

Efficacy of periarticular corticosteroid treatment of the sacroiliac joint in non-spondylarthropathic patients with chronic low back pain in the region of the sacroiliac joint

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ABSTRACT

Objective: To investigate the efficacy of periarticular corticosteroid treatment of the sacroiliac joint (SIJ) in non-spondylarthropathic patients with chronic low back pain in the region of the SIJ in a double blind, controlled study.

Methods: Twenty-four consecutive non-spondylarthropathic patients with chronic pain in the region of the SIJ entered the study. Thirteen patients were treated with a periarticular injection of methylprednisoloneacetate and lidocaine (MP group) of the SIJ, whereas 11 patients received isotonic sodium chloride and lidocaine. Clinical assessment at the onset of the study and after one month included the patient's estimation of pain in the region of the SIJ by the visual analogue scale (VAS) and by a pain index, which was calculated from tenderness and stressing tests on the SIJ.

Results: At the one month's follow-up examination both the VAS ($p = 0.047$) and the pain index (0.017) had improved significantly in the MP group compared with the non-MP group.

Conclusion: These results suggest that periarticular injection of methylprednisolone may be effective in the treatment of pain in the region of the SIJ in non-spondylarthropathic patients.

Introduction

Low back pain is an extremely common symptom, which has been estimated to affect 65 - 80% of the general population (1). Over 50% of all patients with low back pain improve after 1 week, while more than 90% are better

in 8 weeks. The remaining 7-10% continue to experience symptoms for longer than 6 months (2). We have earlier shown that periarticular methylprednisolone treatment may be effective for patients with seronegative spondylarthropathy with pain in the region of the sacroiliac joint (SIJ) (3). The purpose of this study was to investigate the effect of periarticular methylprednisolone treatment of the SIJ in non-spondylarthropathic patients with chronic pain in the region of the SIJ. To our knowledge there are no earlier reports concerning this kind of therapy in non-spondylarthropathic patients.

Material and methods

Study subjects

Twenty-four consecutive patients fulfilling the following criteria were included in the study: age 18-70 years; pain at least for 3 months in the region of the SIJ; tenderness in the SIJ; positive results on at least one of the following tests: Gaenslen's test (4), Patrick's test (5) or thigh flexion test (6); no allergy to lidocaine; no signs of infections or neoplasms; no radiological signs of sacroilitis and no signs of spondylarthropathy. If the patient was receiving non-steroidal anti-inflammatory drugs, the medication had to be kept stable during the follow-up. The study protocol was approved by the ethical committee of Satalinna Hospital. The study was explained to all patients prior to enrollment in the trial and their oral consent was obtained. The patients were randomised into two groups. Thirteen patients were treated with a periarticular injection of one af-

Table I. Some clinical characteristics of the 24 non-spondylarthropathic patients with chronic low back pain in the region of the sacroiliac joint.

	Methylprednisolone group (n=13)	Non-methylprednisolone group (n=11)
Age (years), mean (range)	50.3 (38 - 68)	49.3 (32 - 70)
Number of females	10	7
Duration of pain in the region of the sacroiliac joint (years), mean (range)	5.4 (0.3 - 15)	4.4 (0.3 - 11)
Number of patients with CRP* less than 10 mg/l	13	11
Haemoglobin (g/l) mean (range)	138 (121-155)	139 (119-162)
NSAID** medication	10	8

*CRP = C-reactive protein. ** NSAID = non-steroidal anti-inflammatory drug.

ected SIJ of 1.5 ml (40 mg/ml) methylprednisoloneacetate and 1.5 ml (20 mg/ml) lidocaine (MP-group). Eleven patients received 1.5 ml isotonic sodium chloride and 1.5 ml (20 mg/ml) lidocaine (non-MP group). The randomization and the treatment were performed at the same visit at the start of the study. Table I shows some of the clinical characteristics of the patients in both groups.

Treatment

The punctures were performed in the direction of the painful joint 3 to 4 centimetres under the postero-superior iliac spine and 6 to 7 centimetres from the middle of the sacrum until contact with the bone was achieved. We have earlier shown that with this technique the injection is clearly periarticular outside the SIJ and its effect is not due to a systemic effect of the corticosteroid injection (3).

Clinical assessment

The patients were clinically assessed at baseline and after one month. Clinical assessment included the patient's estimation of pain in the region of the SIJ by the visual analogue scale (VAS) (range 0-100) and by a pain index (range 0-12) which represented the sum of the following tests: tenderness of the SIJ, Gaenslen's test, Patrick's test and thigh flexion test, each of them evaluated on a scale from 0 to 3. Only the physician who gave the injection knew of the contents of the injection; both the patient and the physician who made the clinical assessments were blinded to the treatment.

Statistical analysis.

The Mann-Whitney test (with exact p-values) and the two-sample multivariate non-parametric test (7) were used to compare the median VAS and the median pain index values and their change between the groups during the follow-up.

Results

Table II shows the VAS and the pain index at the start of the study and their changes during one month's follow-up. At the start, the median of both the VAS

Table II. Visual analogue scale (VAS) and pain index of the sacroiliac joint in the methylprednisolone group (MP) and in the non-methylprednisolone group (non-MP) at the onset and their changes during one month after the injection.

Parameter	MP (n=13)	non-MP (n=11)	p value*
VAS and pain index at the onset			
VAS (median)	53.0 (range 27 - 84)	53.0 (range 20 - 83)	NS
Pain index (median)	5.0 (range 2 - 10)	5.0 (range 3 - 9)	NS
Changes in VAS and pain index one month after the injection			
VAS (median)	-40 (range -57- -1)	-13 (range -64 - 43)	0.046
Pain index (median)	-3 (range -6 - 0)	0 (range -6 - 3)	0.017

*Mann-Whitney rank-sum test. Negative values indicate a better average outcome.

and the pain index were exactly similar. The median change in the VAS in the MP-group during the follow-up was -40 and in the non-MP group it was -13; the difference between the groups was significant ($p = 0.046$). The median change in the pain index for the MP group during follow-up was -3 while for the non-MP group it was 0; this difference was significant ($p = 0.017$). The two-sample multivariate test between the median changes in the groups was also significant ($p = 0.045$).

Discussion

Several anatomic sites and etiological factors have been suggested as possible sources of low back pain (8), including lesions of the intervertebral discs, pathological processes involving the vertebrae and facet joints, enthesopathies, sacroiliac sprains, sacroiliac instability, and psychogenic factors. In addition neoplasms, spondylarthropathies and various kinds of infections may cause chronic low back pain, but they were counted as exclusion criteria in this study. In most cases, however, the cause of the pain remains unknown. Chronic low back pain is usually treated with non-steroidal anti-inflammatory drugs, physiotherapy and also by osteopathic, chiropractic and manual therapies. The results of the treatments are in most cases unsatisfactory. Since periarticular corticosteroid treatment of the SIJ has shown positive results in patients with seronegative spondylarthropathy (3), we decided to test this kind of treatment in non-spondylarthropathic patients with pain in the region of the SIJ. The SIJ is a deep diarthrodial joint that is difficult to

access for intra-articular treatment and success can be guaranteed only with the help of arthrography or computed tomography (9). However, it is easy to perform a periarticular injection of the SIJ, which may be diagnostic in some cases and can also be given to ambulatory patients.

Intra-articular corticosteroid therapy suppresses synovitis of the limb joints and may relieve the pain of osteoarthritic joints. Local corticosteroid injections are also effective in the treatment of enthesopathies and various kinds of soft tissue pain (10). The anti-inflammatory mechanisms of corticosteroids are not fully understood.

In our study the patients receiving a periarticular injection of methylprednisolone of the SIJ showed significant improvement of pain, tenderness and of the results of the stressing tests for at least one month. The patients receiving isotonic sodium chloride instead of methylprednisolone had only small and non-significant changes in these variables during the follow-up.

These results indicate that the periarticular injection of methylprednisolone may be effective in the treatment of low back pain in the region of the SIJ also in non-spondylarthropathic patients. However, since the number of patients in our study was low, these results must be regarded as very preliminary. Further studies are needed with larger patient series and also with longer follow-up times.

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