

Quantity and quality analysis of dental prosthodontics among retirement age residents from nursing homes in different regions of Latvia and retirement age patients from dental clinic in Riga

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SUMMARY

Introduction. The quality of life is closely related with condition of oral health, influence of subjective factors on the whole human body and patients perception of their oral health. In spite of the fact that the most part of Latvian retirement age residents use low-quality dentures and assess them satisfactory, these patients often have problems associated with quality of dentures.

The aim of the present study was to evaluate oral health status, prosthodontics indicators and patients satisfaction with oral health among Latvian retirement age residents.

Patients and methods. There were examined 465 retirement age volunteers (170 men and 295 women), 116 of them in dental clinic Sandent (Riga, 24.9% – control group), 137 (29.5%) in nursing homes in Zemgale and 212 (45.6%) in nursing homes in Kurzeme (Zemgale and Kurzeme are districts of Latvia). There were assessed quantity of prosthodontics among patients with partial defects of dental arches, there were estimated quality of dentures and patients satisfaction with existing prosthodontics.

Results. Oral health indicators among Latvian retirement age population are better than the same indicators among elderly residents of nursing homes. Among nursing homes residents with partial edentulousness in most of cases in oral cavities remained only few residual teeth which needed treatment. Removable and fixed dental prostheses used by nursing homes residents do not meet denture's quality criteria. Self-evaluation of dentures quality among retirement age residents of nursing homes is better and not correspond with existing dentures quality.

Conclusions. In Latvia the quantity of prosthodontics in respect of partial removable dentures among the retired who regularly visit a dentist does not significantly differ from European retirement age population's dental prosthodontics quantity. Dental prosthodontics indicators of residents of nursing homes in Latvia are unsatisfactory ($p < 0.001$). In retirement age population self-evaluation with quality of dentures is higher than actually existing.

Key words: oral health, nursing homes, denture satisfaction.

INTRODUCTION

All over the world life expectancy increases significantly and the old people proportion enlarges

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in population. Such demographics draw increased attention to researches in gerontological dentistry [1]. The quality of life is directly related with status of oral health, influence of subjective factors on the whole human body and patients perception of oral health [2, 3]. The level of self-satisfaction with existing dental status (oral health), quantity of prosthodontics and its functional and esthetical quality is one of the most important factors which promote complete adaptation to existing oral condition and dentures [2, 4-6]. Latvian government „Financing rules of health care” do not provide free of charge dental care in nursing homes. Consequently, in this situation arises need to carry out comparative evalu-

ation of oral health status and quantity indicators of dental prosthodontics among retirement-age population and nursing homes residents in age group over 60 years in Latvia. The typical feature of the elderly is contradiction between the subjective treatment requirements and the objective treatment needs [7, 8]. Such social aspects as satisfaction with oral and general health are in a base of the social support model of society. The aim of the present study was to evaluate oral health status, prosthodontics indicators and patients satisfaction with oral health among Latvian retirement age residents.

MATERIALS AND METHODS

This study of Latvian retirement age residents oral health and prosthodontics was performed in the period between 2007-2010. There were examined 465 retirement-age volunteers (170 men and 295 women) following the principle of free choice (randomised selection), 116 of them in dental clinic Sandent (Riga, 24.9% – control group), 137 (29.5%) in 4 nursing homes in Zemgale (ZNH) and 212 (45.6%) in 3 nursing homes in Kurzeme (KNH). The choice of dental clinic Sandent was associated with the fact that residences of all examined 116 patients include all Latvian districts. The examinations were done by according to unified criteria dentists using dental equipment, a flat mirror, and a blunt probe. The results were recorded in a questionnaire which contained each subject's number, age, sex, place of

residence and the date of the study. Evaluation of oral health dental status, incidence of oral mucosal changes, oral hygiene, caries incidence (DMFT index), quantity and quality of prosthodontics with complete dentures of retirement age residents in Latvia is set out in Baltic Dental and Maxillofacial Journal Stomatologija submitted publication „Evaluation of oral health status of retirement-age population in Latvia”. Evaluation of bonded prostheses were done by such standart criteria as esthetics, tissue condition, marginal fit, debondings, fractures and patient satisfaction; evaluation of removable dentures (acrylic and with cast framework) were done by standart criteria as esthetics, design, occlusion, function, stability, retention. In this study we analysed quantity and quality of prosthodontics among Latvian retirement age residents in patient group with partial edentulousness and patients' satisfaction with existing dental status and quality and quantity of prosthodontics.

For the analysis of patients, data descriptive statistics was used. Results were presented as numbers (n) and percentage (%). 95% confidence interval for percentage values were calculated using Wilson method. Comparisons of variables between groups and genders were applied using the Chi-square test. A p value <0.05 was considered statistically significant. All statistical calculations were performed using SPSS 18.0 (Statistical Package for Social Sciences), CIA (Confidence Interval Analysis) and Epi Info 2000 statistical packages.

RESULTS

The number of missing teeth (M-t) among patients from the control group was 12.0±7.9 for men and 12.8±7.8 for women, among residents of nursing homes in Zemgale number of missing teeth (M-t) was 21.6±10.1 for men and 23.7±10.0 for women and in Kurzeme nursing homes residents M-t was 23.1±8.5 for men and 25.8±8.1 for women (See M-t in the Table). We found out that women had statistically significantly higher number of missing teeth than men (p¹=0.003) in nursing homes of Kurzeme, but among patients from control group and nursing homes in Zemgale we did not

Table. Analysis of DMF-t index and structure

Group	Sex statistical characteristics	D-t	F-t	M-t	DMF-t
Control group	Male (n=42)	4.4±3.3 ¹	10.3±6.2	12.0±7.9	25.0±5.9
	Female (n=74)	4.0±3.1	10.9±5.5	12.8±7.8	25.9±5.5
	p value ²	0.494	0.603	0.598	0.417
ZNH group	Male (n=66)	6.2±4.9	4.6±3.7	21.6±10.1	25.5±7.7
	p value ³	0.1	<0.001	<0.001	0.172
	Female (n=71)	6.7±4.6	4.0±2.7	23.7±10.0	27.5±6.2
	p value ²	0.673	0.583	0.230	0.098
	p value ³	0.008	<0.001	<0.001	0.110
KNH group	Male (n=62)	7.6±5.5	2.4±1.5	23.1±8.5	28.3±5.1
	p value ³	0.004	<0.001	<0.001	0.003
	Female (n=150)	5.5±4.3	3.3±2.8	25.8±8.1	29.2±5.1
	p value ²	0.042	0.245	0.03	0.229
	p value ³	0.019	<0.001	<0.001	<0.001

¹ presentation of the mean value ± standard deviation;

² compared gender groups, used t test for two free samples;

³ compared ZNH and KNH group and the control group by sex, used t test for two free samples.

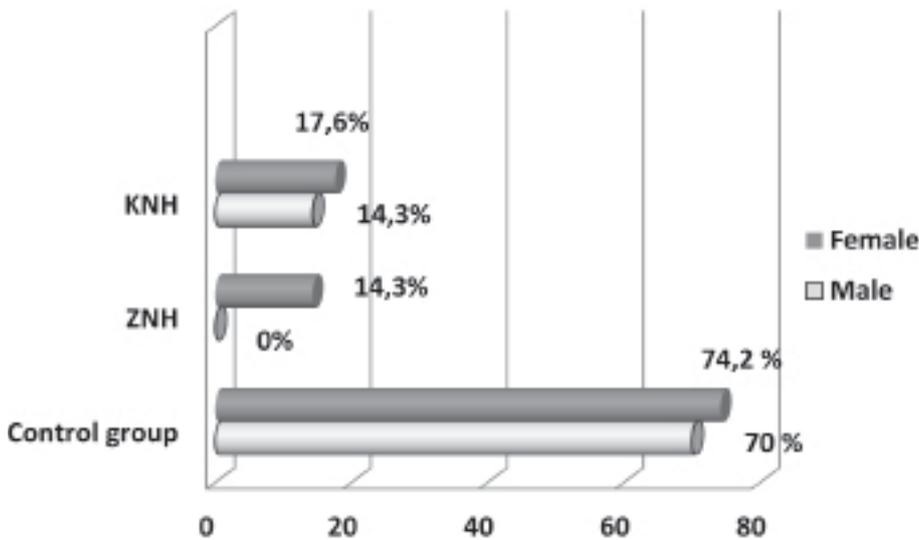


Figure. Quality of partial removable denture (retention, support, stability)

find out statistically significant differences in the number of missing teeth. Among nursing homes residents with partial edentulousness in most of cases in oral cavities remained only few residual teeth which needed treatment ($p < 0.005$). Partial edentulousness among men of control group ($n=42$) was recorded in 95.2% cases, among men of Zemgale nursing homes ($n=66$) was recorded in 47.0% ($p < 0.001$), and in Kurzeme nursing homes ($n=62$) in 67.7% ($p < 0.001$). Among women of control group ($n=74$) partial edentulousness was recorded in 93.2%, in Zemgale nursing homes ($n=71$) in 36.6% ($p < 0.001$), and in Kurzeme nursing homes ($n=150$) partial edentulousness was recorded in 45.3% cases ($p < 0.001$).

In control group 25.0% of men had removable partial dentures (it is 23.8% of the total number of control group men), in Zemgale nursing homes partially edentulous men had removable dentures in 9.7% of cases (it is 4.5% of total number of all group). In Kurzeme nursing homes partially edentulous men ($n=150$) had removable dentures in 33.3% of cases (it is 22.6% of total number of this group).

Control group dentures in men meet the clinical quality standards (retention, support, stability, esthetics, usage time of removable dentures do not exceed 6 years) in 70.0% of cases, in Zemgale nursing homes we did not observe good quality dentures among all men and in Kurzeme nursing homes removable dentures had good quality only in 14.3% of cases ($p < 0.005$) (See Figure). 68.3% of control group men were satisfied with their dentures, in Zemgale nursing homes 34.2% of men were satisfied with dentures and in Kurzeme nursing homes – 43.7% ($p < 0.001$). Will to obtain new dentures or to replace old ones (included removable partially dentures) was: 30.0% of men in control group, 54.8% of men

in Zemgale nursing homes and 45.2% in Kurzeme nursing homes.

From all men with partial teeth loss (included residents with and without removable dentures) 59.5% of cases had bonded dentures (crowns, bridgeworks). In Zemgale nursing homes only 3.0% of men had bonded dentures ($p < 0.001$), in Kurzeme nursing homes 7.1% of men had bonded dentures ($p < 0.001$). In control group 37.3% of men had casted metal crowns and metaloceramic crowns, but 63.7% of men had pressed metal crowns.

In Zemgale nursing homes only 3.0% of men had pressed metal bonded prostheses ($p < 0.001$), in Kurzeme nursing homes 7.1% of men had pressed metal bonded prostheses. In inspected nursing homes among all men and women we did not observe any casted metal or metaloceramic bonded dentures. Among control group men only 10.1% of metal and metaloceramic bonded prostheses meet the clinical quality standards (marginal fit, absence of gingival inflammation, esthetics), but pressed metal bonded dentures did not meet quality standards at all. Among Zemgale and Kurzeme nursing homes men and women residents we observed not a single good quality bonded prosthesis. In control group 4.8% of men had single metaloceramic crowns supported on implants. Among all residents of Zemgale and Kurzeme nursing homes and among all control group retirement age women we did not observe bonded prostheses supported on implants.

In control group 44.9% of women had removable partial dentures (it is 31.1% of total number of control group women), in Zemgale nursing homes 19.4% of women with partial edentulousness had removable partial dentures (it is 9.9% of total number of this group). In Kurzeme nursing homes 50.0% of partially edentulous women had removable dentures (it is 22.6% of total number of this group). In control group 74.2% of women had good quality removable partial dentures. In Zemgale nursing homes removable partial dentures meet quality standards in 14.3% of cases ($p = 0.003$), but in Kurzeme nursing homes – 17.6% ($p < 0.001$). In control group 74.6% of women were satisfied with their dentures, in Zemgale nursing homes 21.2% of women were satisfied and in Kurzeme nursing homes – 35.8% ($p < 0.005$). In control group 20.3%

of partially edentulous women had wish to get new (or repeated) removable dentures. In Zemgale nursing homes this parameter was 67.6% ($p < 0.001$), in Kurzeme nursing homes 82.4% of women had wish to get new dentures ($p < 0.001$). Only women in Kurzeme nursing homes, in comparison with men, proposed higher interest about new removable partial dentures ($p < 0.001$).

In control group 74.3% of partially edentulous women (included ones with and without removable dentures) had bonded prostheses. In Zemgale nursing homes bonded prostheses had 4.2% of women ($p < 0.001$), and in Kurzeme nursing homes – 4.0% of women ($p < 0.001$). In control group 35.6% of women had bonded casted metal or metaloceramic prostheses, which complied with clinical requirements only in 9.9% of cases. No a single pressed bonded prostheses comply with clinical requirements (similar to men groups). Analysis of the acquired results indicates that women were more concerned with oral health than men but in general we did not observed significant difference between men and women oral health and prosthodontics indicators.

DISCUSSION

Quality of human life is related with general health and with possible psychological and social discomfort. General health can not be separated from oral health and from quantity and quality of prosthodontics [9, 10]. Prosthodontics significantly improve humans' health and quality of life, however some prosthodontic techniques often are expensive [2, 9]. Patient will be satisfied with comfortable denture which will not cause defects of speech, mastication and esthetics and will be good fitting with adequate retention and support [11, 12]. Adaptation and satisfaction with dentures is possible only in cases if oral cavity is cured and prepared for prosthodontics [13, 14]. Literature indicates non-compliance of dentures to its functional quality and wherewith in many cases patients don't use their removable dentures: in USA – 5.2% [15], in France – 12.6% [16], in Brasil – 42.6% [17]. With the increasing of age a human often undergoes changes of perception and ability to assess the quality of the existing dentures [2, 19]. Among men of control group satisfaction with the existing dentures is close to its quality indicators (68.3% and 70.0%), but among women these indicators are as follows (74.6% and 74.2%). Irrespective of poor quality indices of dentures (in Zemgale nursing homes good quality dentures were observed in 0% of men and 14.3% of women, but in Kurzeme nursing homes in

14.3% of men and 35.8% of women) large number of Latvian retirement age people is adapted to unsuitable dentures. In the inspected Zemgale nursing homes 34.2% of men and 21.2% of women are satisfied with the existing dentures, in Kurzeme nursing homes – 43.4% of men and 35.8% of women. Despite the fact that one part of unfitting dentures' users assess their dentures as good [19], they often have denture caused oral health problems. This can be explained by the fact that patients are modest in their demands [20] and often because of financial reasons and they can not afford to make new dentures [2, 9, 21, 22]. None of examined residents of nursing homes got new dentures over the past decade. Oral and dental health status among people living in nursing homes significantly differ from oral and dental status of the same age group inhabitants in Latvia, similar difference was observed in such countries as Norway [2], Sweden [23], Canada [24], Turkey [9]. Oral health of old people living in nursing homes is different in many countries and it depends on national socio-economical situation [25]. The difference of oral health indicators among Latvian residents over 60 years of age is associated with elimination of dental care in nursing homes in Latvia. In this study involved retirement age patients from dental clinic Sandent (control group) include various regions of Latvia, accordingly we could evaluate by objective considerations oral health parameters in corresponding age group, but we must take in consideration that including of all social classes of corresponding age group nowadays is problematic because of economical considerations as many Latvian inhabitants can not afford dental treatment. 60.4% of Latvian residents need new dentures [19]. In Zemgale nursing homes 98.4% of residents need new dentures and in Kurzeme nursing homes – 97.6% of residents. Significant difference of men and women clinical parameters, level of satisfaction with oral health status and existing dentures between control group and nursing homes groups we did not observe. Current economical situation does not contribute improvement of dental care and for many inhabitants prosthodontics is problematic.

CONCLUSIONS

In Latvian retirement age population who regularly visit a dentist quantity indicators of prosthodontics with partial dentures do not significantly differ from European retirement-age population's dental prosthodontics indicators. Dental prosthodontics indicators of residents of nursing homes in Latvia are dissatisfactory ($p < 0.001$). In retirement age popula-

tion self-evaluation with quality of dentures is better than actually existing. Many Latvian retirement age

residents express wish to get new dentures but often it is not possible because of financial circumstances.

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