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Original article

Intra-articular injections of triamcinolone hexacetonide in rheumatoid arthritis: short and long-term improvement predictors

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ABSTRACT

Objectives: Identify good response predictors to intra-articular injection (IAI) with triamcinolone hexacetonide (TH).
Methods: This study was carried out in rheumatoid arthritis (RA) patients (American College of Rheumatology criteria) submitted to IAI (mono, pauci or polyarticular injection).
Assessment: a "blinded" observer prospectively evaluated joints at one week (T1), four weeks (T4), twelve weeks (T12) and 24 weeks (T24) after IAI. Outcome measurements included Visual Analogue Scale (0-10 cm) at rest, in movement and for swollen joints. Clinical, demographic and variables related to injection at baseline were analyzed according to IAI response.
Results: We studied 289 patients with RA (635 joints) with a mean age of 48.7 years (±10.68), 48.5% of them Caucasians, VAS for global pain = 6.52 (±1.73). Under univariate analysis, the variables relating the best responses following IAI (improvement > 70%) were: "elbow and metacarpophalangeal (MCP) IAI, and functional class II". Under multivariate analysis, "males" and "non-whites" were the predictors with the best response to IAI at T4, while "elbow and MCP IAI", "polyarticular injection", "use of methotrexate" and "higher total dose of TH" obtained the best response at T24.
Conclusion: Several predictors of good response to IAI in patients with RA were identified. The best-response predictors for TH IAI of long term were "inject elbow and MCP IAI" and "perform polyarticular injection".
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Infiltrações intra-articulares de triancinolona hexacetonida na artrite reumatóide: preditores de melhora a curto e longo prazo

Palavras-chave:
Infiltração
Triancinolona hexacetonida
Artrite reumatoide
Prognósticos

RESUMO

Objetivos: Identificar fatores preditores de resposta à infiltração intra-articular (IIA) com hexacetonide de triancinolona (HT).

Métodos: Este estudo foi realizado em pacientes com artrite reumatoide (AR) (segundo critérios do *American College of Rheumatology*) submetidos à IIA (infiltração mono, pauci ou poliarticular).

Avaliação: Um observador "cego" avaliou prospectivamente as articulações uma semana (T1), quatro semanas (T4), 12 semanas (T12) e 24 semanas (T24) após IIA. As medidas de desfecho foram Escala Visual Analógica (0-10 cm) em repouso, em movimento e para articulações edemaciadas. As variáveis clínicas e demográficas e aquelas relacionadas à infiltração no início do estudo foram analisadas de acordo com a resposta à IIA.

Resultados: Foram estudados 289 pacientes com AR (635 articulações) com média de idade de 48,7 (± 10,68) anos; 48,5% eram caucasianos, EVA para dor global = 6,52 (± 1,73). Na análise univariada, as variáveis relativas às melhores respostas seguida à IIA (melhora >70%) foram: "IIA no cotovelo e metacarpofalangeanas (MCF)" e "classe funcional II". Na análise multivariada, "homens" e "não brancos" foram os preditores com melhor resposta à IIA em T4, enquanto "IIA no cotovelo e MCF", "infiltração poliarticular", "uso de metotrexato" e "dose total maior de HT" obtiveram a melhor resposta em T24.

Conclusão: Foram identificados diversos fatores preditores de boa resposta à IIA em pacientes com AR. Os preditores de melhor resposta para IIA de HT em longo prazo foram "realizar IIA no cotovelo e MCF" e "realizar infiltração poliarticular".

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Introduction

Although intra-articular injection of corticosteroids (IAIC) has been a commonly used procedure among rheumatologists for over half a century,[1] few studies have been conducted to demonstrate its benefits in accordance to scientific methodology.

Rheumatoid arthritis (RA) is the rheumatic condition that most severely affects the joints. *Pannus*, the hypertrophic and hyperplasic synovial membrane formed, is an aggressive tissue that damages articular and periarticular structures, whether through the release of metaloproteinases or its mechanical invasion of the surrounding joint space.[2–4]

Even though RA treatment has evolved in recent decades with the advent of immunobiological therapy allied with disease-modifying antirheumatic drugs (DMARDs),[5] patients with mono or oligoarticular synovitis may persist. In these cases, IAIC can be a useful therapeutic tool.

It is known that triamcinolone hexacetonide (TH) is the drug of choice for intra-articular treatment of RA, given its synovial atrophying properties and slow absorption from the injection site.[6–13] On the other hand, if injected outside of the joint, it can cause serious adverse local effects.[14]

Though some concepts concerning IAIC have been established, few studies have been conducted to evaluate response predictors in adult RA patients.[15] In addition, to the best of our knowledge, none of them evaluated TH IAIC response predictors in patients with established RA.

The aim of this study was to identify variables (clinical, demographic and related to injection) that serve as the best predictors of response to TH IAIC over short term (4 weeks) and long term (24 weeks) in patients with established RA.

Materials and methods

A prospective non-controlled study was conducted on a cohort of patients with established RA receiving treatment at the Interventional Rheumatology Unit at Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil.

Patients were classified according to American College of Rheumatology – ACR[16] criteria, and had been referred for IAIC (mono, pauci or polyarticular).

Inclusion criteria were: age between 18 and 65; functional class II or III;[17] stable DMARD for the last 3 months; stable oral corticosteroid for the last month; indication for IAIC injection (persistent synovitis with swelling and articular pain) and must have signed the informed consent form.

Exclusion criteria were: IAIC in any joint within the last 6 months; any symptoms of systemic or articular infection; any form of clotting disturbance; diagnosis of diabetes *mellitus* or systemic arterial hypertension; known allergy to contrasts or radioisotopes, and suspicion of pregnancy.

Most of the joints injections were not guided. Fluoroscopy and ultrasound were used for guided injections, as needed. Image-guided IAIC was recommended in cases of difficult blind access or where the use of radioisotopes was recommended.

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