

Intra-articular Triamcinolone in Juvenile Idiopathic Arthritis

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ABSTRACT

Thirty-seven children with juvenile idiopathic arthritis (JIA) who were treated with one or more intra-articular triamcinolone acetonide (TA) injections were evaluated. Ninety-five joints were injected with a total number of 125 injections. Complete remission of the joint inflammation lasting at least 6 months was obtained in 62 of 95 injections (65%). Treatment of the joint contractures was successful in 35 of 51 joints (69%). In patients with oligoarthritis, 21 of 26 injected joints (81%) were in full remission at six-months. The 6-month remission was significantly lower in the other subtypes of JIA ($P < 0.01$), 41 of 69 (59%) injected joints, when compared to oligoarticular patients. Intra-articular TA injection is an effective and safe therapy for inflammatory joint disease in JIA, particularly in the oligoarticular form.

Key words: *Intra-articular injection, Juvenile idiopathic arthritis, Triamcinolone acetonide.*

INTRODUCTION

Intra-articular corticosteroid injection is a well established therapeutic option for treatment of juvenile idiopathic arthritis (JIA). It is even recommended as first-line therapy by some authors in oligoarticular JIA, rather than an option for patients unresponsive to non-steroid anti-inflammatory drugs (NSAIDs)(1). It is also indicated in all forms of JIA patients, whose joint inflammation do not respond well to systemic disease modifying anti-rheumatic drugs (DMARDs). The long-acting steroids are the choice for intra-articular injection. Recent data showed that triamcinolone hexacetonide (THA) is the most effective drug(2,3). However, it is not available in most countries. Another well-known long-acting steroid is triamcinolone acetonide (TA), which can be used as an alternative to THA. We present the intra-articular triamcinolone acetonide experience of a pediatric rheumatology center in patients with JIA.

METHODS

Charts of patients in Pediatric Rheumatology Department of Dokuz Eylul University Hospital who fulfilled the JIA criteria(4) were retrospectively evaluated from 2000 to 2005. The patients who were treated with intra-articular TA at least 1 year prior to evaluation period were eligible for the study. The indication for intra-articular injection (IAI) in oligoarticular JIA was the persistence of arthritis in spite of treatment with anti-inflammatory drugs for at least 6 weeks. In the other forms of JIA, the patients whose arthritic signs were unresponsive to DMARDs were treated with TA. Remission was considered as the complete resolution of effusion and other signs of inflammation within the first week. The reappearance of the inflammatory signs was defined as relapse.

Patients with oligoarthritis received only NSAIDs at the time of injection. Among the patients with other subtypes of JIA, 8 were on methotrexate,

9 on sulphasalazine, and 1 on methotrexate and sulphasalazine treatment. In addition to these, five of them also received low dose oral corticosteroids.

A dose of 0.5 mg/kg and 1 mg/kg of triamcinolone acetonide was injected for the small and large joints, respectively. The injections were given under general anesthesia in the operating room in all but 5 adolescent patients. Hips and small joints of the hands were injected under guidance of fluoroscopic radiography. Children were advised not to bear weight for 24 hours following the injection of the lower limb joints. All patients with adjacent muscle atrophy and/or joint contracture were encouraged to start physiotherapy shortly after the injection.

RESULTS

A total of 37 patients (15 girls, 22 boys; mean age 7.3 ± 3.7 yr) with JIA were treated with one or more intra-articular TA injections. The mean duration of illness was 4.7 ± 2.9 yr. Ninety-five joints were injected with a total number of 125 injections. The distribution of the injected joints was shown in **Table I**. There were contractures of several degrees in 51 joints (54%) before the first injection. Twenty-two joints of 14 patients required more than one injection. Six oligoarthritis, 3 polyarthritis, 4 enthesitis-related arthritis, and 1 psoriatic arthritis patients required repeated injections. Thirteen joints were injected twice (5 knees, 3 ankles, 2 elbows, 2 hips, and 1 wrist), 5 joints 3 times (3 knees, 2 ankles), 2 joints 4 times (1 knee, 1 ankle), and 2 joints 5 times (2 knees) due to relapse or lack of efficacy.

Complete remission of the joint inflammation lasting at least for 6 months was obtained in 62 of 95 injections (65%). In patients with oligoarthritis, 21 of 26 injected joints (81%) were in full remission at six-months. However, only 41 of 69 (59%) injected joints in the other subtypes of JIA were in remission at six-month time period, and this rate was significantly lower ($P < 0.01$) when compared to oligoarticular patients. The rate of ongoing remission in oligoarticular group at 12-month time point was 69%, whereas this rate was 52% in the other subgroups ($P < 0.01$).

Joint contraction was corrected in 35 of 51 joints (69%). Two patients had leg-length discrepancy due

to chronic unilateral knee inflammation, which remained unchanged in the 3-years follow-up period. One of these patients had complete remission after the first injection, however; the other required two additional injections.

Regarding the complications, there were only two wrists with subcutaneous atrophy. None of the patients experienced infection at the injection site. Cushing syndrome was not observed in any of the 5 patients who received multiple joint injections (more than 2 joints at once). None of the patients who underwent hip injection developed avascular necrosis of femoral head.

DISCUSSION

During the past 50 years, intra-articular corticosteroid administration has gained an important role in the management of inflammatory

Table I CHARACTERISTICS OF STUDY CHILDREN

JIA subtype	
Oligoarticular	17 (46%)
Entesitis related	10 (27%)
Polyarticular	4 (11%)
Psoriatic	4 (11%)
Systemic	2 (5%)
Type of joint injected	
Knee	48 (%)
Ankle	13 (%)
Wrist	8 (%)
PIP	8 (%)
Hip	6 (%)
Elbow	6 (%)
Subtalar	4 (%)
MCP	2 (%)
Current systemic treatment	
NSAIDs	17 (46%)
NSAIDs + DMARD ¹	15 (40%)
NSAIDs + Low dose corticosteroid + DMARD ¹	5 (14%)

¹ Methotrexate or sulphasalazine; MCP: Metacarpophalangeal joint; NSAIDs: Non steroidal anti inflammatory drugs.

WHAT THIS STUDY ADDS?

- Intra-articular injection of triamcinolone acetonide is an effective and safe therapy for inflammatory joint disease in JIA, particularly in the oligoarticular form.

arthritis. Several studies demonstrated long-lasting remission in the majority of the injected joints in JIA patients, with good pain relief, improved mobility and a significant delay or prevention of further joint destruction(5-7).

This report describes our experience with intra-articular TA injection in children with JIA. The remission rate in this study is higher than previously reported(2,3). The largest single cohort study about IAI in JIA, which was reported by Breit, *et al.*(8) demonstrated that patients with oligoarthritis responded better to therapy than other subgroups of JIA. In this study also, the remission rates were higher in oligoarticular patients than the other groups, supporting the previous literature. Systemic onset JIA has been reported to have the worst response to IAI(8,9). However, because of small number of patients in each subgroup, we could not compare all of them separately.

The present data indicates that intra-articular TA injection is an effective and safe therapy for inflammatory joint disease in JIA, particularly in the oligoarticular form.

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