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The study of the condition of dentition in the smoking population

The threat to life caused by smoking is much bigger than it was thought in the past. Smoking is an actual or presumed cause of over 20 diseases. Habitual smoking concerns over half of the adult population of Poland and considerably influences the condition of the oral cavity (18). Many researchers proved more frequent prevalence of ulcerative gingivitis, leucoplakia, mycotic stomatitis and pharyngitis in the smoking population (5).

Smoking not only makes the course of parodontitis worse, accelerating the loss of attachment and teeth (6, 7), but also contributes to the returns of parodontitis and to resistance to treatment (9, 14). Pindborg proved more frequent prevalence of gingivitis ulcerosa together with the growing number of cigarettes smoked. Forsberg's work shows the occurrence of more severe forms of gingivitis in the cases of habitual smokers. Arno found a correlation between gingivitis, depletion of bone and habitual smoking. Bergstrom observed the biggest bone depletion of alveolar process, measured around all teeth, in the cases of present smokers, the smallest in the cases of people who never smoked and medium in the cases of past smokers.

It is commonly believed that the condition of dentition in the cases of smokers is unsatisfactory. There are no works on the connection between smoking and the prevalence of caries in Polish scientific literature. Few foreign authors write about this issue, for example Axellsoni (2), examining the population of 35-, 50-, 65- and 75-year-old smokers found that they have more extracted teeth or roots of teeth classified for extraction than non-smokers. The same author points out that in the group of 35-year-olds he noticed much more carietic defects and a large number of filled teeth. Another author Locker (14), examining smokers, found fewer own teeth and more crowned teeth with active caries compared to non-smokers.

The purpose of the work is the determination of the prevalence of caries, its severity, the determination of oral hygiene index OHI and the analysis of parodontium condition and periodontal treatment needs in two age groups of smokers.

MATERIAL AND METHODS

Clinical examination and inquiry of 50 people in two age groups (20–29 and 30–39) have been carried out. In the former group there were 16 women and 14 men, whilst in the latter group there were 12 women and 8 men. Table 1 shows the division of the examined population according to age and sex. There were the most people at the age of 20–29 (60%). There were more women than men in both age groups. The dental examination was carried out by means of the mirror and bougie. The dentition was examined in electric lighting. The CPITN rate was determined by means of the dental mirror and calibrated, ball-ended, periodontal probe (17). In the self-made inquiry there were questions concerning hygiene habits such as the frequency of tooth brushing or the frequency of visits to the dentist's.

Table 1. The division of the studied population according to age and sex

Age group	Women	Men	Total
20–29	16 (53.33%)	14 (46.67%)	30 (60%)
30–39	12 (60%)	8 (40%)	20 (40%)
Total	28 (56%)	22 (44%)	50 (100%)

RESULTS

The examination results have been put into tables. The mean value of DMFT and its constituents for the smoking population have been put into table 2 and came up to 15.05 for all cases examined in total. In the age group 20–29 it came up to 14.69 for women and 14.43 for men. There is an increase of the mean value of DMFT in the age group 30–39. Here the mean value of DMFT came up to 15.75 for women and 15.13 for men. It is possible to draw a general conclusion that the younger generation of both men and women is more careful about oral hygiene as the value of DMFT is lower than in the older age group. The constituent of teeth extracted M grows with age and comes up to 6.25 for women in the 30–39 age group, which is the highest of all. As regards constituent F, no fundamental differences in the statistics have been found.

Table 2. The mean value of DMFT and its constituents in the studied age groups

Sex	Age groups	Number of people	DMFT	D	M	F
Women	20–29	16	14.69	5.69	4.38	6.31
	30–39	12	15.75	3.25	6.25	6.08
Men	20–29	14	14.43	5.07	4.14	5.14
	30–39	8	15.13	4.34	4.63	6.13
Both	Total	50	15.05	4.58	4.85	5.92

The mean value of oral hygiene index OHI according to Green and Vermillion for both groups came up to 1.34 (Table 3). For women in both age groups the index was lower and came up to 1.21 and 1.31, respectively. The study of health and treatment needs of parodontium by means of CPITN index showed that 24% of the population required complex specialist care apart from primary treatment

Table 3. The mean values of oral hygiene index (OHI) in the studied population

Sex	Age groups	Number of people	Value of OHI
Women	20–29	16	1.21
	30–39	12	1.31
Men	20–29	14	1.39
	30–39	8	1.44
Both	Total	50	1.34

(Table 4), 22% required scaling both subgingival and supragingival, correction of some local irritating factors and giving oral hygiene instruction and motivation. Only supragingival scaling or removing some other irritating factors were required in 34% of cases, and 8% required giving oral hygiene

instruction and motivation. The study showed that in only 12% of cases the gum and parodontium condition was normal.

Table 4. The percentage division of people with particular highest values of index in different age groups

Age group	The highest value of CPITN					
	0 healthy parodontium	1 gingival bleeding	2 dental calculus	3 shallow pockets (4-5 mm)	4 deep pockets (>6mm)	People excluded from study
20-29	10.00	10.00	40.00	16.66	23.33	0
30-39	15.00	5.00	25.00	30.00	25.00	0
Total	12.00	8.00	34.00	22.00	24.00	0

The inquiry showed different frequencies of oral hygiene habits. 37.5% of women in the 20-29 age group and 58.33% in the 30-39 age group claimed that they brushed their teeth twice a day, whereas 50% of men in both 20-29 and 30-39 age groups claimed that they also brushed their teeth twice a day. 25% of women in the 20-29 and 30-39 age groups brushed their teeth three times a day. Only 6.25% of women in the 20-29 age group and 8.33% in the 30-39 age group brushed their teeth after every meal (Table 5).

Table 5. The frequency of tooth brushing according to sex

Age group	Sex	Tooth brushing				
		After every meal	3x a day	2x a day	1x a day	Occasionally
20-29	Women	6.25%	25%	37.5%	25%	6.25%
	Men	14.29%	7.14%	50%	21.43%	7.14%
30-39	Women	8.33%	25%	58.33%	8.33%	-----
	Men	12.5%	-----	50%	12.5%	25%

The inquiry also shows that 56.25% of women in the 20-29 age group and 50% in the 30-39 age group go to control visits to the dentist's twice a year. As regards men, about 36-37% in the 20-29 age group go to the dentist's twice a year, and as many as 50% of men in the 20-29 age group do it occasionally (Table 6).

Table 6. The frequency of visits to the dentist's according to sex

Age group	Sex	Frequency of visits to the dentist's		
		Occasionally	Regularly twice a year	Once a year
20-29	Women	37.5%	56.25%	6.25%
	Men	50%	35.71%	14.29%
30-39	Women	33.3%	50%	16.66%
	Men	37.5%	37.5%	25%

DISCUSSION

The study results were compared to the literature on the issue. The prevalence of caries in the studied smoking population came up to 68.7%. In Soetiarto's study the prevalence of caries for men smoking longer than 10 years was determined as 27%, and 79.6% for smoking for 11-15 years, and

finally 89.3% for smoking longer than 15 years. The prevalence of caries expressed with the DMFT value came up to 15.05 in the analysed population. The constituent M reached the highest value of 6.25 in the 30–39 age group of women.

In Axelsson's study (2), constituent M was growing with age in the studied population and reached the following values: 2 for 35-year-olds, 6.3 for 50-year-olds, 13.8 for 65-year-olds and 18.8 for 75-year-olds. It may suggest that the longer people smoke, the more teeth they lose. The cause of the teeth loss may be both caries and parodontium diseases. Ostenberg's study (15) also confirms the correlation between the number of teeth lost and smoking.

The level of oral hygiene in the analysed population, as well as in other researchers' studies, is unsatisfactory. Accepting that 0.1–1.0 of OHI means good oral hygiene, and 1.1–2.4 of OHI means satisfactory oral hygiene, it was found out that all cases studied were at the satisfactory level of oral hygiene. There are still many cases of subgingival and supragingival calculus and tartar. Improper oral hygiene habits and rare visits to the dentist's contribute to the high level of OHI. In the study carried out in Wrocław (11) the mean value of OHI was twice lower in the group of smokers with healthy parodontium and came up to (0.12), whereas in the group of smokers with periodontopathy the mean value of OHI was higher and came up to (1.54).

In the studied population 12% of people had healthy parodontium, whereas in the study carried out in Wrocław it was 11.2% of population at the age of 18–57. It was noticed that there were gingival pockets, 3.5–5.5 mm deep, in 22% of cases, and in 24% of cases they were over 6mm deep. Axelsson, studying a population of 1093 people, found out that the percentage of people with healthy parodontium was much lower compared to the group of non-smokers, and sextants with codes 3 and 4 much more frequently appeared in the cases of smokers than in the studied group. In the category of treatment needs 24% of people required complex care (TN 3) apart from primary treatment. In the study carried out in Wrocław code TN2 was more frequent. This result is confirmed by epidemiological study which shows that the parodontium condition of smokers is worse than that of non-smokers, regardless of some etiological factors such as dental plaque (4).

In the study about 49% of people declared brushing their teeth twice a day. However, brushing teeth twice a day is not enough. Optimal oral hygiene care means brushing teeth after every meal (12). Such frequency was declared by 6.25% women in the 20–29 age group and 8.33% in the 30–39 age group. As regards men, 14.29% in the 20–29 age group and 12.5% in the 30–39 age group declared brushing their teeth after every meal. In Hashim's study (8), 21% of smokers declared brushing their teeth once a day, 22.4% visited the dentist's once a year. In Al-Wahadna's study (1) of a population of 100 people, 25% declared brushing their teeth twice a day. Own study showed that 46% of women and 45% of men go to regular control visits to the dentist's twice a year.

CONCLUSION

1. The condition of dentition in the smoking population is unsatisfactory which can be seen in the mean values of constituents D and F.
2. Oral hygiene level is satisfactory and can be placed in the range of OHI=1.1–2.4 (worse for men than women).
3. Smoking is a factor predisposing to more frequent occurrence of parodontium diseases.

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SUMMARY

The prevalence and severity of caries (DMFT), oral hygiene, as well as periodontal health and treatment needs (CPITN) were determined in a smoking cigarettes population. The study covered 50 persons, including 28 females and 22 males. When the whole population was considered together, the prevalence of caries was 68.7% and mean DMF was 15.05. The mean value of teeth extracted (M) was 4.85, filled (F) 5.92 and teeth with active caries (D) 4.58. Oral hygiene was found to be unsatisfactory, and was worse in males than in females. Healthy periodontium was found in 12% of persons examined, gingival bleeding and calculus in 34%. Of those examined, 12% did not require periodontal treatment, whereas 24% of smokers required complex periodontal treatment.

Ocena stanu uzębienia u osób palących papierosy

Oceniono frekwencję i intensywność próchnicy (PUW), higienę jamy ustnej oraz stan przyzębia i periodontologiczne potrzeby lecznicze (CPITN) u osób palących papierosy. Zbadano 50 osób, w tym 28 kobiet i 22 mężczyzn. W całej badanej populacji frekwencja próchnicy wyniosła 68,7%, średnia wartość PUW 15,05. Średnia liczba usuniętych zębów (U) 4,85, wypełnionych (W) 5,92, a zębów z czynną próchnicą (P) 4,58. Stan higieny jamy ustnej był niezadowalający, gorszy u mężczyzn niż u kobiet. Zdrowe przyzębie stwierdzono u 12% badanych, krwawienie i kamień nazębny u 34% badanych. 12% badanych nie wymagało leczenia przyzębia, natomiast 24% palących papierosy kwalifikowało się do kompleksowego leczenia periodontologicznego.