



ASSESSMENT OF FUNCTIONAL OUTCOME OF SACRO-ILIAC BLOCK IN PATIENTS WITH SACROILIAC JOINT DYSFUNCTION: A PROSPECTIVE STUDY

Orthopaedics

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ABSTRACT

The study aimed to investigate the therapeutic efficacy of sacroiliac joint (SIJ) blocks with triamcinolone acetonide in patients with SI Joint dysfunction. Numerous studies have demonstrated that SIJ blocks with corticosteroid provide long-term pain relief in seronegative spondyloarthropathy. We conducted a prospective observational study of patients at Chettinad Hospital and Research Institute. The above mentioned SIJ blocks were performed in 30 patients, and functional outcome was evaluated with NRS pain scale and Oswestry Disability Index. 30 patients (66.7%) experienced significant pain reduction for more than 6 weeks; the overall mean duration of pain reduction in these responders was 36.8 _ 9.9 weeks. SIJ blocks with triamcinolone acetonide are beneficial for patients with SIJ pain.

KEYWORDS

sacroiliac joint, sacroiliac joint block, corticosteroid

INTRODUCTION

The sacroiliac joint (SIJ) may be a common cause of low back pain and referred pain in the lower extremity.¹ SIJ block (intraarticular injection of steroid + anesthetic into the SI Joint) is thought to be the diagnostic test to confirm or deny the presence of SI joint pain.² Based on the findings of using SIJ blocks, the prevalence of SI joint dysfunction probably would seem to be as low as 10% and perhaps as high as 26.6%.^{3,4,5} Treatment of SIJ dysfunction is widely acknowledged to be one of the most challenging problems. A plethora of different therapies has been advocated for treating SIJ dysfunction; however, its management remains controversial.⁶ Numerous studies have demonstrated that SIJ blocks with corticosteroid/anesthetic provide long-term pain relief in seronegative spondyloarthropathy.^{7,8}

However, several reports on SIJ dysfunction patients without spondyloarthropathy did not show long-term efficacy using SIJ blocks with corticosteroids.^{9,10} The therapeutic utility of SIJ blocks has not been established in non-spondyloarthropathy SIJ dysfunction. One of the most challenging aspects of diagnosing and treating SIJ dysfunction lies in its inconsistent presentation. SI Joint pain can present through localized and/or referred pain. The most common complaints include pain in the lower back, buttocks, leg, groin, and hip^[11, 12]. Symptoms such as increased urinary frequency and transient numbness/ tingling have also been reported^[13, 14]. The most common areas of referred pain are the buttocks (94 %), lower lumbar region (72 %), lower extremity (50 %), and groin (14 %)^[15]. The quality of the pain can range from dull and achy to sharp and stabbing^[16]. Aggravating factors include all types of physical activity, unspecified sustained positions, bending, climbing and rising activities. The most consistent factor for identifying SIJ pain is unilateral pain below L5^[17]. The inconsistent presentation of SIJ pain can be attributed to the presumably extensive innervation of the joint. Several muscle groups become involved, which can result in spasms as a predominant presentation.

The most common presentations involving muscle groups include tightness of the hamstrings, quadriceps, and hip flexors. The physical examination of SI Joint dysfunction is another challenging step towards diagnosis. Inspection rarely, if ever, shows asymmetry, protrusion, or erythema. Although unreliable, clinicians typically rely on provocative maneuvers to guide them towards a diagnosis. The most common tests include FABER (Patrick's) test, which identifies SI Joint pain during flexion, abduction, and external rotation, and Gaenslen's test, which applies hip extension and aggravates the SI Joint. Some lesser known tests are the iliac gapping test and iliac compression test, which involve applying anterior pressure to the anterior superior iliac spine and lateral pressure to the uppermost iliac crest, respectively. Although already mentioned, it must be emphasized that neither history nor physical examination findings are

capable of producing reliable results^[18,19]. It has been demonstrated that 20 % of asymptomatic patients had positive findings on three common provocative maneuvers^[20] and that these maneuvers have low inter-examiner reliability^[21]. Imaging modalities have not proven to be more beneficial than the physical examination. Bone scans and CT scans have both shown sensitivities ranging from 40 to 60 %^[22, 23], while X-rays and MRIs rarely reveal abnormalities. The most valid and reliable diagnostic modality lies in X-ray-guided local injections, which can diagnose SI Joint dysfunction when analgesia is achieved. Studies have typically shown a 75 % pain improvement threshold before the SI Joint is presumed to be the source of pain. However, the specificities of these blocks have been extremely low^[24]. SI Joint injections are also difficult to localize into the joint space. One study showed that intraarticular injection was obtained only 22 % of the time without any spread^[25]. Sacral foraminal spread occurred in 44 % of the patients and epidural spread occurred in 24 %^[25], clearly indicating a lack of validity in the results obtained. It is worth noting that although the goal remains to localize injections in the intraarticular space, recent studies have shown that ligament injection posterior to the joint can yield greater pain relief than injection directly into the articular space^[26]. With all the discrepancies present, more extensive research is necessary before we can confidently define a gold standard for diagnosing SIJ pain. The purpose of this prospective study was to investigate the therapeutic efficacy of SIJ blocks with triamcinolone acetonide and local anesthetic in patients with SI Joint pain.



Figure 1 : Intra-operative Patient's Position

METHODS

Subjects for the present study were drawn from those patients who presented at Chettinad Hospital and Research Institute with suspected SI joint pain. Inclusion criteria were: age between 21 and 70 years; pain in the region of the SI joint persisting more than 6 months despite conservative treatment; at least one of the following physical signs: pressure application to an SI ligament, Gaenslen's test, Patrick's test; a pain score greater than 4 on a numerical rating scale (NRS). The Institutional Review Board of the university hospital approved the study protocol.

For the therapeutic procedure, an aseptic technique was used, with the patient placed in the prone position. For the injection, a 22-gauge spinal needle was used. The wedge shape formed by the medial border of the ilium and the lateral border of the sacral ala was targeted under C-arm fluoroscopy guidance in a 40-50 degree contralateral oblique view. Along a superior approach, a guide needle was positioned to aim at the target area. Through it, the spinal needle was inserted into the target area and slightly advanced laterally and caudally. After obtaining an antero-posterior projection, the needle was further advanced laterally and caudally until its tip entered the joint. To confirm intra-articular access, an arthrogram of the SI joint was obtained by injecting 1 ml of contrast material-Iohexol dye. Then, 1 ml of 2% lidocaine and 40 mg triamcinolone acetonide (total volume 2 ml) was injected. Upon completing the intra-articular injection, the same needle was withdrawn.

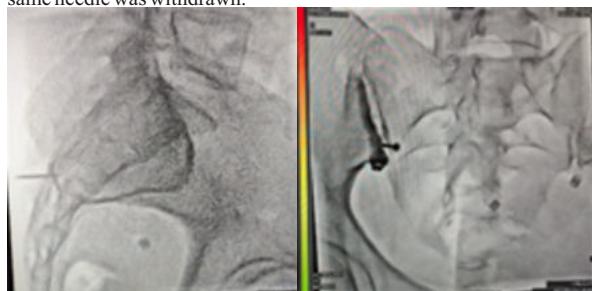


Figure 2: Intra-operative C-arm images

Clinical outcomes were assessed using a NRS to evaluate pain intensity, and the Oswestry disability index (ODI) to evaluate functional outcomes. These measurements were performed prior to treatment and at 2 and 4 weeks after treatment. The ODI was scored out of 50 points and converted to a percentage, with higher scores indicating greater disability. Successful treatment was defined as a reduction in initial pain NRS score of 50% outcome assessments were conducted by a third party unaware of patient details. The patients were monitored during and after the procedure for any adverse effects or complications.

RESULTS

30 patients with suspected chronic SI joint pain were included in the study screened. Their demographic and clinical features on presentation are documented. All patients tolerated the procedure well. One patient complained of post-procedural dizziness, but this disappeared within 30 minutes without treatment. No serious adverse event, including neurologic deficit, was detected. Intra-articular access was obtained in all joints in all 30 patients. Mean NRS scores of all patients decreased significantly from 6.461.2 before treatment to 2.261.1 at 2 weeks, and 2.361.1 at 4 weeks after treatment ($P < 0.05$) ODI scores of all patients improved from $61 \pm 15\%$ before treatment to $21 \pm 12\%$ at 2 weeks, and $23 \pm 11\%$ at 4 weeks ($P < 0.05$) after treatment.

DISCUSSION

The present study was not designed to serve as an outcome study, the clinical data constituted basic evidence of apparent effectiveness. The sample size was smaller. However, no technique for the treatment of SI joint pain with injections of corticosteroids has been rigorously evaluated in well-designed, placebo-controlled studies. The primary aim of the present study was to evaluate the technical accuracy of SI joint block in sacroiliac joint dysfunction patients. The current study shows that SI joint injections were tolerated well and consistently achieved good intraarticular access in all 30 patients in which it was tested, without any adverse effects attributable to the technique. The sample size, however, was modest and so, the present study cannot exclude the possibility of technical difficulties or adverse effects being

encountered if the technique was used in more patients. However, using 95% confidence intervals, the present results predict that the chances of problems should be less than 14%. Subject to rigorous, clinical validation as a treatment, these technical data show that injections into the SI joint provides a possible alternative to other techniques, either as a primary intervention or when access to the joint is not possible with other techniques.

CONCLUSION

SI joint injections have proven to be an effective therapeutic as well as diagnostic modality for patients suffering with sacroiliac joint dysfunction and is a good option as a preliminary treatment option for patients presenting with SI joint pain. The SIJ blocks showed a long-lasting efficacy in the patients; however, the duration of its efficacy was shorter in patients with a history of lumbar/lumbosacral fusion. These findings suggest the need for further studies.

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