regarding oral health protection. Klark³¹ however states that each preventive programme for improvement of oral health designed for healthy population requires significant changes in order to be adapted to the needs of this specific group of patients.

Researches point out that there are many intellectually disabled children who are not capable of oral hygiene maintenance, and parents or guardians are usually unmotivated and uneducated. It is therefore very important to include parents/guardians as well as teachers in oral hygiene practice programmes designed for intellectually disabled people, so that they could successfully implement the prevention programme together with dentists. Health and educational work is a longterm and painstaking process with the aim not only to teach these people, but to prepare them to use this knowledge.³²

Conclusion

Intellectually disabled children from Banja Luka municipality have bad mouth and teeth condition, but in relation to the level of intellectual disability, there was no significant difference in the number of caries affected, extracted and filled teeth, as well as in KEP, Kiz, gingival and plaque index.

Health and educational work is necessary as an integral part of therapy within the treatment of intellectually disabled people, and it should also include parents/ guardians.

Various education modes, trainings on oral hygiene practice, prevention measures and improvement of general health consciousness in all segments of the society could contribute to higher quality life of intellectually disabled people.

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Oralno zdravlje djece ometene u mentalnom razvoju na području opštine Banja Luka

SAŽETAK

Uvod: Stomatološko zbrinjavanje mentalno ometenih osoba je sastavni dio sveobuhvatnog medicinskog zbrinjavanja. Mentalno ometene osobe, pored mentalnih imaju, u slučajevima težeg poremećaja psihofizičkog razvoja, i poremećaje motorike, koji im onemogućavaju adekvatno održavanje oralne higijene i zdravlja uopšte. U ustanovama gdje su ove osobe smještene, često ne postoji stomatološka služba, odnosno stomatolog koji bi brinuo o njihovom oralnom zdravlju.

Cilj rada: Osnovni cilj istraživanja je da se utvrdi stanje oralnog zdravlja djece ometene u mentalnom razvoju na području opštine Banja Luka.

Ispitanici i metode: Ispitivanjem je obuhvaćeno 65 ispitanika (26 ženskog i 39 muškog pola), starosti od 5 do 15 godina. Ispitanici su svrstani u dvije grupe prema stepenu mentalnog oštećenja: MKB-10: grupa 1/F71 (n=35) i grupa 2/ F72 (n=30). Stomatološkim pregledom su utvrđeni: broj zuba, prisutnost karijesa, prisutnost ispuna, broj izvađenih zuba, prisutnost zaostalih korjenova, fraktura, kao i prisutnost i broj fiksni nadoknada, te gingivalni i plak indeks.

Rezultati: Analizom dobijenih podataka uočeno je da nema statističke razlike u broju karioznih, izvađenih i plombiranih zuba između grupa, kao ni u vrijednostima KEP-a, gingivalnog i plak indeksa.

Zaključak: Djeca ometena u mentalnom razvoju na području opštine Banjaluka imaju loše stanje usta i zuba. U odnosu na stepen mentalne ometenosti djece nije bilo značajne razlike u broju karioznih, ekstrahovanih, plombiranih zuba, kao ni u KEP, gingivalnom i plak indeksu.

Ključne riječi: djeca ometena u mentalnom razvoju, karijes, KEP