American Journal of Medicine and Medical Sciences 2025, 15(3): 501-503
DOI: 10.5923/j.ajmms.20251503.03

Quality of Life in Patients with Psoriatic Arthritis

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Abstract Background: Psoriatic arthritis is a chronic, progressive systemic disease associated with psoriasis, characterized by an inflammatory process in the musculoskeletal system leading to joint damage, systemic disorders, and comorbid conditions. Methotrexate, an antimetabolite with anti-inflammatory and immunomodulatory properties, remains a cornerstone of therapy. This study evaluates the impact of injectable methotrexate on the quality of life in patients with psoriatic arthritis. Objective: To assess the quality of life in patients with psoriatic arthritis before and after treatment with injectable methotrexate, focusing on its influence on social well-being and psychological adaptation. Methods: A total of 45 patients diagnosed with psoriatic arthritis were included in the study. Clinical, laboratory, and instrumental evaluations were conducted, including assessments of skin manifestations (PASI index), articular syndrome (Ritchie index, VAS, LEI), and radiographic and ultrasound imaging. The Dermatological Life Quality Index (DLQI) questionnaire was used to evaluate the impact of psoriatic arthritis on patients' social and psychological well-being. Patients received 10–12 weekly intramuscular injections of methotrexate (15 mg) with folic acid supplementation. Results: Injectable methotrexate demonstrated a therapeutic effect in 39 of 45 (86.7%) patients. Prior to treatment, DLQI scores averaged 24.5±3.3, reflecting a strong negative impact of psoriatic arthritis on quality of life. Post-treatment, DLQI scores significantly improved to 9.8±1.9 ($p<0.05$), with notable reductions in joint pain and stiffness (1.6±0.1 points) and improved daily activities, work performance, and social interactions. Few side effects were observed during treatment. Conclusion: Treatment with injectable methotrexate significantly reduces the impact of psoriatic arthritis on patients' quality of life, improving both physical and psychological well-being. Regular monitoring and management of psychological factors are essential to optimize outcomes in psoriatic arthritis therapy.

Keywords Psoriatic arthritis, Methotrexate, Quality of life, DLQI, Immunomodulatory therapy, Psoriasis

1. Introduction

Psoriasis is an immune-associated disease of multifactorial etiology with a proven genetic nature, manifested by proliferation of epidermocytes and impaired differentiation, an imbalance between pro-inflammatory and anti-inflammatory cytokines [5,7,8,14]. With psoriasis, in addition to the skin, the joint apparatus is quite often affected, and in these cases we are talking about psoriatic arthritis, which is a chronic progressive systemic disease. According to modern concepts, the pathogenesis of psoriatic arthritis is based on a complex combination of genetically determined and acquired defects, an imbalance of immunoregulatory mechanisms that limit the pathological activation of the immune system in response to potentially pathogenic environmental factors (infections, disruption of the intestinal microbiome, etc.) [1,4,8,15]. The inflammatory process in the musculoskeletal system leads to the development of erosive arthritis, sacroiliitis, spondyloarthritis, enthesitis and intra-articular osteolysis, as well as systemic disorders and various comorbid conditions [1,8].

Received: Feb. 6, 2025; Accepted: Feb. 27, 2025; Published: Mar. 5, 2025
Published online at http://journal.sapub.org/ajmms

Considering the complexity of the pathogenetic mechanisms of psoriasis, there are certain problems in choosing adequate therapy, including the use of modern genetically engineered biological drugs. A wide range of medications and physiotherapeutic treatment methods allows a completely individualized approach to the patient, both taking into account the objective clinical picture, concomitant pathology, and taking into account the psycho-emotional state and subjective feelings of the patient [9,10,14,15]. For many years, methotrexate has been used in the treatment of psoriasis and especially psoriatic arthritis, and its low doses allow it to have an anti-inflammatory and immunomodulatory effect, so necessary in patients with psoriasis [6,13,14]. It should be noted that methotrexate is an antimetabolite that is an antagonist of folic acid, which has a pronounced cytostatic effect, which is caused by a decrease in the activity of the enzyme dihydrofolate reductase, which causes a decrease in the content of tetrahydrofolate in cells [3,11]. Low doses of methotrexate provide activation of cellular adenosine receptors through the influence of glutamated derivatives, which leads to the release of adenosine, which has pronounced anti-inflammatory activity. Due to its good clinical effect and tolerability, methotrexate has remained the drug of choice among many immunosuppressants in the treatment of

patients with psoriasis for many decades.

Great importance is currently paid to the quality of life of patients with moderate and severe psoriasis, including patients with psoriatic arthritis, for whom the duration and timing of remission are of particular relevance. Decreased psychological adaptation, limitation of professional activity, increased anxiety and depression, discomfort during communication are the factors that determine the low level of quality of life of patients with psoriasis [2]. One of the most common in practical dermatology is the Dermatological Quality of Life Index (DIQL), since the questionnaire is understandable for the patient and, as a rule, no additional explanation is required for filling out [6,12].

The purpose of this study was to assess the quality of life of patients with psoriatic arthritis before and after the use of injectable methotrexate from the point of view of the impact on the social well-being of patients.

2. Material and Methods

A total of 45 patients with a confirmed diagnosis of psoriatic arthritis were included in the study. Comprehensive clinical, laboratory, and instrumental evaluations were conducted for all participants. Skin manifestations were assessed using the Psoriasis Area and Severity Index (PASI). The articular syndrome was evaluated through several parameters: the number of painful joints, the Ritchie Index (measuring joint tenderness on palpation, scored in points), patient-reported joint pain intensity using a Visual Analogue Scale (VAS, measured in millimeters), the Leeds Enthesitis Index (LEI), and the presence of inflammatory back pain based on the Assessment of SpondyloArthritis International Society (ASAS) criteria.

Radiographic studies of bones and joints included imaging of the affected joints, as well as the hands, feet, and sacroiliac joints. Additionally, ultrasound examinations of the joints and the tendon-ligamentous apparatus were performed, incorporating energy Doppler mapping to detect inflammatory changes.

The impact of psoriasis on patients' social and psychological well-being, as well as their daily activities, was evaluated using the Dermatology Life Quality Index (DLQI) questionnaire, which comprises 10 questions. After completing the questionnaire, responses were scored to quantify the extent of impairment in quality of life.

All patients received injectable methotrexate therapy at a weekly dose of 1.5 mL (15 mg). The treatment course consisted of 10–12 weekly injections, supplemented with mandatory folic acid administration to mitigate potential adverse effects.

3. Results and Discussion

Treatment with injectable methotrexate demonstrated a significant therapeutic effect in 39 of 45 (86.7%) patients diagnosed with psoriatic arthritis. The therapy was well-tolerated, with virtually no side effects observed at a dose of 1.5 ml (15 mg) administered intramuscularly once a week for 10–12 weeks. The absence of significant adverse reactions highlights the safety profile of methotrexate at this dosing regimen, making it a reliable choice for long-term management.

To validate the therapeutic effect, the impact of methotrexate on key parameters of articular syndrome and overall quality of life (QoL) was thoroughly evaluated. Given the direct correlation between articular symptoms and QoL, assessing improvements in both domains provided comprehensive insights into the efficacy of the treatment.

Before initiating therapy, 85.5% of patients reported that psoriatic arthritis had an extremely strong negative impact on their QoL, as measured by the Dermatological Life Quality Index (DLQI). The mean baseline DLQI score was 24.5±3.3 points, reflecting severe disruption across multiple aspects of daily life. Among the individual domains, the "symptoms and sensations" section scored the highest (5.5±1.2 points), underscoring the prominence of pain, stiffness, and restricted joint mobility. These physical limitations were compounded by impairments in daily activities (3.8±0.7 points), leisure and recreation, including sports participation (4.1±0.9 points), and work performance (5.9±0.7 points). The "interpersonal relationships" domain also exhibited significant deficits, with a mean score of 4.9±0.5 points, indicating strained social interactions. Interestingly, the "treatment" domain showed a relatively low score of 1.5±0.2 points, as most patients were using topical corticosteroids with limited systemic efficacy before methotrexate treatment.

Following methotrexate therapy, marked improvements were observed across all DLQI domains. The average post-treatment DLQI score decreased significantly to 9.8±1.9 points ($p<0.05$), reflecting a substantial reduction in the overall burden of psoriatic arthritis. Notably, patients reported significant alleviation of joint pain and stiffness, with the "symptoms and sensations" score improving to 1.6±0.1 points. This reduction indicated minimal residual discomfort and a near-complete resolution of articular symptoms in most patients.

Improvements in physical function translated into enhanced social and occupational activities. Patients experienced a notable increase in their ability to perform daily activities, participate in recreational activities, and engage in professional tasks. The "work and study" domain score dropped to 2.8±0.3 points, suggesting a restored capacity for productivity. Similarly, the "recreation" domain score improved to 2.5±0.4 points, reflecting patients' ability to resume sports and leisure activities. Interpersonal relationships also benefited, with the average score decreasing to 2.3±0.3 points, indicating improved social well-being and communication.

The "treatment" domain score increased slightly to 2.9±0.2 points after methotrexate therapy, reflecting the additional effort required for regular injections compared to previous topical therapies. However, this minor inconvenience was overshadowed by the significant therapeutic benefits achieved.

Overall, methotrexate therapy not only alleviated the physical symptoms of psoriatic arthritis but also addressed

the psychological and social aspects of the disease. The observed improvement in DLQI demonstrates that effective control of articular syndrome leads to a profound enhancement in patients' overall quality of life. These findings underscore the importance of comprehensive management strategies that prioritize both clinical outcomes and patients' social and emotional well-being.

The results of this study align with previous research highlighting methotrexate's efficacy as an anti-inflammatory and immunomodulatory agent in psoriatic arthritis. Furthermore, the data emphasize the value of consistent QoL assessments, such as the DLQI, in evaluating therapeutic outcomes. Future studies could explore the long-term effects of methotrexate, including its impact on disease remission and prevention of joint deformities, as well as its combination with other biologic therapies for enhanced efficacy.

4. Conclusions

The presence of articular syndrome in patients with psoriasis is accompanied by significant changes in the psychological reaction of these patients. Improvement and disappearance of manifestations of articular syndrome, due to the use of injectable methotrexate, significantly improves the quality of life of patients. Constant monitoring of psychological factors and their correction have an extremely beneficial effect on the course of the psoriatic process.

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