The Relationship Between Systemic Inflammation and Chronic Pain in Patients with Psoriasis: Evaluating the Efficacy of Analgesic Therapies

A Relação entre Inflamação Sistêmica e Dor Crônica em Pacientes com Psoríase: Avaliando a Eficácia de Terapias Analgésicas

La Relación entre la Inflamación Sistémica y el Dolor Crónico en Pacientes con Psoriasis: Evaluando la Eficacia de las Terapias Analgésicas

RESUMO

A psoríase, tradicionalmente reconhecida como uma doença dermatológica, é hoje entendida como uma condição inflamatória sistêmica com múltiplas manifestações, incluindo dor crônica musculoesquelética. O objetivo deste artigo é explorar a correlação entre a inflamação sistêmica e os mecanismos de dor crônica em pacientes com psoríase, bem como avaliar a eficácia das terapias analgésicas utilizadas no manejo desses sintomas. Foram analisados estudos recentes sobre o papel de citocinas inflamatórias, como TNF-α, IL-6 e IL-17, no desenvolvimento da dor, além das intervenções analgésicas farmacológicas e não farmacológicas aplicadas. Conclui-se que o controle da inflamação sistêmica pode reduzir significativamente a dor crônica, reforçando a importância de uma abordagem integrada entre reumatologistas, dermatologistas e médicos da dor.

DESCRITORES: Psoríase; Inflamação Sistêmica; Dor Crônica; Terapia Analgésica; Citocinas

ABSTRACT

Psoriasis, traditionally recognized as a dermatological disease, is now understood as a systemic inflammatory condition with multiple manifestations, including chronic musculoskeletal pain. This article aims to explore the correlation between systemic inflammation and the mechanisms of chronic pain in patients with psoriasis, as well as evaluate the effectiveness of analgesic therapies used to manage these symptoms. Recent studies on the role of inflammatory cytokines, such as TNF-α, IL-6, and IL-17, in the development of pain are analyzed, along with pharmacological and non-pharmacological analgesic interventions. It is concluded that controlling systemic inflammation can significantly reduce chronic pain, reinforcing the importance of an integrated approach among rheumatologists, dermatologists, and pain specialists.

DESCRIPTORS: Psoriasis; Systemic Inflammation; Chronic Pain; Analgesic Therapy; Cytokines.

RESUMEN

La psoriasis, tradicionalmente reconocida como una enfermedad dermatológica, es hoy entendida como una condición inflamatoria sistémica con múltiples manifestaciones, incluyendo dolor crónico musculoesquelético. El objetivo de este artículo es explorar la correlación entre la inflamación sistémica y los mecanismos del dolor crónico en pacientes con psoriasis, así como evaluar la eficacia de las terapias analgésicas utilizadas en el manejo de estos síntomas. Se analizaron estudios recientes sobre el papel de citocinas inflamatorias, como TNF-α, IL-6 e IL-17, en el desarrollo del dolor, además de las intervenciones analgésicas farmacológicas y no farmacológicas aplicadas. Se concluye que el control de la inflamación sistémica puede reducir significativamente el dolor crónico, reforzando la importancia de un abordaje integrado entre reumatólogos, dermatólogos y especialistas en dolor.

DESCRIPTORES: Psoriasis; Inflamación Sistémica; Dolor Crónico; Terapia Analgésica; Citocinas

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INTRODUCTION

Psoriasis is a chronic, immune-mediated inflammatory condition that, although classically associated with skin lesions, is increasingly recognized as a systemic disease with multi-organ impacts. In addition to dermatological manifestations, patients with psoriasis are more prone to metabolic, cardiovascular, and musculoskeletal comorbidities, especially chronic pain.

This pain can arise from different

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mechanisms, such as the presence of psoriatic arthritis, persistent activation of inflammatory pathways, and even central sensitization—a phenomenon in which the central nervous system amplifies pain signals in response to ongoing inflammation. Pro-inflammatory cytokines such as tumor necrosis factor alpha (TNF-α), interleukin-6 (IL-6), and interleukin-17 (IL-17), which are fundamental in the pathophysiology of psoriasis, also play an active role in pain modulation.

Given this, controlling systemic inflammation becomes a strategic therapeutic goal not only for the treatment of skin manifestations, but also for pain relief and improving the quality of life of these patients. Understanding this interrelationship between inflammation and pain is essential for the development of more effective, integrated, and personalized clinical approaches.

OBJECTIVE

The main objective of this study is to analyze the correlation between systemic inflammation mechanisms and the development of chronic pain in patients with psoriasis, considering both those with psoriatic arthritis and those with musculoskeletal pain in the absence of obvious joint manifestations. In addition, it seeks to evaluate the efficacy of different analgesic therapeutic strategies—pharmacological and non-pharmacological—used in the management of these patients, focusing on the response to inflammatory modulation and the impact on quality of life.

METHODOLOGY

This is a narrative review of the literature, with a descriptive and analytical focus, conducted through the careful selection of national and international scientific publications. Articles published in the last 15 years, available in the SciELO, LILACS, and Web of Science databases, that addressed the relationship between psoriasis, systemic inflammation, chronic pain, and analgesic therapeutic interventions were included.

The descriptors used for the search were selected from the DeCS (Health Sciences Descriptors) platform and included the terms: "Psoriasis," "Chronic Pain," "Systemic Inflammation," "Cytokines," and "Analgesic Therapy," combined by Boolean operators (AND/OR). The inclusion criteria involved clinical studies, systematic reviews, meta-analyses, and randomized controlled trials that addressed the pathophysiological mechanisms of pain in psoriasis, as well as the evaluation of the efficacy of therapies aimed at controlling pain and inflammation.

Studies with pediatric populations, isolated case reports, duplicate articles between databases, and publications with restricted access to the full text were excluded. The analysis of the collected data was performed qualitatively, seeking to identify patterns, consensuses, and gaps in current scientific knowledge on the subject.

DISCUSSION

Chronic pain in patients with psoriasis represents a significant clinical challenge, whose origin is multifactorial and strongly associated with the systemic inflammatory process characteristic of the disease. Joint inflammation, especially in cases of psoriatic arthritis—present in approximately 30% of psoriatic patients—is one of the main sources of persistent pain. In these cases, pain is often accompanied by morning stiffness, joint swelling, and progressive functional loss. However, even patients without a formal diagnosis of arthritis may experience diffuse musculoskeletal pain, raising questions about additional mechanisms involved.

One of the pillars in understanding chronic pain in psoriasis is sustained systemic inflammation. Continuous immune activation promotes the release of pro-inflammatory cytokines such as TNF-α, IL-1β, IL-6, and IL-17, which act not only to perpetuate skin lesions but also to sensitize peripheral nociceptors.

> "This sensitization contributes to the development of hyperalgesia and allodynia, i.e., increased pain response to noxious stimuli and pain in response to stimuli that would not normally cause pain, respectively."

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Chronic exposure to these cytokines also alters the physiology of the central nervous system, leading to the activation of microglia and the amplification of neuronal pathways responsible for pain perception—a phenomenon known as central sensitization.

Clinical and experimental studies show that patients with psoriasis have elevated levels of inflammatory markers, such as C-reactive protein (CRP), fibrinogen, and IL-6, even in the absence of obvious joint manifestations. This reinforces the hypothesis that pain may be related to a subclinical inflammatory state, capable of modifying the pain perception threshold and contributing to chronic symptoms. In addition, there is an increased prevalence of symptoms such as chronic fatigue, sleep disorders, and depressive symptoms in this population, factors that potentiate the chronicity of pain and require an expanded therapeutic approach.

The treatment of pain in patients with psoriasis should, therefore, go beyond symptomatic relief and focus on controlling systemic inflammation. Pharmacological approaches include the use of nonsteroidal anti-inflammatory drugs (NSAIDs), with limited efficacy and cautious use due to gastrointestinal, cardiovascular, and renal adverse effects. Systemic corticosteroids are generally avoided due to the risk of exacerbation of skin lesions after discontinuation of use. Biological agents, such as TNF-α, IL-17, and IL-23 inhibitors, have been shown to be highly effective not only in improving psoriatic plaques but also in significantly reducing chronic pain associated with inflammation.

Additionally, adjuvant medications such as tricyclic antidepressants, serotonin and norepinephrine reuptake inhibitors (e.g., duloxetine), and anticonvulsants (such as pregabalin and gabapentin) play an important role in the treatment of neuropathic pain or pain with a central component. These classes act to modulate nerve transmission and help reduce pain perception in patients with central sensitization.

Non-pharmacological strategies are also noteworthy, especially when integrated into a multidisciplinary treatment plan. Interventions such as physical therapy focused on functional rehabilitation, low-impact exercises, psychotherapy (especially cognitive-behavioral therapy), mindfulness techniques, acupuncture, and noninvasive neuromodulation have shown promising results. These approaches help break the pain-anxiety-avoidance cycle, reduce emotional distress, and encourage patient engagement in self-care.

Thus, the management of chronic pain in patients with psoriasis requires a comprehensive understanding of the underlying immunoinflammatory mechanisms, combined with a therapeutic approach that combines pharmacological and non-pharmacological interventions in an individualized manner. Recognizing psoriasis as a systemic inflammatory condition—and not just a skin condition—is essential to providing more comprehensive and effective care, focusing not only on the skin, but also on the patient's pain, functionality, and quality of life.

CONCLUSION

Understanding psoriasis as a systemic inflammatory condition—and not merely a skin condition—is essential for the appropriate clinical approach to its multiple impacts, especially with regard to chronic pain. The literature shows that the sustained inflammatory process, mediated by cytokines such as TNF-α, IL-6, and IL-17, is directly associated with the activation of peripheral and central nociceptive pathways, contributing to the perpetuation of pain even in the absence of objective joint signs. This situation reinforces the need for comprehensive clinical investigation that goes beyond dermatological evaluation and includes rheumatological, neurological, and psychosocial aspects.

The positive response observed in patients undergoing biological therapies, with a significant reduction in painful symptoms, supports the importance of controlling inflammation as an effective analgesic strategy. In this context, the treatment of pain in psoriasis should be individualized and multidisciplinary, combining pharmacological and non-pharmacological interventions, focusing not only on the remission of skin lesions, but also on the restoration of functionality and overall improvement in quality of life.

Therefore, recognizing and treating chronic pain as a relevant manifestation of psoriasis is a crucial step in ensuring more comprehensive and humanized care, in line with advances in precision medicine and the real needs of patients.

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References

1. Griffiths CEM, Armstrong AW, Gudjonsson JE, Barker JNWN. Psoriasis. Lancet. 2021;397(10281):1301–15.

2. Lowes MA, Suarez-Farinas M, Krueger JG. Immunology of psoriasis. Annu Rev Immunol. 2014;32:227–55.

3. Mease PJ, Armstrong AW. Managing patients with psoriatic disease: The diagnosis and pharmacologic treatment of psoriatic arthritis in patients with psoriasis. Drugs. 2014;74(4):423–41.

4. Boehncke WH, Schön MP. Psoriasis. Lancet. 2015;386(9997):983–94.

5. Veale DJ, Fearon U. The pathogenesis of psoriatic arthritis. Lancet. 2018;391(10136):2273–84.

6. Taylor WJ, Mease PJ, Helliwell PS, et al. Classification criteria for psoriatic arthritis: Development of new criteria from a large international study. Arthritis Rheum. 2006;54(8):2665–73.

7. Kavanaugh A, Mease PJ, Reimold A, et al. Comparison of ixekizumab and adalimumab for the treatment of biologic-naive patients with psoriatic arthritis: Results from a randomized, controlled trial. Arthritis Rheumatol. 2020;72(1):49–62.

8. Gladman DD, Antoni C, Mease P, Clegg DO, Nash P. Psoriatic arthritis: Epidemiology, clinical features, course, and outcome. Ann Rheum Dis. 2005;64 Suppl 2:ii14–7.

9. Gossec L, Smolen JS, Ramiro S, et al. European League Against Rheumatism (EULAR) recommendations for the management of psoriatic arthritis. Ann Rheum Dis. 2016;75(3):499–510.

10. Nestle FO, Kaplan DH, Barker J. Psoriasis. N Engl J Med. 2009;361(5):496–509.

11. McInnes IB, Mease PJ, Kirkham B, et al. Secukinumab, a human anti–interleukin-17A monoclonal antibody, in patients with psoriatic arthritis. N Engl J Med. 2015;373(14):1329–39.

12. Chandran V, Raychaudhuri SP. Geoepidemiology and environmental factors of psoriasis and psoriatic arthritis. J Autoimmun. 2010;34(3):J314–21.

13. Ogdie A, Weiss P. The Epidemiology of Psoriatic Arthritis. Rheum Dis Clin North Am. 2015;41(4):545–68.

14. Fala L. Taltz (Ixekizumab): A IL-17A Monoclonal Antibody Approved for the Treatment of Adults with Active Psoriatic Arthritis. Am Health Drug Benefits. 2018;11(7):353–7.

15. Fitzgerald O, Winchester R. Psoriatic arthritis: from pathogenesis to therapy. Arthritis Res Ther. 2009;11(1):214.

16. Wu JJ, Strober BE, Hansen PR, et al. Effects of interleukin-17 inhibitors on cardiovascular outcomes in patients with psoriasis or psoriatic arthritis: A systematic review. J Am Acad Dermatol. 2020;82(6):1490–500.

17. Zis P, Vasileiou I, Siafakas N. Pain in patients with psoriatic disease: A review. Rheumatol Int. 2020;40(2):157–64.

18. Coates LC, Helliwell PS. Treating to target in psoriatic arthritis: How to implement in clinical practice. Ann Rheum Dis. 2016;75(4):640–3.

19. Dougados M, Baeten D. Spondyloarthritis. Lancet. 2011;377(9783):2127–37.

20. Ritchlin CT, Colbert RA, Gladman DD. Psoriatic Arthritis. N Engl J Med. 2017;376(10):957–70.

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