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Needs for prosthetic treatment in Vilnius population at the age over 45 years old

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SUMMARY

Aim of the study. The aims of the study was to evaluate needs for prosthetic treatment among middle-aged and elderly population in Vilnius, to find out rates of edentulism among Vilnius inhabitants and to ask them about their approach to personal oral hygiene.

Materials and methods. This cross-sectional study was approved by Lithuanian Bioethics Committee and carried out by one investigator. Our study was performed in period from 2008 to 2012. We have examined and interviewed 634 patients in the principle of free choice (randomized selection). Quantity of remaining teeth and previous prosthetic treatment was assessed.

Results. According to questionnaire previuos prosthetic treatment was attached for 204 (43.8%) male and 262 (56.8%) female patients, total 466 (73.5%) of all subjets involved into our research, 168 (26.5%) never had a prosthetic treatment. During examination we found, that 219 (34.5%) of all examined persons were treated with removable prosthesis, 180 (28.4%) treated with fixed prosthesis and for 67 (10.6%) both: fixed and removable kinds of prosthesis were attached. Toothless jaws were found in 26.5% (n=168) of population. We found 179 (28.2%) edentulous maxillas and 168 (26.5%) mandibles.

Conclusions. The intensity of tooth loss in the middle-aged and eldery population of Vilnius city significantly increases with age. Lower rates of edentulism and an ageing population mean that older people will feature more prominently in dental services. Consolidation in oral health perceptions starts before age 50, suggesting early intervention before that age.

Key words: edentulous, prosthetic needs, population.

INTRODUCTION

A healthy stomatognathic system and healthy oral cavity are attributes of a healthy human being. The complete loss of the teeth (edentulism) is key indicator of the oral health status in population (1). Management of individuals presenting with partial or full loss of teeth has been a common task of dentists for decades. The condition can be the result of congenital processes, a partial lack of tooth development (hypodontia), but more commonly is an acquired condition due to microbial-mediated caries, periodontal disease or trauma (2). Epidemiological measures of tooth loss suggest that while complete tooth loss is on the decline, more people will maintain teeth as they age and partial tooth loss will continue to require management by the dental professionals. The two major oral diseases, dental caries and periodontal disease, are both microbial-mediated processes involving bacteria indigenous to the mouth and impact individuals worldwide (3). Missing teeth have a considerable impact on mastication, digestion, phonation, and aesthetics and have been associated with increased predisposition to geriatric diseases (4). The aim of the study was to evaluate needs for prosthetic treatment among edentulous middle and retirement age population in Vilnius, also to find out rates of edentulism among Vilnius inhabitants and to ask them about their own approach to personal oral hygiene.

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MATERIALS AND METHODS

This cross-sectional study was approved by Lithuanian Bioethics Committee and carried out

by one investigator. Our study was performed in period from 2008 to 2012. We have examined 634 patients in the principle of free choice (randomized selection). In order to recruit subjects in relevant age groups, Vilnius city hospitals and retirement homes were chosen. The recruitment was undertaken by the "top-down" principle (5), therefore the endorsement by the healthcare institutions administration was received. Persons, with acute diseases and traumas, not connected to head and neck area, were chosen.

All subjets were divided in eight groups according to their age and gender (Fig. 1). The intraoral examinations were performed by single dentist, using dental equipment. During examination these parameters were registered: number of present teeth, existing prosthesis, type of prosthesis if they existed. In addition to examination, subjets were asked how many times prosthetic treatment was preformed. The interviews were made under free agreement and explanation. Our study presents results the evaluation of oral condition in Vilnius city population, because this population can be considered as mix of lithuanian people who migrated from different regions of Lithuania to Vilnius. All statistic calculations were perfomed using SPSS 20 (Statistical Package for Social Sciences). Data descriptive statistics were used for the analysis. A p value <0.05was considered as statistically significant. Results are presented as numbers (n) and percent (%).

RESULTS

The total number of 634 persons were involved in this study: 308 (48.6%) men and 326 (51.4%) women.

Prosthetic treatment

According to questionnaire previuos prosthetic treatment was attached for 204 (43.8%) male and 262 (56.8%) female patients, total 466 (73.5%) of all subjets involved into our research, 168 (26.5%) never had a prosthetic treatment. During examination we found, that 219 (34.5%) of all examined persons were treated with removable prosthesis, 180 (28.4%) treated with fixed prosthesis and for 67 (10.6%) both: fixed and removable kinds of prosthesis were attached. We found, that number of removable prosthesis wearers increases with the age (Table 1). There were no statistically significant difference between male (p=0.256) and female (p=0.409) counted in all age groups in how many times prosthetic treatment was performed, but we found statistically significant difference between gender groups at the 45-54 years (p=0.029) and at the age group over 75 years old (p=0.003).

Edentulous patients

Toothless jaws were found in 26.5% (n=168) of population. We found 179 (28.2%) edentulous maxillas and 168 (26.5%) mandibles, there was no statistically significant difference between remaing teeth in opper and lover jaw (p=0.320). There is a statistically significant difference in remaining teeth

Table 1. Types of prosthetic treatment and percent of persons whom this treatment was attached

Age group	Fixed prosthesis	Removable prosthesis	Fixed and removable prosthesis
45-54	72.1%	11.5%	16.3%
55-64	60.9%	21.7%	17.4%
65-74	16.4%	64.8%	18.8%
>75	11.8%	83.2%	5.0%
Total	**38.6%**	**47.0%**	**14.4%**

Table 2. Number of missing natural teeth

Age group	Male	Female	p value
45-54	6.88	9.64	P=1.1074
55-64	15.01	12.81	P=1.104
65-74	20.54	26.19	P<0.001
>75	26.66	27.61	p=0.004

Table 3. Percentage of edentulous persons in Vilnius population

Age group	Male	Female	Total
45-54	1.3%	9.0%	5.2%
55-64	19.5%	12.5%	15.9%
65-74	26.6%	49.4%	38.3%
>75	28.9%	60.0%	45.3%
Total	**19.2%**	**33.4%**	**26.5%**

Table 4. Frequency of toothbrushing among Vilnius population

Age group / gender	Once daily	Twice daily	Do not brush
45-54/male	46.0%	52.6%	1.4%
45-54/female	29.5%	70.5%	0%
55-64/male	46.1%	49.4%	4.5%
55-64/female	35.0%	63.8%	1.2%
65-74/male	40.5%	48.1%	11.4%
65-74/female	44.6%	55.4%	0%
>75/male	46.1%	39.5%	14.4%
>75/ female	44.2%	47.5%	8.3%
Total	**42.0%**	**54.0%**	**4%**

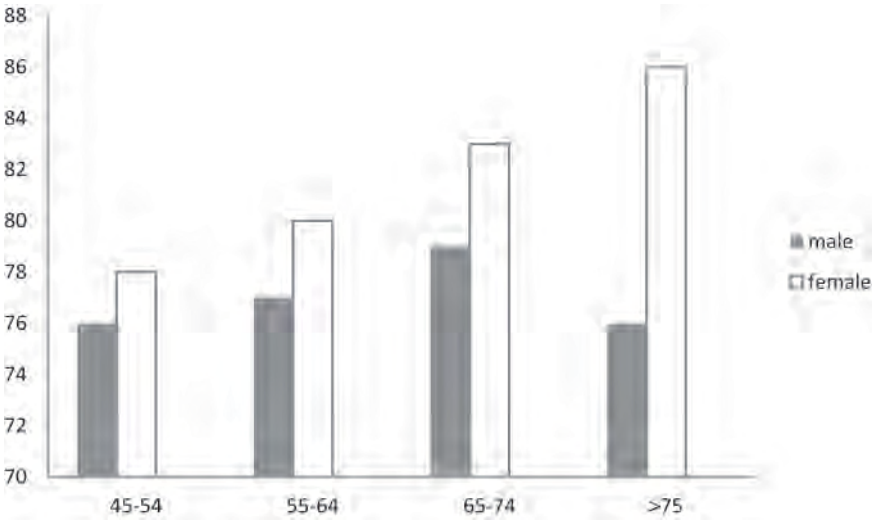

Figure. Age groups and number of research participants

number between all male ($p<0.001$) and female ($p<0.001$) age groups. Our study shows that there is a statistically significant difference in number of remaining teeth between men and women in 65-74 and over 75 years old age groups, but there was no difference at the 45-54 and 55-64 years old age groups (Table 2). There is a significant increase of edentulous persons with the age (Table 3). Also it was noticed statistically significant reverse relation between age and number of remaining teeth in men ($p=0.002$) and women ($p<0.001$).

Oral hygiene

Personal oral hygiene has an important influence on oral health. For this reason in our questionare we asked about personal teeth brushing habits and reasons for visiting the odontologist. We noticed that younger persons paid more attention for oral healh than older, by more frequently tooth brushing. Only 54% of all respondents brushed their teeth twice a day. In all age groups women cared for their teeth better than men. There is a statistically significant decrease in teeth brushing with the age for both genders ($p<0.001$) and statistically significant difference in frequency of toothbrushing between men and women ($p<0.001$) (Table 4). In our question „are you regulary attending your odontologist?“ 78.9% of all respodents answered that they are not visiting their dentist for the prophylactic reasons.

DISCUSSION

Stomatognatic system and oral health status among Vilnius population varies a lot. We found certain differences in all groups, but these results are not surprising, because there are many studies from all over the world representig comparable data. Our research is important for understading approuch to the factors such as quality of life, satisfaction in our own health. Many studies in Europe demonstrates, that prevalence of tooth loss increases with the age (6, 7), that is the same tendency as we have (8). Percentage of Vilnius city inhabitans, treated with removable prosthesis in the 65-74 years old age group is similar as reported in Malmo (Sweeden) (9), they found 59.2% removable prosthesis wearers, but Sweedish colegues reported only 0.2% untreated edentulous persons – this can be caused by better socioeconomical status in compare with Lithuania. Oral health and dental care are important aspects of health and health care. Tooth loss causes disorder in the quality of life of the individual, especially when it affects their well-being, appearance and nutritional status (10). Lower rates of edentulism and an ageing population mean that older people will feature more prominently in dental services (1). We found similar results to the other countries, where researches like ours were perfomed in Israel – 59.5% (11), Spain – 28.3% (12), Turkey – 48.0% (13), Australia – 46.1% (14). There was a difference in percentage of toothless people with a research in Kaunas (15), they reported 14% of edentulous persons in population, but this difference can be explained because in our study people over 75 years old were included as in their case age interval was up to 72 years old. Significant increase of edentulism rates with the age is associated with a fact, that a part of our study participants were institutionalised persons, this relationship was noticed in other studies too (16, 17). In literature data previous prosthodontic treatment is not wide investigated, but we can notice that with the age increases demand for such a treatment especially for removable prosthesis. We found data, that other studies represents lack of prosthetic treatment in different populations (8) as we see in our results there is a lot of untreated persons (26.5%) with missing teeth. In our study we tried to find if Vilnius city inhabitans took proper care of their own oral health. The results showed that there is a a lack of responsibility from the prophylactic point of view: only 54% of subjets brushed their teeth twice a day and 4% didn‘t brushed at all. These results are similar to finding in other studies previuosly done in Lithuania (15, 19). Unlike acute conditions where treatment reverses the impact of disease to a state of normal tissue integrity and function, tooth replace-

ments are an artificial substitute for a chronic loss and as such are used to manage tooth loss. In this context tooth loss is similar to other chronic conditions requiring a long-term management mind set (6, 20).

CONCLUSIONS

The intensity of tooth loss in the middle-aged and eldery population of Vilnius city significantly increases with age. Lower rates of edentulism and an ageing population mean that older people will feature more prominently in dental services. The incidence of tooth loss varies between age and gender groups. 26.5% of Vilnius population over 45 years old never had a dental prosthetic treatment of any kind and possibly needs it. More attention for the preventive programs among middle-aged and eldery population should be paid. Consolidation in oral health perceptions starts before age 50, suggesting early intervention before that age.

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