



INNOVATIVE METHOD FOR DIAGNOSING OSTEOARTHRITIS OF THE KNEE JOINT

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Deforming osteoarthritis is a multi-causal disease, and regardless of the known external causes, the influence of genetic factors reaches 39-65%. The knee joint in everyday life experiences enormous loads, sometimes reaching 300% of body weight. The main reason for the development of osteoarthritis is an imbalance in the processes of cartilage destruction and its renewal under the influence of various endogenous and exogenous factors. As a result, the usual load becomes excessive and, causing degeneration of articular cartilage, leads to deforming arthrosis and pronounced to varying degrees aseptic inflammation of the joint [1,2].

The aim of the study is to optimize the diagnosis of osteoarthritis using digital reference osteodensitometry for an objective assessment of the severity of the course.

Materials and methods of the study: The study was carried out based on the analysis of the results of a comprehensive clinical examination of patients of working age from 30 to 50 years with a clinical picture of the subacute phase of periartrosis and osteoarthritis of the knee joint: 42 people with periartrosis, 48 people with osteoarthritis, as well as 40 people of the control group (without the presence of periarticular and osteoarticular pathology at the time of examination and in anamnesis), comparable in age and premorbid background. X-ray examination was performed using digital low-dose X-ray diagnostic devices.

Results.

BMD in various sectors and zones of the knee joint in the control group varied from 0.93 ± 0.10 mg/mm² (sector 3, zone C) to 1.40 ± 0.13 mg/mm² (sector 1, zone A). BMD in patients with clinical signs of periartrosis before treatment also varied by sectors and zones of scanning and it turned out to be generally lower than that of the control group with a statistically significant difference in sectors: 1 (zones: A, B, C), 2 (zones: A,B), 3 (zone A).

BMD in patients with osteoarthritis clinic before treatment was lower not only relative to the control group, but also patients with periartrosis, ranging from 0.62 ± 0.14 mg/mm² in sector 3 (zone C) to 0.73 ± 0.11 mg/mm² in sector 1 (zone A). In the final phase of studies, after performing therapeutic measures (medication and physiotherapy), the BMD of the knee joint changed towards an





increase in both groups of patients with positive dynamics in the group with the presence of peri-arthritis, while maintaining the regularity of the maximum osteoarthritis index in sectors 1 and 2 (zones: A, B, C). The process of restoring BMD in the final phase of treatment in patients with osteoarthritis was also favorable, but more torpid than in the group with only peri-arthritis clinic.

Conclusion. Analysis of the results of assessing the mineral saturation of the bone structure of the knee joint of patients with a clinical picture of peri-arthritis and osteoarthritis showed that a change in the BMD of the knee joint is an objective criterion for assessing the severity of arthrosis in various phases of knee joint pathology, including professionally conditioned. The developed methodological approach to obtaining detailed characteristics of the state of bone structure density in the dynamics of patient observations allows predicting the course of these diseases and monitoring the effectiveness of their treatment.

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