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FEATURES OF REDUCING THE RADIOLOGICAL PROGRESSION OF SPINAL CORD DAMAGE IN PATIENTS WITH REACTIVE ARTHRITIS

M.A. Artikbayev[1], Kh. S. Akhmedov[2], F.I.Khalmetova[2], S.I.Sadikova[2], S.N.Buranova[2], M.B.Rakhimova[2], B.M.Mirzayeva[2], K.A.Islamova[3]

[1] MD, "IMPULS BSR" Impuls Medical Institute, Namangan, Uzbekistan
[2]Tashkent State Medical University, Uzbekistan
[3]Samarkand State Medical University, Samarkand, Uzbekistan

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ABSTRACT

Reactive arthritis (ReA) represents a heterogeneous group of inflammatory joint diseases associated with urogenital or intestinal infections. The chronic recurrent course of the disease can lead to chronic inflammation of joints, spine, or sacroiliac joints. The heterogeneity of ReA is one of the reasons for the divergent results of laboratory studies, including those related to cytokine status.

Reactive arthritis (ReA) is an inflammatory non-purulent joint disease that develops in close chronological association (usually within 1 month) with a preceding intestinal or urogenital infection. It belongs to the group of seronegative spondyloarthritides and is typically associated with the presence of HLA-B27 antigen. ReA should be distinguished from post-infectious arthritis, which can develop as part of the body's response to any infectious agent. Knowledge of these risk factors can significantly improve early diagnosis of joint syndrome in reactive arthritis among patients in urological, gynecological, and venereological clinics, as early detection of this pathology in the general population is challenging. In most cases, ReA resolves completely; however, in 15-50% of cases, it takes on a chronic or recurrent course. It is known that pro-inflammatory cytokines of the Th1 type, such as IFNγ and TNFα, play a leading role in eradicating the infectious agent, especially in the case of intracellular bacteria. However, alongside these, an important role has also been noted for the overproduction of interleukins, particularly IL-17A and IL-18, which play a direct role

in the development of spondylitis in this category of patients. [12, 14]. The advent of genetically engineered biological agents (GEBAs) has significantly expanded treatment options for patients with rheumatic diseases such as rheumatoid arthritis, ankylosing spondylitis, and psoriatic arthritis. According to the latest EULAR recommendations (June 2016), if therapy with non-steroidal anti-inflammatory drugs (NSAIDs) is ineffective, biological therapy with GEBAs is prescribed. Among these, the most experience has been accumulated with tumor necrosis factor-α inhibitors (TNF-α inhibitors), and if TNF-α inhibitors are ineffective or not tolerated, IL-17 inhibitors may be prescribed [5,7]. The high efficacy and acceptable safety profile of TNF-α inhibitors (both individual drugs and the entire class) in treating rheumatic diseases resistant to traditional NSAIDs has been demonstrated in numerous clinical trials and confirmed by systematic reviews with meta-analyses [6, 8]. The new biological drug secukinumab (AIN457) is the first and only approved representative of a class of recombinant, high-affinity, fully human monoclonal antibodies of the IgG1/kappa subclass that selectively target interleukin-17A (IL-17A).

The purpose of this study: to assess the efficacy of secukinumab in reducing radiological progression of the spine in patients with reactive arthritis.

Materials and methods.

We evaluated the effectiveness of secukinumab at a dose of 150 mg in patients with reactive arthritis (ReA) over 6 months of therapy. The data from our study are presented, which confirmed positive dynamics in 4 evaluated indicators - rapid suppression of inflammation, improvement in well-being, increased functional capacity, and decreased levels of pro-inflammatory cytokines, combined with a favorable safety profile [2,4,7,9]. 98 patients diagnosed with ReA were examined. The control group consisted of 30 healthy volunteers of comparable average age. The patients were divided into two groups: Group I - 68 patients with ReA showing radiological progression of the spine; Group II - 30 patients with ReA without radiological progression of the spine. The average age of patients in group I was 37.5±3.4 years, and in group II 38.8±6.1 years. Disease activity was assessed using the BASDAI scale, functional impairment was evaluated using the BASFI index, BASRI and mSASSS indices were used to assess radiological progression of the spine and sacroiliac joints, and pain was measured using the visual analog scale (VAS). All patients underwent comprehensive clinical, laboratory, and radiological examinations, as well as testing using various scales. To determine IL-17A and IL-18 as the main markers of systemic inflammation and spondylitis, patients' venous blood serum was collected and analyzed using ELISA.

Statistical processing of the research results was carried out using Microsoft Office Excel 2013 and "Statistics" software on a personal computer.

Results.

Clinical studies have shown that the main complaints of patients in both groups were morning stiffness, observed in 82% of patients in both groups; night and day back pain was reported by 95% of patients in group I and 46% in group II; joint swelling was noted in 72% of group I and 39% of

group II patients. The assessment of ReA activity using the BASDAI scale showed an average level of 7.01±0.9 points in group I and 4.5±1.1 points in group II ($p<0.05$). The evaluation of activity on the ASDAS scale showed an average level of 4.09±1.2 points in group I and 2.7±1.2 points in group II ($p<0.02$), indicating a very high activity of the pathological process and high activity in group I. A comparative analysis of the scales, as well as clinical and laboratory data of patients in both groups, revealed higher LEFS, BASDAI, BASFI, and VAS indices in the main group compared to the control group - 39.2±1.4, 6.2±0.8 and 3.8±0.7, 5.8±0.7 and 17.3±1.1, 2.4±0.7, 3.2±0.9 and 1.8±0.4, respectively, indicating the severity of functional impairments (Figure 1).

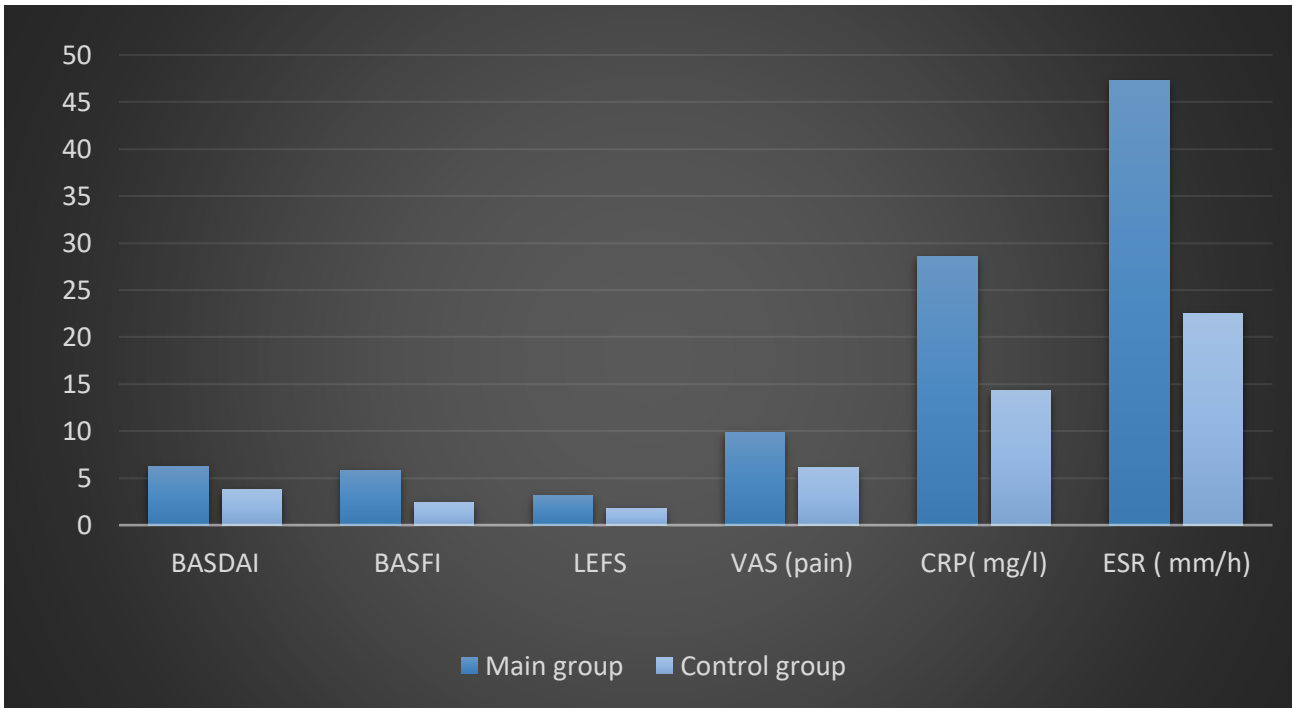

Figure 1. Comparative characteristics of scales, indices, and blood parameters of patients in the main and control groups

The study of pain intensity using the VAS showed 8.9±2.2 in group I and 6.6±1.4 in group II ($p<0.05$). Laboratory tests revealed an average erythrocyte sedimentation rate (ESR) of 41.1±5.5 mm/h in group I and 34.4±4.1 mm/h in group II ($p<0.05$). The level of C-reactive protein (CRP) was elevated in both groups (23.4±3.2 mg/L and 14.9±5.1 mg/L respectively), indicating high ReA activity in both study groups. Radiological examinations revealed that 10% of patients in group I and 8% in group II had stage I radiological ReA, 42% and 39% had stage II, 33% and 41% had stage III, and 15% and 12% respectively had stage IV sacroiliitis. Assessment of the spinal radiological progression index showed the highest values in patients of group I compared to group II (Figure 2).

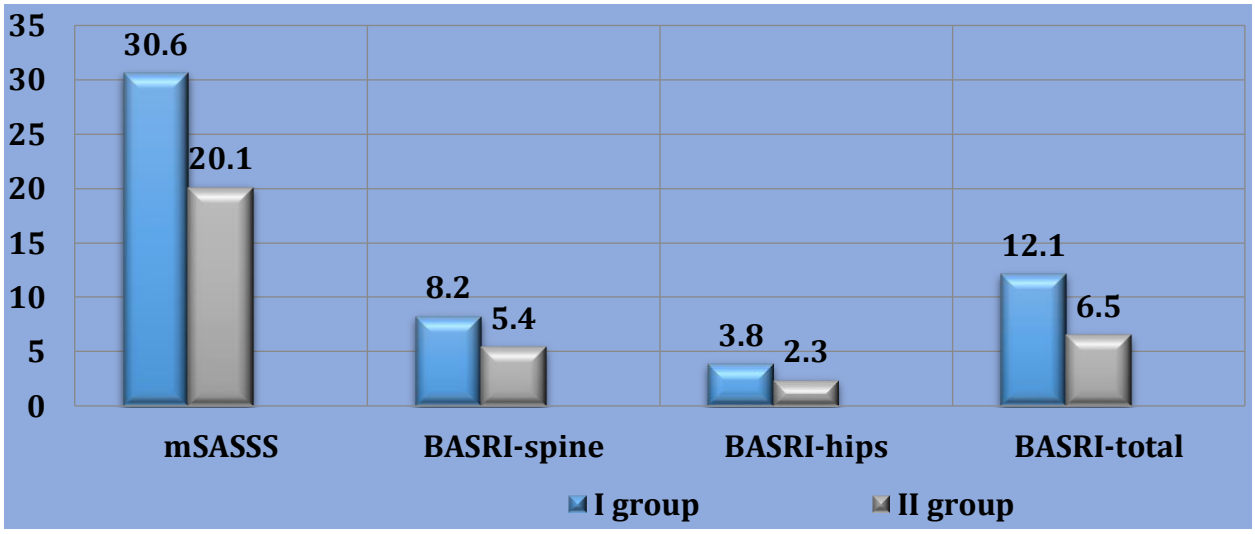

Fig. 2 Radiological progression indices in the studied groups

Patients of both groups received traditional therapy in the hospital setting, including nonsteroidal anti-inflammatory drugs, doxycycline at a dose of 200 mg per day for 2 weeks, basic therapy including sulfasalazine, and genetically engineered biological drugs (GIBP) according to the recommendations of the Ministry of Health of the Republic of Uzbekistan. Secukinumab was recommended at a dose of 150 mg as subcutaneous injections once a week, for 2-4 weeks. During 12 months of follow-up observation, secukinumab treatment achieved low disease activity, which persisted for 6 months. In patients receiving standard treatment without secukinumab, after a slight decrease in activity, an increase was observed again. The effectiveness of Secukinumab was assessed by a decrease in the levels of IL-17A and IL-18, as well as the indices of radiological progression of the spine.

Conclusions.

Thus, reactive arthritis represents a heterogeneous group of inflammatory joint diseases associated with urogenital or intestinal infection, and the chronic recurrent course of the disease can lead to chronic inflammation of the joints, spine, or sacroiliac joints, as well asto investigate the cytokine profile, namely IL-17A and IL-18 in patients with reactive arthritis, to assess the risk of developing radiological progression of the spine.

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