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To Compare the Morphometric Data of the Craniofacial Region of Healthy Elderly People Without Adentia and With Partial and Complete Adentia

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Relevance. Currently, the problem of adentia affects the entire population of the Earth, regardless of race, age, gender. This pathology of the maxillary system is formed even during the development of teeth at the stage of laying.

In this regard, it is very important to know all the reasons that can cause primary adentia. As a consequence of advances in medicine, the average life expectancy in highly developed countries has increased significantly. At the same time, the number of elderly and old people is increasing as a percentage of the entire population, and probably in the third millennium more than 40% of the population will be people over 60 years old. Dental care systems should be guided by the changed demographic situation, it is necessary to develop a strategy in providing assistance to this part of the population. A high level of knowledge of the peculiarities of the oral cavity and effective methods of therapeutic and preventive dental care in the growth of the number of elderly people will improve the dental status, and consequently, the quality of life of this population group.

The issues of timely diagnosis and rational treatment of patients with occlusive diseases of the masticatory apparatus are very relevant for modern dentistry. All over the world, even in economically developed countries, there is an increase in the population's need for prosthetics (Nash P.G. et al., 2010; Saliba N.A. et al., 2010). The prevalence of anomalies and deformities of the maxillofacial region in the adult population is 33.7-61.9% of observations. According to some data, various types of abnormal bite occur in 82% of the examined (Nesterenko O.M., 2009; Kuroedova V.D., Makarova A.I., 2012). At the same time, the prevalence of structural and functional lesions of the TMJ ranges from 12 to 75% (Doroshina V.Yu. et al., 2010; Shcherbakov A.S. et al., 2013; Sanders A.E., Slade G.D., 2011). Some authors note that TMJ dysfunction is based on a violation of the closure of the dentition in the position of central occlusion. As a result, the work of the masticatory muscles and the synchronous function of both TMJ are gradually disrupted, the nature of movements of the lower jaw in all directions changes (Kovalenko A.Yu., Iroshnikova E.S., 2012; Bulycheva E.A. et al., 2013; Shcherbakov A.With. et al., 2013). However, TMJ dysfunction is often diagnosed only when patients go to dental clinics for dental treatment and prosthetics (Petrosov Yu.A., 2007; Halpern L.R. et al., 2007; Magnusson S. et al., 2008).

As a methodological and theoretical basis of the dissertation research, the works of domestic and foreign scientists devoted to the issues of dentistry, individual anatomical variability of the jaws and temporomandibular joint, morphology, maxillofacial surgery and implantology were used: A.T. Busygin "The structure of the jaw bones" (1962); V.P. Alekseev, G.F. Debets "Craniometry. Methods of anthropological research" (1964); D.E. Tanfilyev "Age-related features of the maxillary sinuses" (1964); V.N. Ginali "Changes in the temporomandibular joint with tooth loss" (1966); p. Bassetti, V. Spiessl "New concepts in maxillofacial bone surgery" (1976); Yu.A. Petrosov "Orthopedic treatment of dysfunctional syndromes of the temporomandibular joint" (1982); W. Kurlej "Morphology of the incisive fossa, canal and foramen in man" (1983); U. Lekholm, G. Zarb "Patient selection and preparation (1985); B.C. Speransky "Fundamentals of medical craniology"

(1988); I.F. Longvinyuk "Diagnostics, clinical and functional characteristics of occlusive disorders and features of their orthopedic treatment" (1990); L.G. Volostnov "Intraosseous implants with shape memory in the treatment of mandibular adentia" (2003); T.G. Robustova "Dental implantation: surgical aspects" (2003); E.H. Onopa "Rehabilitation of patients with temporomandibular joint dysfunction syndrome" (2005); A.K. Iordanishvili "Diseases of the temporomandibular joint" (2006); I. Klinberg, R. Jager. "Occlusion and clinical practice" (2006); R. Slavicek "The Masticatory Organ. Functions and Dysfunctions" (2006); U.A. Zhukova "Morphometric features of diagnostic and therapeutic endossal interventions on the lower jaw" (2010), etc.

All of the above together determine the scientific novelty of the planned work.

The practical significance of the planned work is determined by some new methods of analysis that may be in demand in practical healthcare, which provides for the determination and assessment of the dental status of healthy elderly people with partial and complete adentia; in identifying the relationship between the development of cosmetic anomalies and pathology of the chewing apparatus with partial and complete adentia in elderly people.

Thus, the planned dissertation work meets the main three criteria of dissertability: according to the relevance of the chosen topic, according to the degree of scientific novelty and the practical value of the scientific work performed.

The scientific and methodological level of the planned work corresponds to a high level, since the applicant plans to use a whole range of modern research methods to achieve the goals and objectives set, which will allow making reliable and substantiated conclusions based on the results of the research thesis.

The researcher plans to develop and implement clinical and morphometric criteria that determine the prognosis of complications and the transition of the pathological process to partial or complete adentia in elderly people.

In connection with the processes of development, eruption and loss of teeth, a structural restructuring of the alveolar process of the upper jaw occurs. The length of the alveolar arch varies from 35 mm in a newborn to 58 mm in an adult. The parameters of the part of the alveolar arch where the incisors and canines are located increase with age by 5.5 mm. The size of the section bearing premolars, on the contrary, decreases by 3 mm. The part where the molars are located increases by 20 mm. With the loss of teeth, atrophy of their alveoli occurs, with the complete absence of teeth, atrophic processes affect the entire alveolar process. The processes of growth of the alveolar process of the upper jaw in height do not always proceed synchronously. Even with an orthognathic bite, the alveolar process can develop in different ways, and the degree of its development and shape have a significant impact on the position of the teeth in the dentition. The presence of anatomical and functional interrelation of the alveolar process with the dentition is proved. So, during teething, there is a significant restructuring of the entire alveolar process.

The modern development of dental implantation as the newest method of restoring the integrity of the dentition sets researchers a number of tasks, the solution of which should ensure an increase in the effectiveness of treatment of occlusive diseases (Ivanov A.C., 2011; Kulakov A.A., Gvetadze R.S., 2012; Han H.J. et al., 2014).

69.3±7.5% of elderly people need orthopedic treatment to restore lost teeth and normalize chewing function. Due to the large loss of teeth, 59.8% of those examined from among those in need of prosthetics need partial removable dentures; of these, 17.5 ± 1.6% of people need partial removable dentures on both jaws. 20.8% of the examined patients need complete removable prosthetics, of which 5.5 ± 1.4% on both jaws (L.G. Borisenko, 2010).

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 and quality of life of elderly people has increased significantly (Kairbekov A.K., 2009; Baysultanova A.Sh., 2009; Turebekov D.K. et al., 2009).

Anatomical and topographic features of the structure of both jaws suggest that the best department for the effective installation of a sufficient number of implants in this group of patients is the frontal section of the upper and lower jaws, where there is always a sufficient amount of bone tissue for bicortical and intercortical installation of 4-6 implants of the appropriate diameter and length (Botabaev K.A., 2010).

When developing scientific directions of dental implantation, patients over 60 years of age are considered from a standard point of view, as a rule, without emphasis on this age category. At the same time, elderly and senile people have specific age characteristics and associated risk factors that significantly complicate the use of the dental implantation method, and in some cases completely exclude the possibility of its use in this category of patients. Therefore, it is necessary to pay special attention to the adequate construction of the algorithm of therapeutic tactics and to develop a comprehensive methodological approach to the functional and aesthetic rehabilitation of elderly and senile patients with various forms of adentia, which can really reduce the risks of complications and adverse outcomes and contribute to adequate dental prosthetics and improve the quality of life of older age groups.

In the elderly (65 years and older), changes in the dental system are aggravated. As a result of the analysis, it was found that elderly people are in dire need of high-quality prosthetics to preserve dental health. Preservation of the integrity of existing dentitions or compensation of existing defects with high-quality dentures is a scientific justification for planning and conducting the most rational orthopedic treatment for the elderly.

The alveolar process of the upper jaw is only a secondary superstructure that develops simultaneously with the growth of the roots of the teeth and disappears after their loss. However, some authors note that in the process of embryogenesis, the development of the alveolar process occurs independently of the jawbone.

A decrease in the masticatory load on the lateral parts of the alveolar process with the loss of teeth in this area leads to pronounced atrophy of the alveolar process of the upper jaw. In some cases, there is a convergence of the bottom of the maxillary sinus and the crest of the alveolar process, while the height of the alveolar process ranges from one to several millimeters [1.3.5.7.9.11.13.15.17].

The age factor is no less important for the degree of atrophy of the alveolar process. Thus, in persons of the first period of mature age (21-35 years), even in the absence of several lateral teeth, the minimum height of the alveolar process is 9.5 mm. At the same time, in the second period of adulthood, the height of the alveolar process is insignificant.

The upper jaw has 8 maxillary segments. The shape of the jaw, the order of the maxillary segment, as well as the length of the root affect the distance of the roots of the teeth from the outer and inner surfaces of the alveolar process. There is a certain shift of the roots of the teeth in the vestibular direction in the incisor-maxillary and canine-maxillary segments. The roots of the premolars of the upper jaw are located at the same distance from the vestibular and lingual surfaces of the corresponding segments. Due to the presence of the zygomatic-maxillary ridge, the roots of the large molars are displaced orally. The structure of the compact and spongy substance of the upper jaw differs significantly. Thus, the largest amount of compact substance is contained in the frontal process (98.5-99.3%), the smallest - in the alveolar process (30-37%); in the body of the jaw - about 85% of the compact substance, in the zygomatic process - 91-95%, in the palatine - 77-79%. At the same time, it is in the alveolar process that there is the most powerful layer of spongy substance. The largest accumulation of thick beams of spongy matter is also observed in the frontal process, the alveolar process at the level of the large molars and in the middle third of the hard palate [2.4.6.8.10.12.14.16].

The practical significance of the research results will make it possible to determine the current state of the landscape of the stamological status and to show morphometric aspects of the course and outcome of private and complete adentia in elderly people, to develop diagnostic and prognostic criteria for early diagnosis of pathology of the masticatory system. Determination of these aspects of

the formation of the pathological process will reduce the risk of increased complications and deterioration of the quality of life from this pathology.

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