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STUDY OF THE PERIODONT IN DIABETES-INDUCED INFLAMMATORY DISEASES

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Relevance. The influence of diabetes mellitus (DM) on the results of treatment of periodontal diseases attracts the attention of dentists and morphologists. Modern studies of periodontitis and DM indicate the relationship and mutual influence of these diseases. DM increases the risk of developing periodontal disease..

Aim: evaluation of structural changes in periodontal tissues in inflammatory disease with concomitant experimental DM.

Materials and methods. The experimental work was carried out on 20 Wistar male rats weighing 180–200 g. The following groups of animals were used in the study: 1) 5 intact control rats; 2) 5 rats with experimental periodontitis; 3) 5 rats with experimental DM (2 weeks after streptozotocin injection); 4) 5 rats with periodontitis on the background of experimental DM. Sampling of material for morphological examination was carried out after euthanasia of rats by intra-abdominal injection of sodium thiopental at the rate of 25 mg per 1 kg of body weight.

Results and their discussion. In animals with experimental DM, manifestations of pathology in the form of polyuria and polydipsia are observed; the level of glucose in blood plasma was 5.8 ± 0.6 mM (in intact animals – 4.1 ± 0.3 mM). In the group of animals with experimental periodontitis, there is significant vascular dilation, perivascular edema, and disorganization of collagen fiber bundles in the interstitial. There is a visible thickening of the epithelial layer in the free part, hyperkeratosis, and parakeratosis. There is a deepening of the connective tissue papillae, changes in the microcirculatory tract are progressing. In the group of animals with periodontitis, an increase in inflammatory processes occurs on the background of experimental diabetes. On histological preparations, the reaction of neutrophils, sclerosis, hyalinosis of the walls of capillaries and arterioles manifests, pronounced perivascular edema is noted. In the epithelium of the periodontal mucosa, expressed hyperkeratosis, circulatory disorders, microangiopathy, erythrocyte stasis in capillaries, endothelial swelling, ingrowth of epithelial processes into the submucosal membrane, as well as the prevalence (compared with 2nd group) of the number of inflammatory infiltrates are noted.

Conclusion: comorbid accompaniment of periodontitis by experimental streptozotocin diabetes significantly exacerbates the morphological scenario of the inflammatory process of periodontal tissues.