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THE IONIZED CALCIUM IN PATIENTS WITH OSTEOARTHRITIS AND TYPE 2 DIABETES MELLITUS

Today, the prevalence of type 2 diabetes mellitus (T2DM) and osteoarthritis (OA) is constantly increasing. Attention is paid to the development of OA on the background of bone metabolism disorders in many studies.

The purpose of the study is to determine the level of ionizing calcium (Ca2+) in patients with OA and with the combination of OA and T2DM and its effect on the course of T2DM and OA.

Materials and methods. In total, 50 patients were examined at the Kharkiv Regional Clinical Hospital. All patients were divided into 2 groups. Group 1 - 20 patients with OA, group 2 - 20 patients with combined course of OA and T2DM. The control group - 20 practically healthy individuals. The mean age of the patients was 56.08±0.71. The survey plan included anthropometric data, global knee pain [visual analog scale (VAS)], the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR), C-reactive protein (CRP). All patients with OA were made X-ray examination of knees. Determination of Ca2+ level was determined by biochemical method.

Results and discussion: Statistically significant decrease the level of Ca2+ was observed in both study groups compared to the control group, and a significant difference ($p<0.05$) was noted between the group with isolated course of OA and the group with combined course of OA and T2DM. In the study of relationships between Ca2+ and carbohydrate metabolism indices, was not found statistically significant correlation both in 1st and 2nd groups. Moderate negative associations between Ca2+ level and glucose level ($r=-0.47$; $p=0.00123$), HbA1C ($r=-0.56$; $p=0.001653$) and HOMA ($r=-0.60$; $p=0.001472$) were determined in the group with combined

course of OA and T2DM. We didn`t find significant correlation between the indicators of clinical and radiological changes and the level of Ca2+ in the 1st group of patients, but a significant negative correlation was observed between WOMAC index (pain) and Ca2+ ($r=-0.47$, $p=0.0005$) in the 2nd group.

Conclusions: The study indicates that changes in bone metabolism are observed in groups of patient with OA and the combined course of OA and T2DM, in particular a significant decrease in Ca2+ level. A reliable association of Ca2+ with the WOMAC index indicates a possible effect of bone metabolism disorders on the progression of OA in patients with comorbid pathology.