PRINCIPLES OF EXAMINATION AND TREATMENT PLAN IN PATIENTS WITH PERIODONTAL DISEASES SECONDARY TO METABOLIC SYNDROME

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Summary: This article reviews the peculiarities of periodontal disease in patients with metabolic syndrome. There are the aspects of diagnosis and verification of the proposed scheme of diagnosis of metabolic syndrome in patients with generalized periodontal disease [7,11]. The basic principles of examination structural-functional state of bone tissue in these patients. Established that generalized periodontal disease secondary to the metabolic syndrome occurring more aggressive and harder exposed to stabilization. Remission at uncontrolled hyperglycemic states is significantly reduced. The proposed scheme of treatment of generalized periodontitis in patients with metabolic syndrome helps achieve clinical stabilization [4,6,10,12].

Keywords: periodontal disease, metabolic syndrome, roentgen-morphometric indexes, bone densitometry, biochemical markers of bone remodelling.

Introduction. The problem of periodontal diseases is one of the leading in modern dentistry, which is associated with widespread population of different age groups, the lack of clear diagnostic methods, ineffective treatment. Generalized periodontal disease manifested as steadily progressive inflammatory and destructive process that with age leads to the complete destruction of the interdental bone membranes and premature loss of teeth [4,5,8]. The research demonstrated the close relationship of periodontal tissue diseases and structural and functional state of the bone system. Metabolic syndrome (MS) is one of the most complex healthcare and social problems today, there is the complex of pathological conditions, associated with each other, insulin resistance, obesity, dyslipoproteinemia, arterial hypertension and other pathological disorders[2,3,9]. Often the first manifestation is type II diabetes mellitus, arterial hypertension, coronary heart disease. MS may affect structural and functional

status of the bone tissue, and thus provide diagnostic features, clinical course and treatment of generalized periodontitis [4,6,10].

Objective. Improving the efficacy of the treatment of generalized periodontitis by studying the characteristics of his diagnosis, clinical course secondary to the metabolic syndrome.

Materials and methods. Depending on the conducted clinical and laboratory studies, patients were assigned into two groups. In the main study group there were 58 patients (33 men and 25 women) with generalized periodontal disease and the metabolic syndrome. The control group consisted of 62 patients (33 men and 29 women) with generalized periodontal disease, but without the metabolic syndrome. The average age of the subjects was 45.8 years.

The state of periodontal tissues was evaluated according to generally accepted scheme, using subjective methods of investigation (complaints, medical history), dental and periodontal examination with completing a periodontal card. History of comorbidities and related illnesses were filled in the questionnaire - the questionnaire of general health and dental status. The diagnosis is established according to the classification of N.F. Danilevsky (1998).

All subjects were held:

 clinical (medical history, collection statement, dental examination, determination paraclinical indexes - hygienic index of Fedorov-Volodkina has been determined, PMA indexes, periodontal index).

 radiological (orthopantomography, dental sighting shots) and radioviziohraphic; definition of roentgen-morphometric indexes (on patient's orthopantomogram were measured the height of basal ridge (HBR), the height of the body of the mandible (VTNCH), the height of the mandible (VNCH) and was determined the mandibular cortical index (MKI), mental index (MI), the index of alveolar bone resorption (IRAO), panoramic mandibular index, panoramic mandibular index, antehonialnyy index (AI) and honialnyy index (GI) [4,5].

 laboratory: biochemical (determination of blood glucose, if necessary, load analysis, definition glycosylated haemoglobin, lipidohramma: determination of cholesterol, high density lipoprotein, low density lipoprotein and very low density atherogenic index); determining markers of bone remodelling (parathyroid hormone, osteocalcin, calcium).

 functional studies (determination of blood pressure, waist severity of roundness) functional studies of bone - conducting ultrasonic Achiles + or dual energy X-ray absorptiometry.

The presence of MS verified under the joint abdominal obesity (OT> 82 cm for women and 102 cm for men) with two or more components of the metabolic syndrome (according to the criteria of IDF, 2009): triglycerides ≥ 1.7 mmol / L, HDL cholesterol <1.29 mg / dL, blood pressure ≥ 130/85 mmHg, blood glucose ≥ 5,6 mmol / l. Bone mineral density of the whole body, lumbar spine and femur was determined by X-ray densitometry on the device Prodigy (GE Medisal systems, USA). Statistical analysis was performed using the Statistical Package 6.0 (Statsoft).

In order to sanitation mouth, patients in both groups were conducted initial periodontal treatment, which included professional hygiene, ultrasonic scaling - undergingival removal of dental plaque and polishing the teeth roots with Gracie instruments, curettage and medication periodontal pockets. Patients in both groups of the study structure-functional disorders of bone metabolism prescribed drugs for correction of metabolic osteopathy - antyrezorbenty Bonviva 3 months 1 tablet per

month, Citra-Calcemin, 1 tablet b.i.d during 6 months. Efficacy and results were controlled in 1 month, 6 months and 1 year.

Study results and discussion. In the group of patients with metabolic syndrome lipid and carbohydrate metabolism are above the upper limit of normal, which primarily points to the systemic violation of metabolism. As a result, the survey found that indicators of structural-functional state of bone tissue in the studied group and the control group had differences. The level of parathyroid hormone in group I was 52.13 ± 4.18, while the control group was 46.25 ± 4.47. Indicators of biochemical blood tests were in group I: osteocalcin 15.71 ± 1.46; calcium 2.38 ± 0.02, for group II osteocalcin level was 25.7 ± 6.79, calcium 2.31 ± 0.03. These figures indicate that in both groups resorption processes prevail, but in the main group they are more intense. As for the study of structural and functional state of bone densitometry ultrasound results were taken into account for both. In I group was established the strength index (Stiffness) 99.18 ± 3.87, while the second group of indicators made 93.6 ± 2.59. Overall, indicators of density in the main group studied was higher than + 1SD. Bone tissue of patients assessed as osteosclerotic.

In 3 months after the initial periodontal treatment was observed clinical stabilization of generalized periodontitis: gum compaction, lack of congestion of gum edge, increased gingival recession against the background reduce the depth of periodontal pockets, no allocation from them ,significantly decreased mobility of the teeth. There were noted the decrease of paraclinical indixes - PMA, Ramford index and periodontal index in the study.

The comparative analysis of X-rays demonstrated some differences in structural-functional state of the bone tissue. In the study group on radiographs were observed bony pockets and crater destruction of alveolar ridge. Bone tissue of patients assessed as osteosclerotic. X-rays of these patients demonstrated dribnopetlystyy picture bones, thickened membrane bone of spongy bone. While the comparison group was observed on radiographs bone pockets crater destruction of the alveolar ridge, on the tops of the interdental bone membranes phenomenon of osteoporosis, "transparent" picture cancellous bone, due to osteodestructive and inflammatory processes.

Conclusions. In the group of patients with metabolic syndrome lipid and carbohydrate metabolism are above the upper limit of normal, which primarily points to the systemic violation of metabolism. An examination of structural and functional state of bone was determined the reduction of the formation and increase bone resorption process. In conducting ultrasound densitometry was found that density during the ultrasonic wave is within normal limits, or is above ranges. In conducting clinical dental examination was found that generalized periodontal disease secondary to the metabolic syndrome has more aggressive disease course and harder exposed to stabilization. Conducting initial periodontal treatment after 3 months allowed to achieve clinical stabilization of generalized periodontitis, remission in uncontrolled hyperglycemic states decreased significantly, indicating the efficacy of treatment of generalized periodontitis in patients secondary to the metabolic syndrome.

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