AMERICAN JOURNAL OF EDUCATION AND LEARNING
ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-10| 2025 Published: |30-11-2025|

U.O.C. 615.2

THE EFFECTIVENESS OF CHONDROPROTECTORS IN PATIENTS WITH OSTEOARTHRITIS

https://doi.org/10.5281/zenodo.17805896

Mukhsimova N.R., Kuchkarova D.Sh., Kuziboyeva L.T.
Tashkent State Medical University

Abstract

This article provides information about the treatment methods of osteoarthritis. The results of clinical and laboratory indicators of disease activity are discussed. The effectiveness of treatment is determined using methods aimed at improving comprehensive therapy.

Keywords

Osteoarthritis (OA), Spinneks, Visual Analog Scale (VAS), morning stiffness.

Introduction

Osteoarthritis (OA) - is a chronic degenerative disease of the joints characterized by the destruction of cartilage tissue, remodeling of the subchondral bone, and synovial inflammation, representing a complex pathological process. This condition not only impairs locomotor function but also leads to pain syndrome, disability, and a marked decline in quality of life. Today, OA remains a major global socio-economic challenge for healthcare systems. According to the updated 2024 data from the Global Burden of Disease (GBD) study, osteoarthritis affects nearly 7% of the world's population (approximately 500 million people), and its prevalence has increased by 48% since 1990 [8]. After the age of 45, knee osteoarthritis is observed in more than 20% of women and 14.1% of men, while among individuals over 65 years of age, the figure reaches up to 70% [2].

In recent years, OA has increasingly been recognized not merely as an "age-related" disease but rather as a multifactorial pathology strongly associated with inflammation, oxidative stress, metabolic syndrome, and genetic factors [7]. Apoptotic changes in chondrocytes, degradation of type II collagen and proteoglycans, and increased activity of inflammatory mediators (IL-1β, TNF-α, MMPs) play a key role in disease progression [6].

The primary goals in the management of osteoarthritis are pain reduction, restoration of joint function, and slowing of disease progression. For this purpose, in recent years a pharmacological class known as "chondroprotectors" — including glucosamine sulfate, chondroitin sulfate, diacerein, hyaluronic acid, and their

combinations — has been widely studied. These agents help protect cartilage by normalizing cartilage metabolism, reducing inflammatory mediators, and improving the viscoelastic properties of synovial fluid [11].

Clinical studies and meta-analyses conducted between 2023 and 2025 have demonstrated significant findings regarding the effectiveness of chondroprotectors. Thus, evaluating the clinical efficacy of chondroprotectors and their role at various stages of osteoarthritis remains an important scientific and practical issue. The aim of this study is to assess the effectiveness of chondroprotectors in patients with osteoarthritis based on up-to-date scientific sources from 2023–2025 and to analyze their prospects for clinical application [5]. Moreover, a 2025 meta-analysis confirmed the structural efficacy of glucosamine sulfate in slowing joint-space narrowing, although evidence regarding the efficacy of combination therapy is still under investigation [10].

Materials and Methods

The study was conducted at the Multidisciplinary Clinic of Tashkent State Medical University — including the Republican Rheumatology Center, the specialized outpatient arthrology unit, and the departments of Therapy and Nephrology — involving 60 patients treated in both outpatient and inpatient settings during 2024–2025. The patients were divided into two groups based on treatment type. Group 1 (n = 30) received Chondromed, while Group 2 (n = 30) received Spinneks administered intramuscularly. Clinical and laboratory parameters were evaluated before and after treatment to assess therapeutic effectiveness.

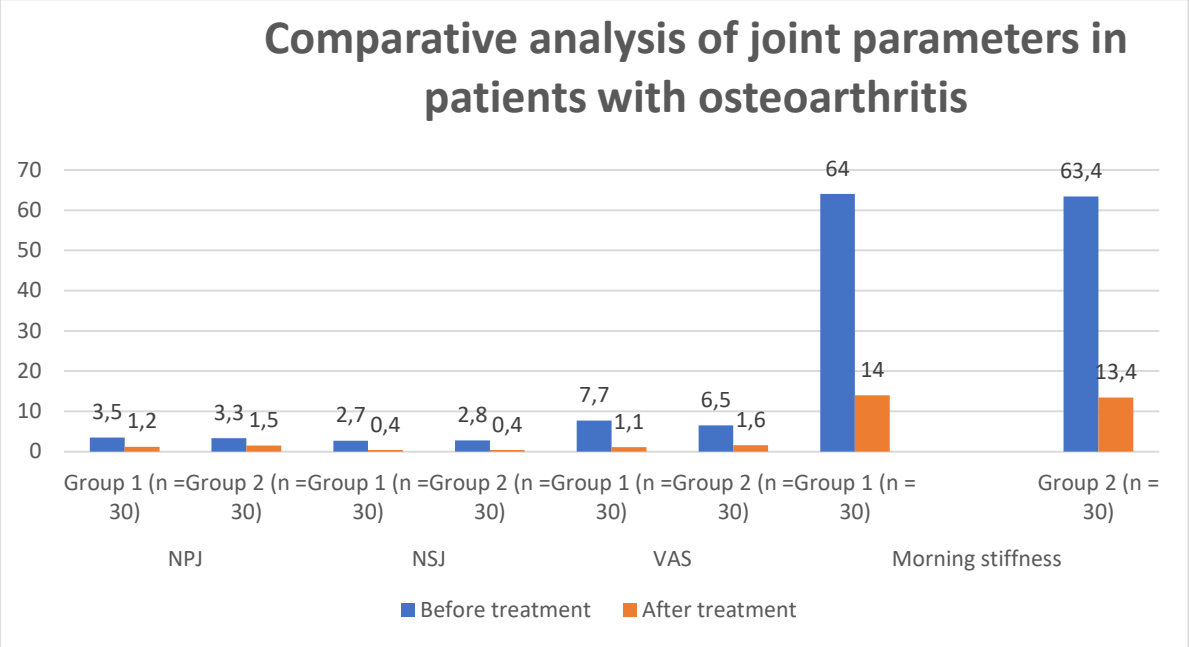
In both groups, the number of painful joints (NPJ), number of swollen joints (NSJ), the VAS index, and morning stiffness duration were assessed. Additionally, complete blood count, rheumatologic tests, and radiographs of the hands and feet were performed.

Results

During the study, clinical and laboratory parameters of patients with OA were evaluated. Comparative analysis of joint parameters, VAS scale scores, and morning stiffness before and after treatment was conducted for both groups.

Table 1

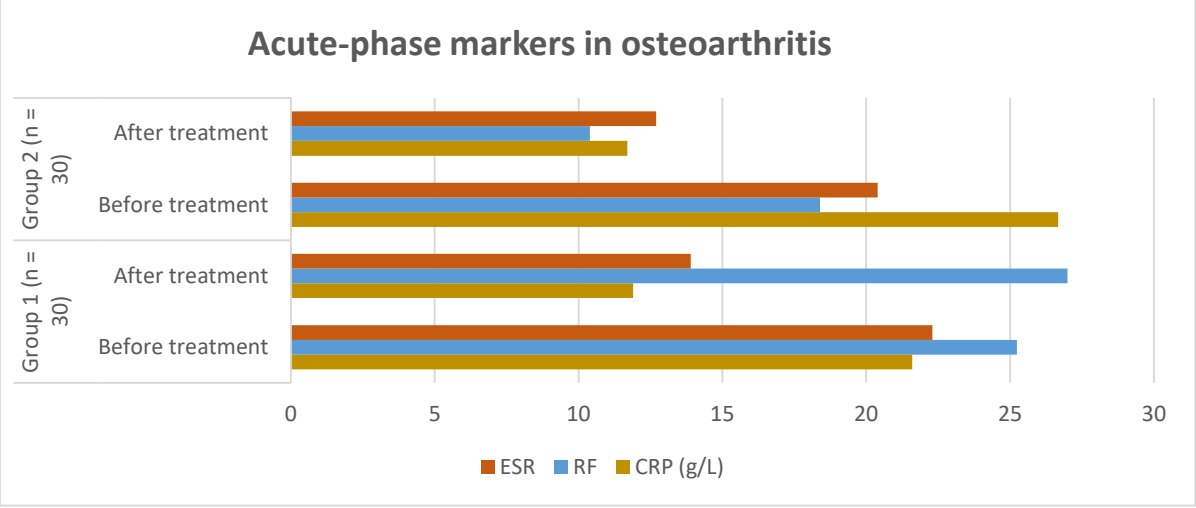
AMERICAN JOURNAL OF EDUCATION AND LEARNING
ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-10| 2025 Published: |30-11-2025|



Note: The significance of the difference between Groups 1 and 2 is indicated as *p < 0.05, **p < 0.01, ***p < 0.001.

The study results showed that morning stiffness, the number of painful joints (NPJ), and the number of swollen joints (NSJ) decreased significantly in Group 2 compared to Group 1 ($p < 0.05$).

Table 2



Note: The significance of the difference between Groups 1 and 2 is indicated as *p < 0.05, **p < 0.01, ***p < 0.001.

According to laboratory results, after treatment, CRP and RF levels decreased significantly in Group 2 compared to Group 1 ($p < 0.001$; $p < 0.0001$).

Conclusion: Based on the results of the study, positive changes were observed in both groups of patients. However, due to the immunostimulatory and other

properties of the biologically active substance in Spinneks, patients in Group 2, who received Spinneks injections, exhibited relatively greater improvements and achieved clinical remission of the disease.

REFERENCES:

1. Allen, K. D., Thoma, L. M., & Golightly, Y. M. (2022). Epidemiology of osteoarthritis. *Osteoarthritis and Cartilage, 30*(2), 184–195. https://doi.org/10.1016/j.joca.2021.04.020
2. Arden N, Nevit MC. Osteoarthritis: Epidemiology. Best Pract Res Clin Rheumatol. 2006 Feb;20(1):3-25. doi:10.1016/j.berh. 2005.09.007
3. Chen, L., Wang, Y., & Liu, Z. (2024). Pharmacological mechanisms and clinical application of chondroprotectors in knee osteoarthritis. *Current Opinion in Pharmacology, 66*, 102284. https://doi.org/10.1016/j.coph.2024.102284
4. Consilium OrScience Group. (2024). Consistent use of injectable and oral chondroprotectors in patients with osteoarthritis and lower back pain. *OrScience Clinical Reports, 15*(3), 145–158. https://doi.org/10.1007/s12325-024-03007-4
5. CPD Clinical Biochemistry. (2025). Clinical outcomes of intra-articular glucosamine-chondroitin in early-stage knee osteoarthritis: A prospective double-blind trial. *CPD Clinical Biochemistry, 62*(2), 58–67. https://cpdclinicalbiochem.co.uk/article/clinical-outcomes-of-intra-articular-glucosamine-chondroitin-in-early-stage-knee-osteoarthritis-a-prospective-double-blind-trial-582
6. Liu, Y., Zhang, H., & Wu, X. (2024). Inflammatory and metabolic mechanisms in osteoarthritis pathogenesis: Implications for chondroprotective therapy. *Frontiers in Medicine, 11*, 1023456. https://doi.org/10.3389/fmed.2024.1023456
7. Lo, J., Chan, L., & Flynn, S. (2021). A systematic review of the incidence, prevalence, costs, and activity and work limitations of musculoskeletal and neurological conditions in the United States: a 2019 update. *Archives of Physical Medicine and Rehabilitation, 102*(1), 115–131. https://doi.org/10.1016/j.apmr.2020.04.001
8. Long, H., Liu, Q., Yin, H., Wang, K., Diao, N., Zhang, Y., Lin, J., & Guo, A. (2022). Prevalence trends of site-specific osteoarthritis from 1990 to 2019: findings from the global burden of disease study 2019. *Arthritis & Rheumatology, 74*(7), 1172–1183. https://doi.org/10.1002/art.42089

9. Mukhsimova N.R.,Sh.A. Shiranova Efficiency of complex treatment of patients with psoriatic arthritis against the background of non-alcoholic fatty liver disease/ // Republican Scientific and Practical Center for Sports Medicine. - Tashkent, 2024. - No. 1-94-98-s.

10. Petrov, A., Ivanov, D., & Sokolov, M. (2025). Evaluation of efficacy and safety of glucosamine sulfate, chondroitin sulfate, and their combination in osteoarthritis: Meta-analysis of randomized controlled trials. *Osteoarthritis and Cartilage, 33*(1), 1–15. https://doi.org/10.1016/j.joca.2025.01.005

11. Rodriguez-Mercado, C., Smith, P., & Gonzalez, R. (2023). Chondroprotectors in osteoarthritis management: a comprehensive review. *Journal of Orthopaedic Research, 41*(6), 1254–1267. https://doi.org/10.1002/jor.25347

12. SCIRP Health Journal. (2025). Prospective short-term observational study of glucosamine complex with chondroprotectors effect in adults with diagnosed knee and/or hip osteoarthritis. *Health, 17*(4), 174–188. https://doi.org/10.4236/health.2025.174015

13. Zhao, W., Li, H., & Chen, Q. (2024). Efficacy of combination chondroitin sulfate plus glucosamine hydrochloride in osteoarthritis: A systematic review. *Clinical Rheumatology, 43*(2), 341–356. https://doi.org/10.1007/s10067-024-06251-8