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PROBLEM-SOLVING ARTICLE

Evaluation of Oral Therapeuthical and Surgical Treatment Needs among Retirement Age Population in Different Countries

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Summary
Oral health in connection with quality of life is affected by such functional factors as dental decay and its complications, untreated tooth roots, oral mucosal diseases and inflammations, precancerous diseases, cancers, pain in temporomandibular joints, xerostomia and partially or fully edentulous jaws. It has been noted in literature that among retirement age population the number of remaining teeth has increased and the number of untreated decayed teeth in developed countries for the last 20 years has decreased. Despite this fact the need to improve measures of oral health remains actual in this age group due to increasing prevalence of diagnosed oral diseases and number of extracted teeth and roots. Oral health indicators among retirement age population living in nursing homes in such countries as Canada, USA, UK, Finland, Denmark, Germany, Turkey, Brazil, Australia and Lithuania differ from the same age group indicators among self-dependent old people able to take care of themself. Oral health indicators of nursing homes residents in many countries are significantly worse than oral health indicators of the corresponding age group population. The proposed evaluation data of oral hygiene, periodontal status, DMF-T index, quality of existing and needs of new prosthodontics as well as oral mucosal disorders among retirement age population provides an important insight into therapeutic and surgical treatment provision in different countries.
Key words: oral care of old people, oral surgery, dentistry, prosthodontics

INTRODUCTION

Age is inescapable biological condition at which the human body and dental status is undergoing significant changes, however, environment in which it occurs influences the human health in its own way. Each country develops its own experience how to efficiently attract finances to the health care system, preserve and promote the health of the population. Health care model in different countries depends on regional traditions, national historical development and state role in social care regulations (18,20,22). Indicators of oral health among retirement age population living in nursing homes differ from the same age group indicators among self-dependent old people able to take care of themself (24,26,36). Oral health in connection with quality of life is affected by such functional factors as dental decay and its complications, untreated tooth roots, oral mucosal diseases and inflamations, precancerous diseases, cancers, pain in temporomandibular joints, xerostomia and partially or fully edentulous jaws. Physiological and social aspects play significant role. The typical feature of the elderly is contradiction between the subjective treatment requirements and the objective treatment needs (7). Frequently the reason of poor oral health condition among old people is chronical diseases and seriously exhausted nature which influences overall quality of life (22,24). To assess and compare oral health condition of retirement age population in the world and in Latvia generally accepted oral health characteristics are used: oral hygien**e**, DMF-T index (D-decayed, M-missing, F-filling number of teeth), health status and visible changesoral mucosa and periodont, quantity and quality of prosthodontics.

Evaluation of oral hygiene and periodontal status of retirement age population

The most popular oral hygiene method in many countries is teeth cleaning using only a toothbrush and toothpaste. Regular teeth cleaning among old people is less frequent than in general population (20,26). Although oral health care is available for all age people in developed countries, older people have less possibilities to use it (22,26,35). In the absence of state financial support and co-payment system for many old people the oral care is not available (23). Due to the physiological aging process old people have serious problems to maintain good oral hygiene (2,8,9), particulary among people with hand movement disorders, joint pain and stiffness, poor vision, cerebrovascular and mental disorders, resulting in poor oral hygiene and increased plaque amount on teeth and dentures surfaces (13,24). Unsatisfactory oral hygiene causes periodontal problems leading to progressive bone loss, exposed root surfaces, teeth movement, root decay and with time these teeth will be lost (19,23). Oral health studies have revealed a high parameters of teeth plaque and gingival index in complex with high

caries and root caries incidence (2,8,20,26). Microscopic analysis of mouth swab scrapings in many nursing homes residents revealed fungal, staphylococcal and colibacterial infections (10,41). The main predisposing factors of oral candidiasis are ill-fitting dentures and poor oral hygiene (13,27,35).

In such economically and socially developed country as Canada 90% of nursing homes residents take care of teeth regulary and 68.5% do it by themselves. However, almost all with few exceptions had dental plaque and food remains on teeth, 48.7% of them had periodontal diseases (gingivitis, calculus, periodontal pockets), so more than 90% of old people need hygiene instruction and professional teeth cleaning and calculus removal (1,9,22). In Finland oral hygiene of old people continuously living in nursing homes was assessed as poor, only in 19% of cases hygiene of removable dentures was assessed as good (21). In Turkey old people from nursing homes mainly need regular oral hygiene and nursing home's staff needs special education in maintenance of oral health (20). In Germany (27) oral health and oral hygiene of old people living in nursing homes was unsatisfactory, it was affected by social and economical factors. Among people with poor oral and denture hygiene frequently is observed denture stomatitis (10,13,16). In many cases instruction of denture hygiene does not cover routine care responsibilities of nursing home's staff (9,13,24). Patients and nursing home staff was not properly educated in oral hygiene measures (13,24,28,35).

Studies performed in Latvia (3,5,17,39) revealed that oral health condition of retirement age population is not significantly different from that mentioned in literature (5,17,40). In 2005 study (6,9) in Latvia in 87% of retirement age population was observed soft dental plaque which is the main cause of dental and periodontal diseases (3), but in 1993 study in 65 – 74 years age group 100% of population were observed periodontal problems (37). In 2005 study (5,19) investigating periodontal status of old people in comparison with 1993 study was found out that periodontal health in general did not improve and in 2005 healthy periodontal tissues was observed only in 4.1% of examined 64 – 74 years age people (5,19).

Evaluation of DMF-T index and its parameters among retirement age population

In different countries oral health status among retirement age population is different, it is most closely related to the national socio-economical situation (9,22). WHO (World Health Organization) studies (23) indicate that in developed countries DMF-T index of old people is 22 and more (23). DMF-T indices in: United States – 21.9 (38), Canada – 24.86 (1), Australia– 24.7 (33), Turkey – 29.3 (36), Brazil – 30.2 (25), Fiji islands – 23 (8). In European countries this index is similar: Germany – 22.0 (27), Denmark – 16.7 (18), Croatia – 27 (28), Lithuania – 25.63 (42), Italy – 19.82 (2).

In Latvian residents over 60 years of age the mean DMF-T index in 1993 was 24.92 (6,37), but in 2005 study it was 24.84 (5). In 2010 this index was worse (17). DMF-T index among retirement age population which regulary visit dentist was 25.0 for men and 25.9 for women, but in Latvia Zemgale region nursing homes DMF-T index was 25.5 for men and 27.5 for women, in Latvia Kurzeme region nursing homes it was 28.3 for men and 29.2 for women (17,39,40). The main DMF-T indices components were the number of lost and decayed teeth, from which the main part was root decays and roots which must be extracted. In Latvia oral health parameters among retirement age population are worse than in the most European countries (17,39,40). In developed countries during last 20 years the number of remaining teeth among retirement age population is increased but the number of untreated decayed teeth is decreased (1,18,22,26). Nevertheless the need to improve measures of oral health remains actual in this age group (1,9,23) because of increasing prevalence of diagnosed oral diseases (1,13,42). There is observed high prevalence of dental and root caries among old people in such countries as Brazil, Turkey, United Kingdom, Poland, Lithuania (12,20,23,24,25,42). The data about root caries revealed that exposed root surfaces in combination with poor general health and drugs use could significantly increase risk of root caries development in old people population (8,22,28,42). The main component of DMF-T index in old people is the number of lost teeth the reasons for this are widespread dental and root decay and periodontal diseases (12,19,20,26).

Evaluation of quality of existing prosthodontics and needs of new prosthodontics among retirement age population

In many countries among older population is observed complete teeth lost (21,22,42). The epidemiological studies (20,21,32) revealed also that people with low income, low social status and low education more often is observed complete teeth lost in comparison with people with higher income, social status and education (12,24,36). In industrial countries many retirement age people have removable dentures, epidemiological data in many countries (14,22,35) revealed that one third to half part of old people use complete removable dentures and untill three quarters of old people use complete and/or partial removable dentures (14,20,24,34,35). The number of retirement age fully edentulous patients in literature is pointed withlarge degree of difference: in France – 26.9% (34), in USA – 43.1% (26), in Scotland – 51.7% (32), in Brasil – 74.9% (12). In literature amount of denture's users is not devided by gender but there is specified that the number of complete denture users increases with age: in Belgium – 47.0% (9), in Poland – 25.0% (23), in Lithuania – 14.0% (42), in Turkey – 11.9% (36). Among Latvian residents the need of new dentureswas 60.4% (30). The need of new dentures among Zemgale region nursing home residents was found in 98.4% of cases and in Kurzeme region nursing homes residents – 97.6% (17,40). Among retirement age population who regulary visit dentist 60.9% needed new dentures (17,29,30,39). It is often claimed that aesthetic characteristics of dentures is not

so important for old people and that functionality of dentures is much more important than psychological and social aspects (7,9,34). Depression and dementia is common among older generation (9,26), so oral health often is neglected. Literature indicates non-compliance of dentures to its functional quality and wherewith in many cases patients dont use their removable dentures: in USA – 5.2% (26), in France – 12.6% (34), in Brasil – 42.6% (12). Despite the fact that part of unsuitable denture users assess their dentures as good (29), often they have denture caused oral health problems. This can be explained by the fact that patients are modest in their demands (37) and often because of financial reasons they can not afford to make a new dentures (7,14,20,38). The status of general health among old people, manual dexterity, problems of self care contribute to poor oral hygiene indices (26,35,40). The typical feature of the elderly is contradiction between the subjective treatment requirements and the objective treatment needs(7,22,38). Oral and dental health of old people living in nursing homes significantly differs from the same age group self-dependent population in Latvia (17,39,40), similar differences is observed in such countries as Norway (14), Sweden (38), Canada (1), Turkey (20). Oral health of old people living in nursing homes is different in many countries, it depends on national socio-economical situation (36). 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 (39,40).

Oral mucosal changes and diseases among retirement age population

Oral mucosal changes and diseases related to human aging frequently are complex and may adversely affect the quality of life (11,13,31). In literature, as main health problems are noted oncological and precancerous diseases, inflamatory vesiculo-erosive diseases and candidiasis (10,11,15,31). WHO data (23) and literature data revealed that in approximately one half of humans over 65 years of age is found at least one oral mucosal lesion (10,11,35). Oral mucosal diseases in the world population have a high degree of diference: in Germany – 19.55 % (31), in Hungary – 10.14 % (16), in China – 12 – 26 % (23), in Greece - 47 % (35), in Turkey – 40.7 % (10), in Chile – 53 % (11), in Thailand – 83.6 % (15). In 2010 study performed in Latvia oral mucosal changes and diseases among retirement age population was found in 41.9 – 90.1%, worse oral health indicators were observed in residents of nursing homes (17). The most frequent oral mucosal lesions among retirement age population is denture stomatitis, xerostomia, traumatic ulcers and varices (11,15,35), among precancerous lesions most frequent is leukoplakia and oral lichen planus (11, 15, 31). Another more frequently in literature cited oral mucosal lesions are hemangiomas, hyperplasias, cheilitis angularis, atrophy of mucosa, fissured tonque, smoking melanosis and stomatitis, aphtous stomatitis, median rhomboid glositis, cheilitis actinica (11,15,35). In study performed in Latvia most frequently observed oral mucosal lesions were coated tonque, atrophy of oral and tonque mucosa, varices and cheilitis angularis (17,39). Approximatelly one third part of retirement age population has denture stomatitis arised from poor denture hygiene and usage of these removable dentures around the clock (10,12,15,35). In Finland study (21) 25% of old people with dentures had denture stomatitis and 28% - cheilitis angularis. In Turkey denture related lesions were found in 36.4% of retirement age people with old dentures and among patients with diabetes and increased risk of development of dentue stomatitis and denture hyperplasias (10). In Thailand study (15) in age group over 60 years with removable dentures significantly higher was observed oral mucosal lesions (62.7%) than among old people without removable dentures (28.5%) and people with fixed crowns or bridges (8.8%). In Greece study denture related stomatitis was observed in 17.2% of old people (35), and in Chile – 22.3% (11). Three most common denture related oral mucosal lesions are traumatic ulcers (22.6%), denture stomatitis (14.3%) and cheilitis angularis (4.8%). Denture related oral mucosal lesions more frequently was observed in complete removable dentures users (46.3%) than among partial dentures users (40.8%) (11). Oral candidiasis commonly affect immunosuppressed individuals in all ages but among old people living in nursing homes fungal infections are especially prevalent (10,23,41). Prevalence of oral fungal infection among retirement age people living in nursing homes is associated with poor oral hygiene and negligent care of dentures (4). In Poland study the highest prevalence of Candida species in oral mucosa was found among 56 – 70 years old people (35%) and among 71 – 92 years old group (74%) with or without removable dentures (41). Oral and dental health among old people living in nursing homes significantly differ from the same age people oral health in Latvia. 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 (40).

CONCLUSIONS

1. World Health Organization (WHO) studies indicate that in developed countries DMF-T index of old people is 22 and more. The mean DMF-T index among retirement age population in Latvia is 24.84 (2005 study).
2. In many countries similar to Latvia the main component of DMF-T index among retirement age population is the number of lost teeth.
3. In Latvian retirement-age population which regulary visit the dentist quantity indicators of prosthodontics with partial dentures do not significantly differ from Europien retirement-age population's dental prosthodontics indicators.
4. Literature indicates non-compliance of dentures to its functional quality and wherewith in many cases patients dont use their removable dentures (difference from 5.2% to 42.6%).
5. Among retirement age population is observed one or more oral mucosal lesions or diseases (data variation from 10.14% to 47%).

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