

Key words: pelvic organ prolapse, stress urinary incontinence, chronic venous insufficiency of the lower limbs, comorbidity, genetic factors

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LABORATORY ASSESSMENT OF THE EFFICIENCY OF ORTHOPEDIC TREATMENT OF EXTENSIVE DENTAL DEFECTS

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The survival of a dental implant is influenced by many factors, including: somatic (heredity, age, degree of osteoporosis, immunity, diseases of internal organs) and local factors (degree of trauma from the intervention, biomechanical characteristics of the implant-jaw system, periimplantity, etc.) [3]. The dental implant material plays an equally important role in the evolution of the “titanium surface-bone” coupling: the condition of the surface, the area of contact with bone, its strength and density, and the time spent on different stages of orthopedic treatment. For example, plastic deformation of an implant or its fracture is possible with insufficient strength of titanium used in the manufacture of an implant [1].

There is a need to search for safe high-strength materials for health. Previous data had shown that Nanotechnologies and nanomaterials remains promising. Use of dental implants from nanostructured titanium has been reflected in few published works on experimental animals [2]. There are no clinical studies in this direction, which explains the relevance of our research. Objective of the study was to increase the clinical effectiveness of dental implantation in the treatment of patients with extensive dentition defects due to non-separable dental implants with immediate load of nanostructured titanium.

Materials and Methods. 57 people with dentition defects were examined and underwent orthopedic treatment. Given the characteristics of prosthetics, patients were divided into two groups. In group 1 (n=30) with single-stage dental implantation with immediate load, collapsible screw titanium implants from conventional alloy BT-6 were used. Group 2 (n=27) underwent a one-stage dental implantation with immediate loading with non-separable conical-shaped dental implants made of nanostructured titanium of the Nano-Grade 4 brand with a grain size of 50-150 nm (grains of other titanium alloys, including the Grade 4 brand, about 1000 nm in size). Nanostructured titanium “Nano-Grade 4” is very durable in comparison with titanium alloys, which makes it possible to use it in non-removable orthopedic treatment. The age of 2 clinical groups varied from 37 to 72 years. The average age of 1 group was 54.7±1.1 years, 2 groups – 53.2±1.4 years. The structure of dentition defects according to Kennedy was represented by lateral defects included (group 1 – 83.3%, group 2 – 8.5%), there were few unilateral and bilateral terminal defects. The levels of C-reactive protein (C-RP) and tumor necrosis factor-alpha (TNF-a) were determined on days 1, 7, 14, 30 and 90 in the oral and peri-implantation fluid. The study of the content of C-RB was performed using a latex diagnosticum to detect the C-reactive protein “CRP - latex test”, and TNF-a - using an enzyme immunoassay.

Results. Initially, level of C-RP in the oral fluid in group 1 was 6.3±0.4 mg/l, in group 2 – 6.5±0.5 mg/l. Concentration of TNF-a in the oral fluid in group 1 was 36.7±2.2 pg/ml, in group 2 – 35.1±3.1 pg/ml. In 1, 7, and 14 days after surgery, level of C-RP and TNF-a in the
oral and peri-implantation fluid increased in two clinical groups, followed by a decrease in the concentration of the studied inflammatory markers 30 and 90 days after surgery. However, in group 1, the content of acute-phase inflammation proteins C-RP and TNF-α in the biological media of the oral cavity increased with a less pronounced gradient (p<0,05) compared with group 2. Thus, the level of C-RP in the oral fluid compared with the initial value in group 1 in 1, 7 and 14 days after surgery increased by 3,4 (p<0,05), 9,4 (p<0,05) and 2,8 (p<0,05) times, and in group 2 – 5,1 (p<0,05), 14,2 (p<0,05) and 4,6 (p<0,05) times, respectively. The level of TNF-α in the oral fluid compared with the initial value in group 1 in 1, 7 and 14 days after surgery increased by 1,9 (p <0.05), 2,1 (p<0,05) and 1,8 (p<0,05) times, and in group 2 – 2,9 (p<0,05), 4,5 (p<0,05) and 4,7 (p<0,05) times, respectively. In the peri-implantation fluid concentration of inflammatory markers was higher compared to oral fluid.

Conclusion. Use of one-stage dental implantation with immediate loading with non-separable dental implants made of nanostructured titanium was accompanied by less pronounced inflammation in the peri-implantation zone, as was evidenced by measurements of the concentration of inflammatory markers in the oral and peri-implant fluid.

References:

Key words: dental implantation, peri-implantation fluid, oral fluid, C-reactive protein, cytokines.

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XANTHINE OXIDASE ACTIVITY IN PATIENTS WITH CONGESTIVE HEART FAILURE AND CHRONIC KIDNEY DISEASE

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Epidemiological studies show that hyperuricaemia is an independent risk factor for cardiovascular disease, especially chronic heart failure (CHF). But the exact mechanism of high serum uric acid (SUA) levels is not fully understood. It can be a result of increased generation, decreased excretion or a combination of the two. Some experts suggest that elevation of SUA is primarily due to the increased amounts of xanthine after cellular damage, which is catalyzed into uric acid via xanthine oxidase. Another point is that it can be a result of impaired renal excretion of uric acid in patients with concomitant chronic kidney disease (CKD). Our objective was to evaluate xanthine oxidase activity and SUA levels in patients with congestive heart failure and concomitant CKD.

Materials and Methods. The study population consisted of 112 patients (51 men, 61 women) aged (72,5±8,6) years. Depending on a presence of concomitant CKD all patients with CHF were divided into 2 groups: within CKD (72 patients) and non-CKD (40) participants. We used PAP - method with antilipid factor to evaluate SUA levels. XO activity was determined by a coupled enzyme assay, which results in a colorimetric (570 nm)/fluorometric (lex = 535/lum = 587 nm) product, proportional to the hydrogen peroxide generated.