Destructive periodontal diseases among the population of the Republic of Byelorussia

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Introduction

Periodontal diseases are wide spread diseases all over the world. They present a great medico-social problem for the risk of losing the teeth and worsening the quality of life. On the base of multiple epidemiological surveys, it is known that periodontal diseases of different degree occur in all age groups and have a tendency of progressing. The percentage of people with chronic gingivitis and chronic periodontitis is increasing with the age of the people and by forty years the destructive forms of diseases cover the whole population.

It has been indicated that 40-60% of 35-44 year-olds present dental calculus and 4-5 mm periodontal pockets. About 20-55% of the 65-74 year-olds dentate show advanced periodontal disease, indicated by the presence of one or more 6 mm or deeper pathological pockets [2, 5, 6].

The aim of this investigation was to study the periodontal status of Byelorussian population in different age groups.

Materials and methods

The epidemiological survey was undertaken on 1503 people of 7 age groups (15 yrs, n = 118; 16 yrs, n = 320; 17 yrs, n = 287; 18 yrs, n = 84; 20-24 yrs, n = 380; 35-44 yrs, n = 144; 45-54 yrs, n = 170) in 6 regions of Byelorussia. According to the social status they can be divided into the next groups: school children, students, workers, employees. Oral hygiene status was evaluated using Oral Hygiene Index (OHI-S, Green-Vermillion, 1964) [4]. For the evaluation of the severity of gingivitis, gingival index (GI, Loe, Silness, 1964) was applied. The periodontal status was assessed by the following methods: CPITN (Ainamo et al., 1982) [1], LA (Loss of Attachment) (Glavind, Loe, 1967) [3].

All data were recorded in a special assessment form. The methods of the variational statistic program ANOVA were used to process them statistically.

Results

The survey of the oral hygiene status of the population has shown that the values of OHI-S have varied from 2.3 ± 1.17 in 15 yrs old to 3.4 ± 1.2 in 45-54 yrs old. This fact has demonstrated that all people have unsatisfactory or bad level of oral hygiene. The tendency of deterioration of oral hygiene with age has been found, being caused by the increasing prevalence and extent of dental calculus (compound CI-S).

The average scores of GI for the examined population have demonstrated light and middle degree of gingival inflammation *(Table 1)*.

Table 1. Oral hygiene status and gingival inflammation in the population of the Republic of Byelorussia

Age (yrs)	Number of people	CI-S (m ± SD)	DI-S (m ± SD)	OHI-S (m ± SD)	GI (m ± SD)
15	118	1.06 ± 0.7	1.24 ± 0.61	2.30 ± 1.17	0.66 ± 0.37
16	320	1.31 ± 0.63	1.21 ± 0.62	2.52 ± 1.1	0.64 ± 0.31
17	287	1.16 ± 0.59	1.14 ± 0.61	2.30 ± 1.05	0.59 ± 0.29
18	84	1.15 ± 0.71	1.33 ± 0.63	2.48 ±1.2	0.67 ± 0.52
20-24	380	0.99 ± 0.59	0.99 ± 0.59	1.98 ± 0.99	0.75 ± 0.34
35-44	144	1.68 ± 0.62	1.42 ± 0.57	3.06 ± 1.13	0.89 ± 0.33
45-54	170	1.69 ± 0.74	1.68 ± 0.66	3.37 ± 1.24	1.12 ± 0.52

It has been noticed that a correlation exists between increasing of gingival inflammation with age and worsening of the oral hygiene status: the extent of gingival inflammation is advancing with age, as the scores of OHI-S show *(Table 1)*.

According to CPITN data, the mean number of healthy sextants per person (CPITN „0“) is decreasing from 1.07 ± 1.19 SD in 15 yrs old to 0.11 ± 0.28 in 45-54 yrs old. Gingival bleeding (CPITN „1“) occurs in all age groups and it varies from 0.19 ± 0.52 in 15 yrs old to 0.08 ± 0.24 in 45-54 yrs old (mean number of sextants involved). The figures of prevalence and severity of dental calculus (CPITN „2“) are high in all age groups: in 15 yrs old – 4.72 ± 1.31, in 35-44 yrs old – 4.43 ± 1.64, in 45-54 yrs old – 4.05 ± 1.8.

The average number of sextants with 4-5 mm pockets (CPITN „3“) per person is 0.01 ± 0.002 in 15 yrs old; in 16 yrs old – 0.04 ± 0.24; in 17 yrs – 0.07 ± 0.01; in 18 yrs old – 0.02 ± 0.21; in 20-24 yrs old – 0.18 ± 0.62; in 35-44 yrs – 0.71 ± 1.20; in 45-54 yrs – 1.06 ± 1.30. The mean number of sextants with deep pockets (CPITN „4“) per person is 0.06 ± 0.42 in 35-44 yrs and 0.16 ± 0.62 in 45-54 yrs. 0.26 ± 0.69 sextants were excluded in the 35-44 yrs old group and 0.49 ± 0.9 in the 45-54 yrs old, because of teeth loss.

The results of pocket depth measurements gave proper information regarding the extent of loss of attachment only in rare situations. Assessing the loss of attachment (LA) is a „gold standard“ of evaluation of periodontal destruction. The method of recording LA has never been used in the Republic of Byelorussia.

Therefore, we have used this method beside CPITN in our study. It is a sufficiently informative and sensible method and allows appreciating the periodontal status in the situations when the gingival recession can be seen. Epidemiological data have demonstrated that LA „1“ (loss of attachment for 4-5 mm) is 0.05 ± 0.26 in 16 yrs, 0.12 ± 0.5 in 20-24 yrs; 0.80 ± 1.31 in 35-44 yrs and 1.27 ± 1.50 in 45-54 yrs. The average scores of LA „2“ (loss of attachment for 6-8 mm) are increasing from 0.09 ± 0.54 in 35-44 yrs to 0.18 ± 0.52 in 45-54 yrs old. Analyses of the data have revealed that differences in periodontal status are associated with age and oral hygiene of examined people *(Table 2)*.

Table 2. The periodontal status of the population of the Republic of Byelorussia

Age (yrs)	Number of people	C P I T N (m ± SD)		LA (m ± SD)	
		"3"	"4"	"1"	"2"
15	118	0.01 ± 0.002	0	0	0
16	320	0.04 ± 0.24	0	0.05 ± 0.26	0
17	287	0.07 ± 0.01	0	0.06 ± 0.23	0
18	84	0.02 ± 0.21	0	0.06 ± 0.21	0
20-24	380	0.18 ± 0.62	0	0.12 ± 0.5	0.02 ± 0.15
35-44	144	0.71 ± 1.2	0.06 ± 0.42	0.80 ± 1.31	0.09 ± 0.54
45-54	170	1.06 ± 1.3	0.16 ± 0.62	1.27 ± 1.50	0.18 ± 0.52

Conclusion

The epidemiological survey has revealed a high prevalence and a high severity of periodontal diseases among the population of the Republic of Byelorussia. The periodontal status worsens with increasing age. Complete periodontal health is rare. Among young adults there are already considerable needs for treatment. Advanced destructive periodontal diseases already affect 45-54 year olds. Further studying of periodontal diseases in different age groups of population by using CPITN and LA will make the monitoring of periodontal diseases level and medical effectiveness of periodontal care more objective.

References

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