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New approaches of rehabilitation organization improving in orthopedic dental care for the elderly people

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Abstract---Scientific research on the development of issues of optimization of gerontological care is traditionally conducted in the field of somatic pathology and, to a lesser extent, in the field of dental care. Purpose of the study is to determine the socio-hygienic dental status, the need for the elderly population in the "Center for the provision of special and social services", the Great Patriotic War polyclinic and in the dental clinic of JSC NMU im. Asfendiyarov, Almaty, Kazakhstan. Research objectives: 1. To analyze the influence of the state of dental health on the quality of life of elderly and senile people. 2. To assess some of the physicochemical properties of the oral fluid (salivation rate, viscosity and acid-base state) in the examined group of persons. 3. To study the features of some biochemical parameters of the oral fluid in elderly and senile people (calcium, magnesium, phosphorus, protein, TBA-active products). 4. To evaluate the effectiveness in the complex treatment and prevention of dental diseases in elderly and senile patients for: the clinical course of the disease, some physicochemical and biochemical parameters of the oral fluid, the state of the dental health of these persons and the level of their quality of life. For the first time, the direct dependence of the

influence of age-related changes in the criteria of dental health on the quality of life of patients was determined. In persons over 60 years of age, there was a deterioration in values for all studied profiles: "Functional limitation", "Physical disability", "Physical discomfort and pain", "Social maladjustment", "Damage". The relationship between the state of the physical and biochemical properties of the oral fluid and the age characteristics of the dental health of elderly and senile patients was revealed. The data obtained from clinical, dental and biochemical examination of elderly and senile patients can increase the effectiveness of the development of therapeutic and prophylactic measures in this group of patients.

Keywords---new approaches, rehabilitation, organization, improving, orthopedic dental care, elderly people.

Introduction

Due to the fact that in recent years the proportion of elderly and senile people in developed countries has been steadily growing, the interest of specialists in the health status and quality of life of older people has significantly increased. Thus, the issues of gerontology have moved from a medical problem to a problem of national importance. The upward trend in the number of older people requires a deep study of demographic processes and, first of all, the problems of older people [1].

Despite the constant development of the system of providing medical, medico-social and social assistance to the elderly at home, a contingent of older people inevitably appears, whose condition does not allow them to continue living independently at home. A considerable part of such patients, who are characterized by severe physical weakness, the presence of a large number of various somatic diseases, age-related mental disorders, become permanent patients of inpatient social service institutions - boarding homes for the elderly, charity homes, nursing homes, boarding houses for veterans, etc., where they are provided with palliative care for a long time, practically for life [2].

All this brings to the fore the problem of normal life support for this category of persons, the improvement of all types of their medical and, including dental support. In this regard, the issues of improving the organization dental care has always been in the center of attention of national healthcare professionals. They acquired particular relevance during the period of market and insurance relations, when the problem of finding new ways to increase the efficiency of dental care provided to the population is quite obvious [3].

At present, the situation of the majority of citizens of the older generation is characterized by such factors as poverty, poor health, loneliness, which together lead to a state of material and physical dependence, an increase in the need of elderly people for social assistance and support. The peculiarities of this contingent are the high prevalence and intensity of their dental pathology, aggravated by the same somatic diseases, as well as a decrease in their own

control over their dental health, a decrease or complete loss of prophylactic and hygienic motivations [4]. One of the important problems is the deterioration of the dental health of the elderly. Currently, modern clinical dentistry is characterized by significant advances in the prevention and treatment of various dental diseases. One of the leading success factors is the development of new methods and tools for the recognition and prevention of dental diseases [5].

With age, all organs and tissues of the body undergo changes, in particular, the maxillofacial region, which is determined by both local and general causes. An important point in the treatment of the elderly is to assess the effect of the treatment of a particular disease on the clinical course of the underlying or concomitant disease. The use of drugs or treatment regimens that have a beneficial effect on the course of several concurrent diseases is preferred [6]. The Address of the President of the Republic of Kazakhstan - Leader of the Nation Nursultan Nazarbayev to the people of Kazakhstan "Strategy" Kazakhstan-2050 "says: a new political course of an established state" is a radical change in the situation of people, improvement of living conditions and an increase in its duration to 70 years.

One of the leading conditions for achieving these results is the implementation of the State program for the development of health care "Salamatty Kazakhstan" for 2011-2015, which sets out goals for reducing the incidence and further strengthening the health of the population, increasing life expectancy and improving its quality, based on principles of intersectoral and interdepartmental interaction on issues of public health protection. Based on the results of epidemiological, statistical, mathematical, sociological research, we have developed a set of proposals for optimizing gerontostomatological care.

The mucous membrane of the mouth (MMM) and lips is the subtlest indicator for assessing the pathological processes of the gastrointestinal tract, the immune status of the organism, the general level of activity, and the proliferation of cellular systems. With age, MMM diseases develop against the background of a decrease in salivation and local tissue resistance, impaired differentiation and keratinization of epithelial cells, as well as changes in the microbiocenosis of the mucous membrane. The epithelial layer of the MMM undergoes atrophy, elastic fibers disappear in the submucous layer, and the vascularization of soft tissues and bone base deteriorates [7].

In elderly and senile people, MMM diseases are 2-3 times more common, especially those associated with somatic pathology and dental prosthetics, while middle-aged people are more often diagnosed with meteorological and actinic cheilitis, a crack in the red border of the lower lip, which requires the development and use of simple, affordable and effective methods for the prevention and treatment of these diseases in an outpatient clinic [8].

One of the pressing problems is the fact that in elderly and senile patients it is sometimes impossible to use the generally accepted treatment regimen for a particular COP disease due to the existing concomitant pathology, which dictates the need to search for innovative technologies to solve this problem. In this regard, in the treatment of MMM diseases, it is important to include in the

complex of therapeutic and prophylactic measures drugs that can restore local immunity, improve blood microcirculation, help reduce inflammation and accelerate the recovery of the mucous barrier, while having minimal side effects on the body as a whole. Currently, more and more preference is given to dental products made from natural ingredients that contain vitamins, macro- and microelements, chlorophyll, phytoncides and other vital biologically active substances that affect metabolic processes. They provide positive antimicrobial, anti-inflammatory, hemostatic, healing and analgesic effects, which are not inferior in effectiveness to synthetic drugs, but at the same time they are safer, more accessible and inexpensive, which is important for elderly and senile people. The question of the development of such phytopreparations, which are convenient for use by patients of older age groups, remains relevant [9].

Methods

Elderly people in the "Center for the provision of special and social services", the Great Patriotic War polyclinic and in the dental clinic of KMU named after Asfendiyarov, Almaty, Kazakhstan, a sociological study was conducted through a questionnaire and the dental status was determined using special cards recommended by WHO (2013), 521 elderly persons were examined. All examined were divided into age categories according to WHO: 60-75 years - old age, which was 44%, 75-90 years - old age (50%), after 90 - long-livers (6%). Assessment of the orthopedic dental status revealed: the presence of single crowns, bridges, combined, partial or complete removable dentures, as well as the complete absence of dentures. The need for orthopedic dental care was determined considering the presence of defects in the dentition, dentures, prostheses in need of replacement, the complete absence of teeth, and the absence of prostheses [10-16].

The need for orthopedic care was determined by the state of the dentition and by the presence of a certain type of prostheses, considering their manufacturing quality according to the following 5 criteria:

1. The need for prosthetics is not detected, i.e. the absence of defects in the dentition, the condition of natural teeth and existing dentures is satisfactory. There are no indications for prosthetics.
2. The need for fixed prostheses. Defects of dentition of the III class according to Kennedy (no more than 3 teeth), IV class according to Kennedy (no more than 4 teeth), satisfactory condition of natural teeth. Indication for the manufacture of fixed prostheses [17-20].
3. The need for a partial removable denture. Defects of the dentition of the I and II class according to Kennedy, extensive defects of the III class (the absence of more than 3 teeth), IV class (the absence of more than 4 teeth).
4. Combined prosthetics (partial and non-removable dentures). Oral cavity condition. Combination of defects of I, II, III, IV classes according to Kennedy. Indication for a bridge (III, I and IV according to Kennedy), partial removable denture (I and II class according to Kennedy).
5. Need for complete removable dentures or a combination of partial and complete removable dentures. Complete absence of teeth in one jaw and

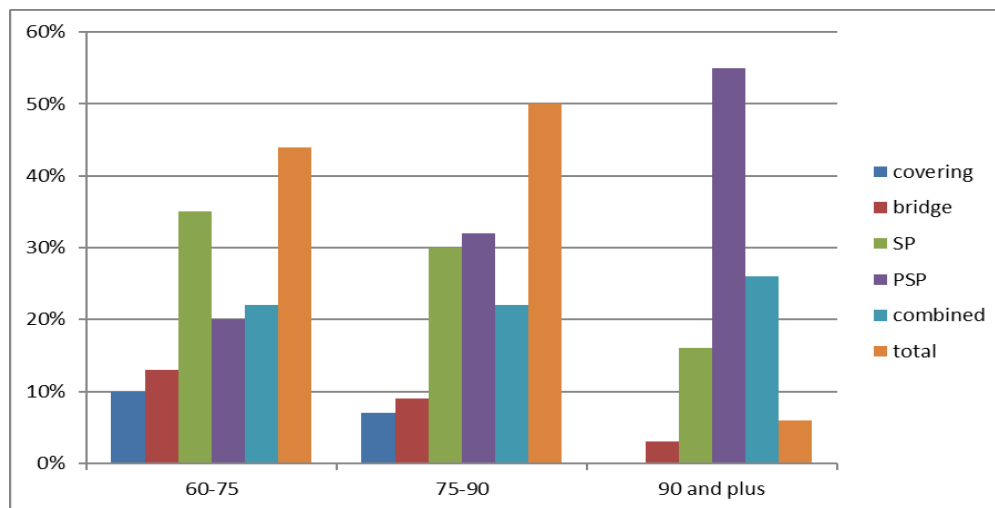
partial absence of teeth in the other jaw. Complete absence of teeth on both jaws.

Research Results

Among the surveyed 521 elderly people in the "Center for the provision of special and social services", the Second World War polyclinic and in the dental clinic of JSC NMU named after Asfendiyarov in Almaty, the majority of people aged 60-75 had a partial defect in the dentition, which amounted to 35%. At the same time, the largest number of people in the age group 75-90 years old, 90 years old and older, needed the manufacture of complete removable dentures.

Table 1 - The need for prosthetics of the elderly population in orthopedic dental care, in the "Center for the provision of special and social services", the Great Patriotic War polyclinic and in the dental clinic of KMU named after Asfendiyarov Almaty, Kazakhstan

Age	number	covering	bridge	SP	PSP	Combined	total
60-75	230	10%	13%	35%	20%	22%	44%
75-90	260	7%	9%	30%	32%	22%	50%
90 and plus	31		3%	16%	55%	26%	6%
total	521people	17%	25%	81%	107%	70%	100%



Discussion of research results

Previously conducted studies in available sources on the need for orthopedic care for the elderly were used in their research methods of the classification of Kennedy, Oxman, and others. Based on the data of various authors, basically the need for orthopedic care was classified into 5 classes. All of us examined were divided into 5 classes according to the state of the dentition and the presence of a certain type of prosthesis [21-25].

Among which:

1- no need for prostheses, no such patients were found

Grade 2 - the need for fixed prostheses, which was 101 (19%),

Grade 3 - the need for combined prostheses (removable and fixed prostheses) 85 (16%),

Grade 4 - the need for a partial denture 99 (19%),

Grade 5 - the need for a complete removable denture 142 (27%) 18.19.

According to our research, we identified persons in need of combined prosthetics, i.e. combination of partial and complete removable dentures. And such patients turned out to be an impressive number - 90 (17%). Thus, it is more expedient to add grade 6 - the need for partial removable and full removable dentures. The obtained data on the level of need for orthopedic care indicates that the elderly actually require qualified orthopedic care.

According to the data studied, the need for orthopedic care assumes 5 classes, in our work we propose the introduction of combined prosthetics, i.e. a combination of partial and complete removable dentures. According to the results of our survey, it is this class that occupies a significant place among the elderly. The increased need for dental prosthetics is explained by the fact that this assistance is paid and very expensive today. Considerable financial costs are required for the elderly, which presents certain problems in view of their social status in society [26-30].

Recommendations in enhancement

Unlike some other countries, Kazakhstan does not have a recognized specialty in gerodontology. We propose to decide whether dentistry with special needs of elderly and senile people is a part of the geriatric service or whether gerontostomatology should be a specialty in itself. The main direction is the creation on the basis of the University of NAO KazNMU named after Asfendiyarov "Gerontostomatological educational and practical center" (gerontological, dental care). Giving the Center the status of an urban type, followed by the Republican Center, which will coordinate the provision of gerontological and dental care to the population over working age in the region in different directions in close cooperation with the gerontology module and the departments of the dental profile of the NAO KazNMU named after N. S.D. Asfendiyarov. For the normative consolidation of the work, we have developed the Regulation on the organization of the activities of the Center for Gerontostomatological Health of the Elderly [31].

General Provisions

"Gerontostomatologic training and practical center at KazNMU" operates on the basis of a dental health care institution to provide consultative and diagnostic, therapeutic, preventive, and rehabilitation assistance to elderly citizens in conjunction with a gerontologist. The work of the Center is headed by a head who has a higher medical education and a certificate of a specialist in dentistry, trained in gerontology. The head of the Center is appointed by the chief physician of the dental clinic. Specialists included in the structure of the center: The professors of the university - a doctor-gerontologist, a doctor-dentist, an

orthopedist-dentist, a dental surgeon, trained in gerontology, doctors of functional diagnostics [32].

The center includes the following functional subdivisions: screening room, "School of Dental Health for the Elderly", informational and methodological room, educational and practical center (senior students, interns, postgraduate education department, professional development of specialists). To carry out the activities of the Center on a functional basis, other structural subdivisions of the basic dental clinic are used (therapeutic, surgical departments, orthopedic departments, physiotherapy room, computer X-ray diagnostics room).

Goals and objectives of the Center

The main indicator of the State Program for the Development of Healthcare of the Republic of Kazakhstan "Densaulyk" for 2016-2019 is the growth of life expectancy up to 73 years. The aim of the activity of the "Gerontostomatological educational and treatment center at KazNMU" is to preserve individual health, as well as the dental condition of citizens and form their motivation for a healthy lifestyle to improve health and optimize the quality of life of the elderly population of Almaty. The main tasks of the

Center include:

- screening using modern digital diagnostics in order to identify risk factors for dental pathology, establishing the effect of concomitant diseases and adverse lifestyle factors on the occurrence of various forms of dental pathology with subsequent development
- individual recommendations for maintaining general health, as well as the dental status of elderly patients;
- consultations with dentists of all specialties, including geriatricians to develop a comprehensive health plan;
- practical skills are carried out directly by graduates of senior courses, interns, the department of postgraduate education under the leadership of departments;
- conducting cycles of thematic improvement of dentists and geriatricians to work with elderly and elderly patients;
- Provision of comprehensive dental services to patients of retirement age, including diagnostics, treatment, dental prosthetics,
- provision of psychological assistance to the elderly
- promotion of a healthy lifestyle to preserve the dental health of the elderly population and the formation of a responsible attitude towards their health among the population;
- monitoring dental morbidity in the elderly
- population of the region in order to improve planning
- dental care and strategy definition
- services for the elderly (epidemiological surveys);
- monitoring the satisfaction of the elderly population with the availability and quality of dental care (medical and sociological research);

- implementation of organizational and methodological assistance to dentists on gerontology and geriatrics; doctors of other specialties - on gerontostomatology issues;

Functions of the Center

In accordance with the main tasks, the Center performs the following functions: medical and advisory, organizational and methodological, research, educational and methodological, expert, legal, sanitary and educational, conducts epidemiological and sociological monitoring in the city of Almaty. Given the high the need for orthopedic dental care of the elderly population, another direction of optimization is the expansion of the categories of persons entitled to free treatment, manufacture and repair of dentures at the level of state regulation. This will allow at least partially to match the need of pensioners for dental prosthetics and the actual implementation of its volumes [33].

Conclusions

Out of the 521 examined elderly persons, 80 needed partial removable prosthetics at the age of 60-75 years, 83 required complete removable dentures in the age category 75-90, and those who are 90 years old and older, of which only 31 examined most of all, full removable dentures are in excess. Summing up the results of the examined, the older the age category, the more teeth are missing and leads to the complete absence of teeth. The average cost of a complete removable denture for 1 jaw is 60,000 tenge, a partial removable prosthesis for 1 jaw, depending on the type of defect, is from 30,000 to 45,000 tenge, in the city of Almaty. If we consider the average pension of those living in the "Center for the provision of special and social services", Almaty, approximately 28,000 - 60,000 tenge, this treatment is not included in the guaranteed free provision, which explains the urgent need for orthopedic care. This issue needs government support, since the restoration of the chewing function is one of the important signs of the quality of life, because it provides nutritional value, an aesthetic appearance, the ability to communicate normally and lead an active lifestyle.

The main indicator of the State Program for the Development of Healthcare of the Republic of Kazakhstan "Densaulyk" for 2016-2019 is the growth of life expectancy up to 73 years. UN experts have classified Kazakhstan as one of the states with accelerated aging rates, according to their forecasts, by 2050, 25% of elderly people are expected in the country. Orthopedic dental care occupies one of the main places in the structure of specialized medical care for the population.

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