DOROTA KRAWCZYK[1], ELŻBIETA PELS[1],
MARIAN JĘDRYCH[2], JERZY BŁASZCZAK[3]

Ocena stanu uzębienia u dzieci i młodzieży w wieku 16-18 lat uczęszczających do szkół średnich na terenie miasta Lublina

Streszczenie

Wstęp. Badania epidemiologiczne są ważnym narzędziem do monitorowania i w konsekwencji ograniczania procesów chorobowych w jamie ustnej.

Cel. Celem pracy była ocena stanu uzębienia u młodzieży w wieku 16–18 lat uczęszczającej do szkół średnich na terenie miasta Lublina.

Materiał i metody. Badaniem objęto 300 osób w tym 100 osób w wieku 16 lat, 100 osób w wieku 17 lat i 100 osób w wieku 18 lat. Oceniono PUW, P, U, W, wskaźnik higieny OHI-S oraz wskaźnik leczenia WL. We wszystkich szkołach badanie przeprowadzano w warunkach gabinetu stomatologicznego działającego na terenie szkoły. W każdej szkole gabinet stomatologiczny funkcjonował ponad 5 lat. Wyniki badań były nanoszone na kartę badań zgodnie w wytycznymi WHO.

Wyniki. Analiza statystyczna wykazała, że w grupie wiekowej 16 lat istotne różnice stwierdzono pomiędzy grupą dziewcząt i chłopców w wartości Wz (z=2,262, p=0,024) oraz WL (z=1,94, p=0,050), w grupie wiekowej 17 lat istotne różnice stwierdzono w wartości PUWz (z = 3,690, p=0,0002), Pz (z=2,117, p=0,034), Wz (z=2,583, p=0,010), PUWp (z=3,788, p=0,0002), Pp (z=2,513, p=0,012), oraz Wp (z=2,958, p= 0,003). W grupie wiekowej 18 lat nie stwierdzono istotnych różnic pomiędzy grupą dziewcząt a chłopców w wartościach analizowanych parametrów. Analiza przeprowadzona pomiędzy poszczególnymi grupami wiekowymi wykazała istotne różnice w wartościach PUWz (z=1,973, p=0,049) oraz PUWp (z=1,994, p=0,046).

Wnioski. Na podstawie przeprowadzonych badań stwierdzono wysokie wartości wskaźników próchnicowych i niskie wartości wskaźnika leczenia we wszystkich analizowanych grupach wiekowych, oraz wyższe wartości wskaźników próchnicowych u dziewcząt niż u chłopców.

Słowa kluczowe: epidemiologia, próchnica zębów, PUW.

Evaluation of the state of dentition in children and adolescents aged 16-18 attending secondary schools in the city of Lublin

Abstract

Introduction. Epidemiological studies are an important tool used to monitor and ultimately to limit pathological processes in the oral cavity.

Aim. The aim of the study was to evaluate the state of dentition in children and adolescents aged 16-18 attending secondary schools in the city of Lublin.

Material and methods. The study included 300 children, i.e. 100 children aged 16, 100 aged 17 and 100 aged 18. DMF, D, M, F, OHI-S indices were determined, as well as the treatment index TI. For all schools, the study was conducted in the dentist's office operating on the school premises. In each school, the dentist's office had been operating in the school for more than 5 years. The study results were recorded in the study card according to the WHO guidelines.

Results. A statistical analysis showed that in the group of 16-year-olds, statistical differences were recorded between boys and girls with respect to FT (T=2.262, S=0.024) and TI (T=1.94, S=0.050), and in the group of 17-year-olds statistical differences were observed with respect to the DMFT value (T=3.690, S=0.0002), DT (T=2.117, S=0.034), FT (T=2.583, S=0.010), DMFS (T=3.788, S=0.0002), DS (T=2.513, S=0.012), and FS (T=2.958, S=0.003). In the group of 18-year-olds, no statistical differences were observed between boys and girls with respect to the study parameters. A comparison of particular age groups showed significant differences in the DMFT (T=1.973, S=0.049) and DMFS (T=1.994, p=0.046) values.

Conclusions. The study results showed high values of the caries index and low values of the treatment index in all the study groups and lower values of caries index among girls than boys.

Keywords: epidemiology, dental caries, DMF.

[1] The Chair and Department of Paedodontics, Medical University of Lublin
[2] The Department of Mathematics and Biostatics at the Medical University of Lublin
[3] Department of Dental Prosthetics, Medical University of Lublin

INTRODUCTION

Dental caries is one of the major stomatological problems, since it belongs to the most common chronic diseases of the oral cavity. Despite widespread prevention, dental caries remains a very common disease [1].

In the last few decades, developed countries have observed a considerable decrease in dental caries incidence, although it is still the most widespread disease among children and adolescents. It is believed that insufficient oral cavity hygiene and frequent consumption of sweets and sugary drinks increase the risk of dental caries and parodontium diseases [2].

Advances in caries prevention have made it possible to significantly reduce the scope of this disease. In numerous developed countries positive effects of rightly implemented preventive activities may be observed. Since mid 70's of the previous century, a decrease has been observed in the following countries: Denmark, Finland, Norway, Sweden, the Netherlands, UK, Australia, Canada and the USA [3]. So far, Poland has not developed a successful programme of caries prevention that would allow a gradual decrease of the disease indices. Patients in the developmental age should be given special protection in this respect, since negligence in the early life stages affects the state of dentition later in life [3].

Epidemiological studies are an important tool used to monitor and ultimately to limit pathological processes in the oral cavity [4].

AIM

The aim of the study was to evaluate the state of dentition in children and adolescents aged 16-18 attending secondary schools in the city of Lublin.

MATERIAL AND METHODS

The study included 300 children, i.e. 100 children aged 16, 100 aged 17 and 100 aged 18. DMF, D, M, F, OHI-S indices were determined, as well as the treatment index TI. For all schools, the study was conducted in the dentist's office operating on the school premises. In each school, the dentist's office had been operating in the school for more than 5 years. The study results were recorded in the study card according to the WHO guidelines [5].

RESULTS

The results of the studies are presented in Tables 1 and 2. The study results showed higher values of the DMFT and DMFS among girls than boys in all the study groups (in the group of 16-year-olds DMFT F - 10.62, M – 8.78, DMFS F – 17.27, M – 14.40, in the group of 17-year-olds DMFT F – 10.63, M – 6.63, DMFS F – 17.98, M – 9.78, (in the group of 18-year-olds DMFT F – 10.10, M – 7.70, DMFS F – 16.20, M – 11.80).

In the group of 17 and 18-year-olds, girls had higher DT (17 years F – 2.66, M – 1.37, 18 years F – 3.27, M – 2.12) and DS values (17 years F – 4.10, M – 1.56, 18 years F – 4.44, M - 3.15). In all the study groups girls had higher FT values than boys (16-year-olds F – 8.04, M – 5.67, 17-year-olds F – 7.76, M - 5.14, 18-year-olds F - 6.81, M – 5.51). The treatment index in the group of 16 and 18-year-olds was higher among girls (16 year F - 0.78, M – 0.66, 18 years F – 0.69, M – 0.67) and in the group of 17-year-olds it was higher among boys, i.e. boys 0.74, and girls 0.70. The analysis of the mean number of teeth suitable for extraction per person showed that in the group of 16 and 18-year-olds boys had more teeth for extraction than girls (16 years F – 0.16, M – 0.20, 18 years F – 0.15, M - 0.10), whereas among the 17-year-olds, boys had no teeth for extraction and the value among girls was only 0.02.

TABLE 1. The value of DMFT and DMFS and their components in the examined age groups.

Age	Sex	DMFT ±SD	DT ±SD	MT ±SD	FT ±SD	DMFS ±SD	DS ±SD	MS ±SD	FS ±SD
16	F	10.62 ±6.16	2.46 ±3.54	0.11 ±0.32	8.04 ±5.21	17.27 ±12.88	4.16 ±6.22	0.55 ±1.57	12.37 ±10.50
	M	8.78 ±4.33	3.00 ±3.18	0.11 ±0.38	5.67 ±3.78	14.40 ±8.18	4.76 ±5.61	0.56 ±1.91	9.09 ±6.55
	Tot	9.79 ±5.47	2.70 ±3.37	0.11 ±0.35	6.97 ±4.75	15.98 ±11.06	4.43 ±5.93	0.56 ±1.73	11.06 ±9.08
17	F	10.63 ±5.45	2.66 ±3.10	0.22 ±0.57	7.76 ±5.03	17.98 ±11.55	4.10 ±5.21	1.10 ±2.85	12.88 ±9.31
	M	6.63 ±3.85	1.37 ±1.85	0.12 ±0.70	5.14 ±3.34	9.78 ±7.29	1.56 ±2.19	0.59 ±3.49	7.63 ±5.93
	Tot	8.27 ±4.96	1.90 ±2.51	0.16 ±0.65	6.21 ±4.30	13.14 ±10.07	2.60 ±3.92	0.80 ±3.23	9.78 ±7.90
18	F	10.10 ±5.73	3.27 ±4.02	0.20 ±0.55	6.81 ±4.68	16.20 ±11.50	4.44 ±6.96	1.02 ±2.75	10.70 ±7.87
	M	7.70 ±5.15	2.12 ±3.37	0.15 ±0.42	5.51 ±4.33	11.80 ±8.80	3.15 ±5.53	0.61 ±2.00	8.00 ±7.05
	Tot	9.13 ± .60	2.80 ±3.79	0.18 ±0.50	6.28 ±4.56	14.10 ±10.70	3.91 ±6.42	0.85 ±2.47	9.60 ±7.63

In all the study groups girls had higher OHI-S values than boys (16-year-olds F - 1.27, M - 1.04, 17-year-olds F - 1.24, M - 0.98, 18-year-olds F - 1.27, M - 1.00).

TABLE 2. The value of dental treatment index (DTI), oral hygiene index (OHI-S) and the number of teeth with indication to extraction in the examined age groups.

Age	Sex	DTI	OHI-S	Number of teeth for extraction
16	F	0.78 ±0.29	1.27 ±0.59	0.16 ±0.54
	M	0.66 ±0.32	1.04 ±0.56	0.20 ±0.69
	Tot	0.73 ±0.31	1.17 ±0.59	0.18 ±0.61
17	F	0.70 ±0.31	1.24 ±0.58	0.02 ±0.16
	M	0.74 ±0.31	0.98 ±0.60	0.00 ±0.00
	Tot	0.72 ±0.31	1.09 ±0.61	0.01 ±0.10
18	F	0.69 ±0.29	1.24 ±0.70	0.15 ±0.93
	M	0.67 ±0.36	1.00 ±0.67	0.10 ±0.30
	Tot	0.68 ±0.32	1.14 ±0.70	0.13 ±0.73

A statistical analysis conducted with the use of the Mann-Whitney U test showed that in the group of 16-year-olds, statistical differences were recorded between boys and girls with respect to FT (T=2.262, S=0.024) and TI (T=1.94, S=0.050), and in the group of 17-year-olds statistical

differences were observed with respect to the DMFT value (T=3.690, S=0,0002), DT (T=2.117, S=0.034), FT (T=2.583, S=0.010), DMFS (T=3.788, S=0.0002), DS (T=2.513, S=0.012), and FS (T=2.958, S=0.003). In the group of 18-year-olds, no statistical differences were observed between boys and girls with respect to the study parameters.

A statistical analysis comparing particular age groups also conducted with the Mann-Whitney U test showed significant differences in the DMFT (T=1.973, S=0.049) and DMFS (T=1.994, p=0.046) values.

DISCUSSION

A comparison of our own studies with Polish national epidemiological studies conducted in 1987 in the Lublin province revealed a slight improvement in the state of dentition observed over 12 years' time among 18-year-old adolescents. In 1987 the mean DMF index in the city was 10.25, and in 2009 9.13. In Poland, the mean DMF index in a big city was 8.19, and the mean number of teeth requiring extraction in 1987 was 0.18, 0.22 in girls and 0.14 in boys, whereas in 2009 in Lublin the index was 0.13, 0.15 in girls and 0.10 in boys. The mean number of teeth requiring conservative treatment in 1987 in a big city in Poland was 2.93, including 2.83 in girls and 3.04 in boys, whereas in 2009 in Lublin it was 3.27, including 3.27 in girls and 2.12 in boys [6].

Ganowicz et al. revealed that in 2004 18-year-old adolescents in the Lublin province had the DT value of 2.3, and FT was 6.9, while the treatment index was 0.75 [7].

Epidemiological studies conducted by Myśliwiec et al. revealed that in the Zachodniopomorskie province in 2000/2001 the D index among 16-year-olds was 2.3, among 17-year-olds 2.4, and among 18-year-olds 2.8. In our studies, the values were 2.7, 1.9 i 2.8 respectively [8].

Studies conducted by Emerich in Gdańsk showed that in the group of 18-year-old adolescents, the mean DMFT index in 1995 was 6.72, including 5.33 in girls and as much as 8.10 in boys, whereas in 2003 the index was 5.70, including 5.43 in girls and 5.97 in boys. The D index in 1995 was 2.123, 1.87 and 2.40 respectively and in 2003 1.38, 1.13 and 1.63 respectively. These values are much lower than those obtained in our studies [9].

National monitoring of oral health conducted in 2004 revealed that the mean DMFT index among 18-year-old adolescents was 8.0 [10]. In 2008, the mean DMFT index among 18-year-olds was 7.65, and among 15-year-olds 5.95 [11], whereas studies conducted on 15 to 17-year-olds in Lublin showed that the mean DMFT index was 4.67, DT 2.06, MT 0.10, FT 2.5, and TI was 0.55 [12].

CONCLUSIONS

1. High values of caries indices are reached in all study age groups
2. Higher values of caries indices are reached among girls than boys
3. Low values of the treatment index are observed in all study patients.

REFERENCES

4. Marczuk-Kolada G, Ustymowicz-Farbiszewska J, Stokowska W, Karczewski J. Ocena stanu uzębienia i zachowań prozdrowotnych dzieci 9- i 14-letnich z okolic Białegostoku. Cz. I. Ogólna ocena higieniczna. Nowa Stomat. 2000;(3):9-12.
5. Komosińska K, Woynarowska B. Zachowania związane ze zdrowiem jamy ustnej młodzieży w wieku 11-15 lat w Polsce i innych krajach oraz tendencje zmian w latach 1990-2002. Nowa Stomat. 2004;(2):62-72.
6. Milewska R, Łuczaj-Cepowicz E. Ocena stanu uzębienia i potrzeb leczniczych u 6- i 12-letnich dzieci w Białymstoku. Nowa Stomat. 2004;(4):153-6.
7. Wdowiak L, Szymańska J, Mielnik-Błaszczak M. Monitorowanie stanu zdrowia jamy ustnej. Wskaźniki próchnicy zębów. Zdr Publ. 2004;114(1):99-103.
8. Oral Health Surveys. Basic Data. WHO; 1997.
9. Jańczuk Z, Ciągło A. Podstawy epidemiologii chorób narządu żucia. Warszawa: Centrum Edukacji Medycznej; 1999.
10. Ganowicz M, Pierzynowska E, Zawadziński M, Strużycka I, Iwanicka-Grzegorek E, Szatko F, Dybiżbańska E, Wierzbicka M, Jodkowska E. Ocena stanu uzębienia i stomatologicznych potrzeb leczniczych młodzieży w wieku 18 lat w Polsce w 2004 roku. Nowa Stomat. 2006;(1):27-33.
11. Myśliwiec L, Buczkowska-Radlińska J, Tarhoni M, Szumigalska-Kozak J. Lecznicze potrzeby stomatologiczne u dzieci i młodzieży z województwa zachodniopomorskiego. Zdr Publ. 2004;114(2):189-92.
12. Emerich K. Ocena stanu narządu żucia dzieci i młodzieży w epidemiologicznych badaniach stomatologicznych przeprowadzonych na Pomorzu w latach 1987, 1995 i 2003. Rozprawa habilitacyjna. Gdańsk; 2007.
13. Ziętek M. Zdrowie jamy ustnej polaków. Czas Stomat. 2005;58(6):388-91.
14. Jodkowska E. Publiczny program zapobiegania próchnicy w Polsce u dzieci i młodzieży. Dent Med Probl. 2010;47(2):137-43.
15. Krawczyk D, Mielnik-Błaszczak M. Redukcja próchnicy zębów stałych u młodzieży 15-17 letniej w wyniku indywidualnej profilaktyki przeciwpróchnicowej. Dent Med Probl. 2009;46(2):191-7.

Informacje o Autorach

Dr n. med. Dorota Krawczyk – adiunkt; dr hab. n. med. Elżbieta Pels – adiunkt, Katedra i Zakład Stomatologii Wieku Rozwojowego, Uniwersytet Medyczny w Lublinie; dr n. med. Marian Jędrych – kierownik, Zakład Matematyki i Biostatystyki Medycznej, Uniwersytet Medyczny w Lublinie; dr n. med. Jerzy Błaszczak – asystent, Zakład Protetyki Stomatologicznej, Uniwersytet Medyczny w Lublinie.

Adres do korespondencji

Elżbieta Pels
Katedra i Zakład Stomatologii Wieku Rozwojowego,
Uniwersytet Medyczny Lublinie
ul. Karmelicka 7, 20-081 Lublin,
Tel. 81-53-206-19
E-mail: elzbieta.pels@umlub.pl