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#### Original article

# Intra-articular injection in patients with juvenile idiopathic arthritis: factors associated with a good response

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#### ABSTRACT

Introduction: Intra-articular injection of corticosteroids (IIC) for treatment of patients with juvenile idiopathic arthritis (JIA) is increasingly used in Pediatric Rheumatology. Objectives: To describe the clinical course of patients undergoing IIC in our Pediatric Rheumatology Unit.

Methods: Retrospective study of patients with JIA undergoing IIC from January 2008 to December 2012, with a minimum follow-up of six months after the injection. Good response to IIC was set as the presence of inactivity on the infiltrated joint by at least six months. Results: Eighty-eight patients underwent a total of 165 IICs. Of these, 75% were girls and 35.2% had persistent oligoarticular JIA. The mean age at diagnosis was 6.8 years, and when IIC was carried out, 12.2 years. Regarding patients, younger age at diagnosis (p=0.037) and the occurrence of uveitis in the course of the disease (p=0.015) were associated with good response to IIC. From 165 IICs, 63% had a good response and joints remained inactive for a median of 18.1 months. The type of joint injection (p=0.001), lesser values stated in the overall visual analog scale by the physician (p=0.015) and by parents/patient (p=0.01) have been associated with a good response to IIC. Nine adverse events (5.4%) were observed. Conclusion: In our study, more than half of the joints showed a good response to IIC. Younger patients at diagnosis and uveitis during the course of the disease had good response to IIC. Knees, wrists and elbows were the joints that best responded to IIC. IIC proved to be a safe procedure.

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## Infiltração intra-articular em pacientes com artrite idiopática juvenil: fatores associados à boa resposta

RESUMO

Palavras-chave: Infiltração intra-articular Artrite idiopática juvenil Hexacetonido de triancinolona Tratamento e uveíte Introdução: A infiltração intra-articular de corticosteroides (IIC) para tratamento de pacientes com artrite idiopática juvenil (AIJ) é cada vez mais usada em reumatologia pediátrica. Objetivos: Descrever a evolução clínica dos pacientes submetidos à IIC em nosso setor de reumatologia pediátrica.

Métodos: Estudo retrospectivo de pacientes com AIJ submetidos à IIC de janeiro/2008 a dezembro/2012, com seguimento mínimo de seis meses após a infiltração. Boa resposta à IIC foi definida como inatividade na articulação infiltrada por, no mínimo, seis meses. Resultados: Foram submetidos a 88 pacientes a 165 IICs. Desses, 75% eram meninas e 35,2% apresentavam AIJ oligoarticular persistente. A média de idade ao diagnóstico foi de 6,8 anos e à IIC de 12,2 anos. Em relação aos pacientes, a menor idade ao diagnóstico (p=0,037) e a ocorrência de uveíte no curso da doença (p=0,015) foram associados à boa resposta à IIC. Das 165 IICs, 63% apresentaram boa resposta e as articulações permaneceram inativas por um tempo médio de 18,1 meses. O tipo de articulação infiltrada (p=0,001), menores valores na escala visual analógica global do médico (p=0,015) e dos pais/paciente (p=0,01) foram associados a uma boa resposta à IIC. Nove efeitos adversos (5,4%) foram observados.

Conclusão: Em nosso estudo, mais da metade das articulações mostrou boa resposta à IIC. Os pacientes com menor idade ao diagnóstico e uveíte durante o curso da doença tiveram boa resposta à IIC. Os joelhos, punhos e cotovelos foram as articulações que mais bem responderam à IIC. A IIC mostrou ser um procedimento seguro.

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#### Introduction

Juvenile idiopathic arthritis (JIA) is a chronic rheumatic disease most common in childhood, being a significant cause of disability and reduced quality of life.<sup>1</sup>

The goal of JIA treatment is to control inflammation and prevent a premature loss of cartilage and joint function. JIA can be treated with a combination of non-steroidal anti-inflammatory drugs (NSAIDs), disease-modifying antirheumatic drugs (DMARDs), biologic drugs, systemic corticosteroids, intra-articular injections of corticosteroids (IIC) and physiotherapy.<sup>1–4</sup>

IIC is often used to treat JIA.<sup>5,6</sup> Currently this procedure is in use not only in patients with the oligoarticular subtype (i.e. those with a poor response to NSAIDs and as a first-line therapy), but also in those suffering a lengthy or complicated arthritis (accompanied by joint contractures and growth disorders), or even in those cases where one is awaiting by the therapeutic effect of DMARDs.<sup>2,7–10</sup>

Although the long-term efficacy and the potential effect on activity and progression of JIA still need more studies, IIC can promote significant pain relief, functional joint improvement, and an increased likelihood of deformity correction and of adaptation of bone growth. In addition, IIC is considered as a safe and effective method to treat affected joints. <sup>1,11–16</sup> Furthermore, this procedure allows an early rehabilitation and a reduction – or even discontinuation – of systemic medications. <sup>16,17</sup>

Most of our knowledge on joint injection comes from studies in adults, with few reports in children. This study describes

the clinical outcome of patients undergoing IIC in a Pediatric Rheumatology Unit at UNIFESP over a period of five years, and also evaluates factors associated with a good response to this therapy.

#### Patients and methods

This is a retrospective study of medical records of patients with JIA, who were followed at the Pediatric Rheumatology unit of UNIFESP and submitted to IIC in the period from January 1, 2008 to December 31, 2012. Their inclusion criterion was a minimum 6-month follow-up after the joint injection. Patients with IICs procedures performed in other units were excluded.

Demographic and clinical data of each patient were assessed, and a preliminary classification and evolution of JIA was carried out according to the criteria of the International League of Associations for Rheumatology (ILAR) $^{18}$ : the presence of uveitis in the course of disease, the presence of autoantibodies (antinuclear antibody – ANA – considered as positive for children with titles  $\geq 1:160$ , and rheumatoid factor – RF) and of human leukocyte antigen (HLA) B27.

For each intra-articular injection, we assessed the dose of medication used into each joint and the patient's body weight, a clinical classification of the severity of joint effusion (mild, moderate or severe) at the time of injection, and whether the physician used ultrasound (US) to guide the injection. We also evaluated the patient's age, number of active and restricted joints, systemic medications used, the Childhood Health Assessment Questionnaire (CHAQ) score, a global

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