INFLAMMATORY COMPONENT OF EARLY KNEE OSTEOARTHRITIS IN PATIENTS WITH METABOLIC SYDROME

Kasimova M.B., Rakhmatullaeva G.K.,
Begmatova X.N., Abduvakhobova A.M.,
Abdurazzakova D.S., Makhmudova M.S.
Tashkent State Medical University Uzbekistan

Currently, approximately 15% of individuals aged 30 years and older are affected by osteoarthritis. A study published in The Lancet Rheumatology analyzed data spanning 30 years (1990–2020) from more than 200 countries. This study was conducted by the Institute for Health Metrics and Evaluation (IHME) as part of the Global Burden of Disease 2021 project.

The findings demonstrated a substantial increase in the number of osteoarthritis cases over the past three decades, driven by three main factors: population aging, population growth, and obesity. In 1990, osteoarthritis was diagnosed in 256 million people worldwide. By 2020, this number had risen to 595 million cases, representing a 132% increase compared to 1990. It is projected that by 2050, the global number of cases will reach 1 billion. According to Dr. Jaimie Steinmetz, a lead researcher at IHME and co-author of the study, “Given the key contributing factors, particularly increased life expectancy and global population growth, a growing burden on healthcare systems worldwide is expected.” Currently, there is no curative treatment for osteoarthritis; therefore, it is crucial to focus on prevention strategies, early diagnosis, and improving access—especially in low- and middle-income countries—to effective but costly interventions such as joint replacement.

Metabolic syndrome (MetS), which includes abdominal obesity, arterial hypertension, dyslipidemia, and impaired glucose metabolism, is considered an important factor in the development of the “metabolic phenotype” of osteoarthritis.

Objective: to determine the frequency of synovitis in patients with early knee osteoarthritis in the presence of metabolic syndrome.

Materials and methods . A total of 64 patients aged 35–60 years with primary knee osteoarthritis were enrolled in the study. All participants met the diagnostic criteria for gonarthrosis established by the American College of Rheumatology, as well as the criteria developed by the Institute of Rheumatology of the Russian Academy of Medical Sciences.

The study population consisted of 50 women (78.1%) and 14 men (21.9%). Patients were stratified into two groups: those with metabolic syndrome (MetS [+], n

= 38; 59.4%) and those without metabolic syndrome (MetS [−], n = 26; 40.6%).

All patients underwent knee joint ultrasonography (arthrosonography) to assess the presence of synovitis, based on standard ultrasound criteri (including joint effusion and/or synovial membrane thickening).

Results and Discussion. Synovitis was detected in 26 out of 38 patients (68.4%) in the MetS (+) group, compared to 12 out of 26 patients (46.2%) in the MetS (−) group. Thus, in the presence of metabolic syndrome, synovitis occurred approximately 1.5 times more frequently, with an absolute difference of 22.2 percentage points (68.4% vs 46.2%). These findings confirm the significant role of metabolically induced inflammation in the development of « the inflammatory component » of early gonarthrosis. They also highlight the importance of early ultrasound verification of synovitis in patients with metabolic syndrome.

Conclusion. In patients with early knee osteoarthritis and concomitant metabolic syndrome, synovitis was detected by arthrosonography in 68.4% of cases, compared to 46.2% in patients without metabolic syndrome.

The management of such patients should include early ultrasound assessment of synovitis, along with active correction of metabolic syndrome components—namely body weight, blood pressure, lipid profile, and glucose metabolism—in addition to standard osteoarthritis therapy.

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