

The evaluation of CPITN index among adults living in Podlasie region

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Abstract

The aim of this study was to evaluate the condition and treatment needs of the periodontium in adults living in Podlasie region. Checked population was divided into three groups: 18 year old, 35-44 and 65-74 year old. The assessment of the periodontium status was performed on the basis of CPITN index. The study showed that young people usually did not need any periodontal treatment. The predominating treatment need was removing of dental calculus, respectively 7.4% subjects aged 18, 62.5% of second group and 58.7% of the oldest one. 10% persons aged 35-44 and 6.9 % persons aged 65-74 required complex periodontal treatment. The number of excluded sextants grown with aged.

Key words: adult, CPITN, Podlasie.

Introduction

Periodontal diseases are chronic diseases that irreversibly destroy the supporting tissues of teeth. There are many studies showing that periodontal diseases are one of the main causes of tooth loss, especially among adults over 40 years of age [1,2]. The prevalence of periodontal problems as well as their severity increases with age. Some authors claim that periodontal status may also depend on sex, place of residence and socio-economic background [3,4].

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The purpose of this study was to evaluate the prevalence of periodontal diseases and periodontal treatment needs using Community Periodontal Index of Treatment Needs (CPITN) among adults living in region of Podlasie.

Material and methods

The examined population was divided into three groups: 166 people aged 18 years were qualified to group one, group two consisted of 40 patients aged from 35 to 44 years, and group three of 38 people aged 65-74. The subjects in every group were both sexes. The examination was carried out according to the guideline of The World's Health Organization [5] using an artificial light, a dental mirror and WHO periodontal probe (LM-Instruments Oy, Finland). The periodontal condition was evaluated by Community Periodontal Index of Treatment Needs (CPITN) [6,7]. The oral cavity was divided into 6 sextants: four consisting of molars and premolars, and two consisting of incisors and canines. There should be at least two teeth in each sextants, the single tooth was added to adjacent group. One tooth in each sextant was examined for presence of gingival bleeding (code 1), dental calculus (code 2) and periodontal pocket (code 3 if its depth was 3.5-5.5 mm, and code 4 if it was 6 mm or deeper). Code 0 meant healthy periodontium. The examination was carried out on first upper and lower molars, and first right incisor in maxilla, and first left incisor in mandibula; if the tooth was not present in mouth the examiner chose another one from the sextant. On this basis the individual level of treatment needs (TN) was pointed out. TN 0 corresponded to healthy periodontium with no treatment needs. Patients with gingival bleeding needed oral hygiene instruction (TN 1), those with code 2 and 3 needed also scaling (TN 2). If there was at least one sextant with CPITN 4, the person was qualified for complex periodontal treatment.

Table 1. Percentage of people according to number of examined sextants

Group		Number of examined sextants					
		6	5	4	3	2	1
18	n	162	0	0	0	0	0
	%	100.0	0	0	0	0	0
35-44	n	23	5	5	3	0	4
	%	57.50	12.50	12.50	7.50	0	10.0
65-74	n	3	2	5	1	8	10
	%	10.40	6.90	17.20	3.40	27.60	34.50

Table 2. Percentage of sextants according to CPITN code

Group		Number of excluded sextants	Number of sextants with CIPTN code				
			0	1	2	3	4
18	n	0	956	2	8	6	0
	%	0	98.30	0.20	0.80	0.70	0
35-44	n	44	89	43	46	11	7
	%	18.30	37.10	17.90	19.20	4.60	2.90
65-74	n	98	22	17	23	9	5
	%	56.30	12.60	9.90	13.20	5.20	2.80

Results

All 18 year olds had teeth in every sextant – there were no excluded ones. The same status was represented by 57.5% people aged 35-44. Almost one out of 4 people from group three was edentulous, the were not taken into account when CPITN was evaluated. Only 10.4% of dentate elderly persons had teeth in every sextant. In this particular group the most common situation was the presence of teeth in one (34.5%) and two sextants (27.6%). The percentage of subjects according to number of examined sextants was presented in *Tab. 1*.

In the population of 18 year old total number of checked sextants was 972; 98.3% of them were healthy. In group two 18.3% sextants were excluded from the study, in the oldest group it was more than half of total number of sextants (56.3%). CPITN code 1 was revealed in 17.9% sextants as people were 35-44, and in 9.9% as they were over 65. Dental calculus was observed in one out of five sextants in group number two, and presence of periodontal diseases was revealed in 7.5% sextants: 4.6% with periodontal pockets 3.5-5.5 mm, and 2.9% with deeper ones. In the last group 13.2% of examined sextants presented with dental calculus, and the prevalence of periodontal pockets was similar to people in middle age. The results were shown in *Tab. 2*.

92% of young subjects had healthy periodontium (code 0), and there was no treatment needs for them (TN 0). Only one person suffered from gingival bleeding. There were 12 people in this age with TN 2 because of presence of dental calculus or periodontal pocket from 3.3 to 5.5 mm. The study did not reveal any young person requiring complex treatment. Slightly less than one quarter of people in middle age had healthy periodontium, and 5% needed some hygiene instruction. 45% of group two presented with dental calculus, and 17.5% had at least one tooth with periodontal pocket from 3.5 to 5.5 mm; it means that main periodontal treatment need for people aged 35-44 was scaling (TN 2). The prevalence of periodontal pockets

≥6 mm was revealed in 10% of this group, they were classified for complex periodontal treatment. The study showed also that 17.2% of elderly subjects had no treatment needs, similar part of this group needed some hygiene instruction. For calculus these percentages were 34.5% and for periodontal pockets 3.5-5.5 mm, respectively, 24.2%. Nearly 7% of individuals aged 65-74 needed complex periodontal treatment (TN 3) because of presence of at least one tooth with deep periodontal pocket (*Tab. 3*).

Discussion

The periodontal condition of 18 year olds was evaluated in Poland in 1995. That epidemiological study revealed 18.5% subjects with healthy periodontium, 32.4% with gingival bleeding, 44.7% with dental calculus and over 4.4% with periodontal pockets [8]. Our data showed large number of young people with no treatment needs. This particular group consisted mostly of women which might have some influence on such good status, because women usually care more for their health.

There were some studies evaluating prevalence of periodontal problems among students of medical universities in Białystok and Warsaw [9,10]. Data from those studies differ: Popowski et al. [10] observed that 75% of sextants do not require any treatment needs, but Wawrzyn-Sobczak et al. [9] revealed only 48.86% healthy ones. In both group predominated treatment need was scaling (TN 2). Only 0.3% medical students had deep periodontal pockets and needed periodontal complex treatment. Popowski et al. [10] found that CPITN code 0 was revealed most often in upper middle sextant; the less healthy was lower middle one.

Stokowska et al. [11] evaluated the condition and treatment needs of adult individuals aged 35-44 living in the former district of Białystok in 1995. In that study 10.3% of sextants were healthy,

Table 3. Percentage of people according to CPITN code and category of treatment needs

Group		CPITN				
		0	1	2	3	4
18	n (%)	149 (92.0%)	1 (0.60%)	7 (4.30%)	5 (3.10%)	0 (0%)
35-44	n (%)	9 (22.50%)	2 (5.0%)	18 (45.0%)	7 (17.50%)	4 (10.0%)
65-74	n (%)	5 (17.20%)	5 (17.20%)	10 (34.50%)	7 (24.20%)	2 (6.90%)
Group		TN				
		0	1	2	3	
18	n (%)	149 (92.0%)	1 (0.60%)	12 (7.40%)	0 (0%)	
35-44	n (%)	9 (22.50%)	2 (5.0%)	25 (62.50%)	4 (10.0%)	
65-74	n (%)	5 (17.20%)	5 (17.20%)	17 (58.70%)	2 (6.90%)	

comparing to 37.1% in ours. Periodontal disease (code 3 + 4) concerned, respectively, 34.4% and 27.5% of subjects. But our data show that severity of periodontal disease in Podlasie region increased during last years: in 1995 Stokowska et al. [11] found 1.1% of group with TN 3, eight years later it was 10%. Jańczuk [12] presented a comparison of data from epidemiological studies conducted in 1987 and 1995. He emphasized improvement of periodontal status in population of 35-44 year old persons. According to Konopka et al. [13] condition of periodontium of people living in Wrocław improved during first four years of last decade, they noticed higher score of CPITN codes 0 and 1, as well as lower percentages of code 4 than in previous study. Their observations confirmed that the dental plaque played important role in development of periodontal diseases, but the aggressive types of periodontitis had more complex reason. Brodeur et al. [14] examined 2110 Quebec adults aged 35-44 and revealed that 21.4% of Canadian population had at least one tooth with 6 mm or deeper pocket; similar study in Germany gave the result of 16.6% of subjects with this problem [15]. Besides in both studies prevalence of periodontal disease was higher than in our study, more than half people examined by Brodeur et al. had CPITN code 3.

It is widely assumed that symptoms of periodontal diseases escalate with age. Our study confirmed observation that *periodontitis* played an important role in the tooth loss in people after fourth decade of life. There were no excluded sextants in the youngest group, and more than half in the oldest one. Furthermore, one quarter of this group was edentulous, which was higher score than in similar study in France, but less than was found by Pasternak in region of Cracow [3,16]. Pasternak did not observe any sextant with CPITN code 0 and 1, but gingival pockets were stated in 86.7% of that population. Also people over 60 living in region of Gdańsk presented with worst periodontal condition than in our study [17].

Conclusions

Comparing to previous studies conducted in Poland 18 year old presented with healthy periodontium. The number of subjects with TN 3 revealed in population of people in middle age was higher than in similar studies. The role of periodontal diseases as a factor of tooth loss grows with age, based on large number of excluded sextants noticed in the oldest group.

References

- Williams RC. Periodontal disease. *N Engl J Med*, 1990; 322: 373-82.
- Ong G. Periodontal disease and tooth loss. *Int Dent J*, 1998; 48 (Suppl. 1): 233-8.
- Bourgeois DM, Doury J, Hescot P. Periodontal conditions in 65-74 year old adults in France, 1995. *Int Dent J*, 1999; 49: 182-6
- Gamonal JA, Lopez NJ, Aranda W. Periodontal conditions and treatment needs, by CPITN, in the 35-44 and 65-74 year-old population in Santiago, Chile *Int Dent J*, 1998; 48: 96-103.
- World Health Organization: Oral health surveys. Basic methods. 4th edition. WHO Geneva 1997.
- Ainamo J, Barmes D, Beagrie G, Cutress T, Martin J, Sardo-Infirri J. Development of WHO Community Periodontal Index of Treatment Needs (CPITN). *Int Dent J*, 1985; 35: 281-91.
- Ainamo J, Ainamo A. Validity and relevance of the criteria of the CPITN. *Int Dent J*, 1994; 44: 527-32.
- Banach J. Stan przyzębia i periodontologiczne potrzeby lecznicze dzieci i młodzieży w Polsce w latach 1987-1995. *Przegląd Stomat. Wiek Rozw*, 1996; 2/3: 24-38.
- Wawrzyn-Sobczak K, Kozłowska M, Karczewski J. The evaluation of parodontium in medical students of The Medical University of Białystok according to CPITN index. *Annales Academiae Medicae Białostocensis*, 2005; 50 (Suppl. 1): 156-9.
- Popowski W, Wychowański P, Chomicz P, Wilk K. Stan zdrowia przyzębia studentów stomatologii Akademii Medycznej w Warszawie. *Mag Stomat*, 1996; 7: 47-51.
- Stokowska W, Kierklo A, Miksza-Żyłkiewicz R, Marczyk-Kolada G, Łuczaj-Cepowicz E, Milewska R. Stan przyzębia dorosłych mieszkańców województwa białostockiego na podstawie wskaźnika periodontologicznych potrzeb leczniczych. *Mag Stomat*, 1999; 9: 50-3.
- Jańczuk Z. Stan narządu zucia polskiej populacji. *Nowa Stomat*, 1997; 3: 45-8.
- Konopka T, Kaczmarek U, Kozłowski Z, Malepszy A, Nowak-Malinowska H. Ocena stanu przyzębia wybranej próby populacji mieszkańców Dolnego Śląska. *Wrocł Stomat*, 1995: 69-79.
- Brodeur JM, Payette M, Benigeri M, Charbonneau A, Olivier M, Chabot D. Periodontal diseases among quebec adults aged 35 to 44 years. *J Can Dent Assoc*, 2001; 67: 34.
- Micheelis W, Bauch J. Oral health of representative samples of German examined in 1989 and 1992. *Community Dent Oral Epidemiol*, 1996; 24, 1: 62-7.
- Pasternak M. Ocena stanu przyzębia wskaźnikiem CPITN oraz potrzeb leczniczych ludzi w podeszłym wieku z województwa krakowskiego. *Mag Stomat*, 1996; 9: 46-9.
- Pellowska-Piątek M, Witek E, Nowalska-Kwapisz H, Góra B, Romankiewicz-Woźniczko G. Ocena stanu przyzębia u mieszkańców wsi województwa gdańskiego w wieku 35-44 lat oraz 60 lat i powyżej. *Czas Stomat*, 1996; 49, 9: 613-8.