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Original Research Paper

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A COMPARATIVE STUDY OF SACROILIAC JOINT RADIOFREQUENCY DENERVATION WITH INTRA ARTICULAR SACROILIAC STEROID INJECTION IN PATIENTS WITH SACROILIAC JOINT DYSFUNCTION.

Dr Amit Kumar Srivastava	Assistant Professor, Hind Institute Of Medical Sciences, Safedabad, Barabanki.
Dr Arun Raj Pandey*	Assistant Professor Department of Anaesthesiology Institute of medical sciences Banaras Hindu University *Corresponding Author
Dr Vandana Dwivedi	Senior resident Department of pharmacology Institute of medical sciences Banaras Hindu University
Dr Amrita Kumari	Assistant Professor Hind institute of medical sciences safedabad barabanki

ABSTRACT **Introduction:**To compare and evaluate the efficacy of sacroilliac joint radiofrequency denervation with intra articular sacroiliiac steroid injection in patients of sacroiliiac joint dysfunction as evidence by relief of pain, decrease in analgesic requirement and complications. **Method:** After clearance from institutional review committee we included 60 patients in study. Patients were divided in two groups. Group I undergone intraarticular injection and another, radiofrequency denervation of sacroiliac joint.Patient with low back pain with or without leg pain> 3months,ASA 1&2,age group 20-60 years, low back pain below L5 dermatome,tenderness over posterior superior iliac spine, positive faber, Yheomen,Ganeslens and local anaesthetic diagnostic test were included while patient with history of lumbar radicular pain of discogenicorigin,RA, Ankylosing spondylitis, Spondylolisthesis, Vertebral compression or fractures were excluded **Results:** During pretreatment mean VAS score between two groups, there was no significant difference (p=0.142).After management ;3 month - no significant difference between two groups. However, there was significant difference between two groups at 6months (p=0.022),12 months (p=0.06) and 18 months (p=0.012). **Conclusion:** Radiofrequncy denervation of sacroiliac joint is best in terms of long term pain relief, better functional improvement and minimum side effects

KEYWORDS :sacroiliac joint, Intra articular steroid, Radiofrequency denervation

INTRODUCTION

The sacroiliac joint is responsible for low back pain in 10- 25% of the patients.[1] Although low back pain of sacroiliac joint can be suspected by history, physical examination combined with SI joint pain provocation tests but its diagnosis can only be confirmed by dual local anaesthetic block.[1]Once diagnosis is confirmed treatment can be offered by intra-articular steroid injection or radiofrequency denervation of L5-S3 dorsal rami.[2]Intra-articular corticosteroid injections have been well studied as a treatment of inflammatory sacroiliitis, specifically in patients with seronegative spondy loarthropathy. The majority of patients have been shown to have 6 months of pain relief after one injection. [3,4]In the past three decades, radiofrequency neurotomy (RFN) has been established as a safe and effective treatment for facet and sacroiliac arthropathy. The effect of RF denervation in SI joint remains 11-12 month. However, these nerves may eventually regenerate in 6-12 months, which may or may not coincide with a reoccurrence of pain.[5]

METHOD

This study was double blind clinical controlled trial, clearance from local ethical committee was obtained and each subject gave written informed consent.

Healthy person of age 20-60 years with ASA class 1 and 2 having low back pain for more than 3 months were included in the study.

Patients with history of lumbo-radicular pain of discogenic origin, Rheumatoid arthritis, Ankylosing spondylitis, spondolisthesis or vertebral compression fracture were not included in the study.

All patients were given local anaesthetic intra articular diagnostic block. For intra articular injection patients were lied prone and C-ARM was aligned in 15-20 degree oblique plane. 22 G spinal needle inserted in to the joint under fluoroscopic view with gun barrel technique. Entry was confirmed by giving 0.5 ml of non-ionic contrast media then 2 ml of 0.25% of injection bupivacaine were given intra-articularly. If low back pain was relived then it was confirmatory that the pain was of SI joint origin.

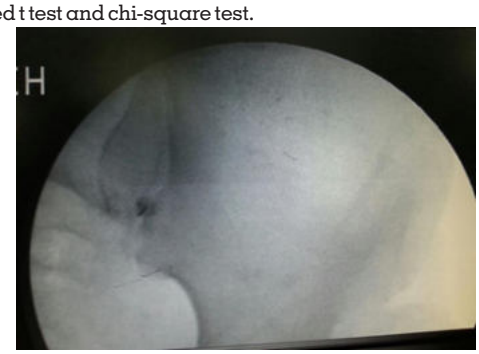
Patients were randomly divided in to two groups of 30 patients in each group. In Group I patients undergone radiofrequency denervation of L5-S3 dorsal rami. In group 2 patients were given intra articular injection of triamcinolone 80 mg.

The technique of intra articular injection was similar to instillation of local anaesthetic in SI joint.

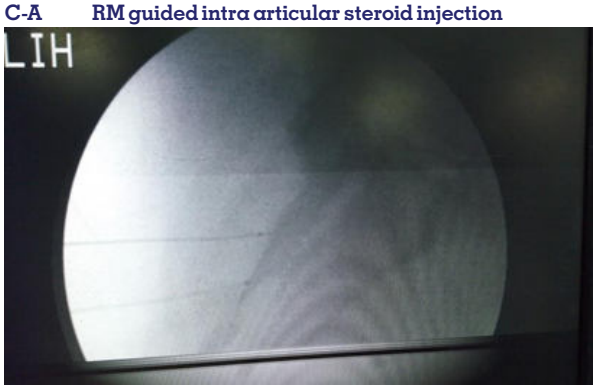
In RF denervation ,C-ARM guided S1-S3 was entered with RF needle .RF lesioning was done at 80 degree C for 90 seconds.

All the patients were assessed for VAS score, PSIS tenderness score, Faber test, Yheomen test, Ganselens test, analgesic drug requirement.Patient satisfaction was recorded at pre-procedure, at day 1,after 1 month,3 month,6 month,12 month and 18 month interval.

The various parameters were compared using student t test, paired t test and chi-square test.



C-A RM guided intra articular steroid injection



C-ARM guided RF Denervation

RESULT:

Table 1: Comparison of mean VAS changes in two group at different time interval

Time interval	Group 1 Mean±SD	Group 2 Mean±SD	t-value	p-value
VAS_Score_Pre	8.50±0.57	8.27±0.64	1.489	0.142
VAS_Score_Post	1.30±0.83	1.67±0.92	-1.613	0.112
VAS_Score_1_month	1.80±1.06	2.13±1.43	-1.024	0.310
VAS_Score_3_month	2.03±1.37	2.77±1.56	-1.924	0.059
VAS_Score_6_month	2.50±1.57	3.53±1.83	-2.345	0.022
VAS_Score_12_month	3.23±1.73	4.50±1.73	-2.825	0.006
VAS_Score_18_month	4.27±1.81	5.40±1.54	-2.602	0.012

Patient's characteristics were similar in both groups. There were no significant differences in preoperative VAS score. After management upto 3 months both groups had decreased mean VAS score but there were no significant difference between two groups. However there were significant difference between the groups at 6 month ($p=0.022$), at 12 month ($p=0.006$) and at 18 month ($p=0.012$).

As far as PSIS tenderness, Faber test, Ganselens test, Yheomen test were considered both the groups were comparable before treatment. From 1st to 12 months 20% patients from group I were positive for these tests and at 18 months 80% patients were positive for these tests.

While patients from group II from 1month to 6 month 23.3% patients were positive for these tests.At 12 month and 18 months 76% and 100% patients showed positive results respectively. Hence no significant difference between two groups from 1 to 6 month were found, but difference was significant at 12 month ($p<0.001$) and at 18 month ($p=0.011$).

Analgesic was required in all the patients of both groups. Both groups were comparable till 3 month. At 6 month 10% of patients from group one and 26.7% patients from group II required analgesics ($p=0.047$). At 12 month 16.7% patients from group I and 73.3% patients from group II required analgesics. At 18 month 73.3% patients from group one and 90% patients from group two required analgesics($p=0.047$).

DISCUSSION

Significant decrease($P<0.05$) in pain was observed in RF neurotomy (group I) as compared to group II receiving intra articular injection of steroid at 6months, 12 months, and 18 months intervals .Pain relief was better in group I as comparison to group II which was long lasting ($\geq$6month).Similar, observations were also made using RF neurotomy by Burnham and yasui[6] who reported satisfaction in 67% patients at 12months interval .The intensity and duration of pain relief following RF nrurotomy varied from 36% to 89%.[8,9,10,11]Because of variable criteria used for the assessment for pain relief($\geq$50% decrease in VAS score) pain relief observed by Cohen and Abdi[11] was$\geq$ 50% in 89% patient up to 9 months which was comparatively better than 61% Patients showing pain relief up to six months and 80% patients up to 12 months in this series. However, Ferrante et al[9] observed pain relief in 36%patients up to 12±1.2 months which was definitely much less than 61% patients up to six months and 80% patients up to 12 months observed in this study.

Earlier authors observed a pain relief varying from 50% to 100% following IA steroid injection in patient with SI joint pain .[4,3,12] Intra articular steroid injection resulted in better pain relief but of short duration (6weeks to 6months).It is clearly evident from these studies that the RF neurotomy has an edge over intra articular steroid injection in reference to the duration of pain relief .However, IA steroid injection may have an edge in patients with inflammatory (spondiloarthropathy) as compared to RF neurotomy[5].On the other hand patients with SI joint disease of degenerative origin without an evidence of inflammation might show better results with RF neurotomy as compared to IA steroid injection .This need further exploration.

CONCLUSION

From the study, we conclude that pain relief with sacroiliac joint radiofrequency denervation long lasting in comparison to intra-articular sacroiliac steroid injection. Subjective pain relief as well as functional improvement is best in patients receiving radio frequency denervation. Radiofrequency neurotomy has no added advantage in comparison to intra-articular steroid injection in terms of functional improvement or pain relief when measured both objectively and subjectively. Both modalities of treatment have minimal or no side effects

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