Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2016; 4(12B):4266-4271 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2016.v04i12.018

Original Research Article

Retrospective analysis of quality assessment and pain improvement in chronic low back pain with radiculopathy by trans foraminal epidural steroid injection in rural population: one year follow up

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Abstract: Low back pain is most common reason for a patient visit to any pain clinic. It is most common reason for absence from work in young population. Among many treatment modalities available low back pain with intervention pain procedures have promising results. We designed a study to see the effectiveness of trans foraminal epidural steroid injection (TFESI) in rural medical college for patients having low back pain with radiculopathy. Study population was divided into two groups with 30 patients in each group. Group A had patients with disc herniation or central canal stenosis while Group B had patients with previous back surgery and spondolisthesis. TFESI was given in both the groups and quality assessment and improvement in pain score as well as patient satisfaction index were recorded in one year follow up at intervals of 4 wks, 8 wks, 12 wks, 24 wks and 48 wks TFESI offered significant improvement in Group A, with 33% of patients at 4 wks and 40% of patients at 8 wks having pain score 2-4.While in group B 13 % of patients at 4 wks and 26% of patients at 8 wks had pain score of 2-4.40% of patients at 4 wks. And 46% of patients at 8 wks. We're having pain score 5-7.So improvement in pain score was appreciably higher in group A. Patient satisfaction score was measured in terms of goal of treatment achieved from patient's perspective. In group A 40% of patients had good pain relief with good sleep and no pain while in group B 50 % of patients had relief at rest but increase pain while walking.
Keywords: TFESI, Low back pain.

INTRODUCTION

Significant deficit in our nation's health is poor rural health due to lack of education and income. Our government health policies are mainly focused on infectious diseases control for rural areas, leading to lack of awareness of pain management. Low back pain is most common reason for patient's visit to any pain clinic. Almost 70% of adults have experienced low back pain of different degree of severity in their life time. We all have seen these patients coming from urban population but rural people working in farms and doing strenuous work are also at risk of these problems. The list of conditions that can produce low back pain is exhaustive and includes diverse etiologies. Among these patients .6-43% are suffering from LBA with radiculopathy [1] and epidural steroid injection have a promising role in management of such cases [2, 3]. Nevertheless, the benefit and most effective route of administration for epidural steroids remain controversial [4]. Interlaminar and caudal epidural injections require relatively large volumes of injectate to deliver the steroid to the presumed pathologic site, and these types of injections also have the risk of extra-epidural and intravascular needle placement. The trans foraminal approach is target-specific and requires the smallest volume to reach the primary site of pathology; specifically, the anterior-lateral epidural space as well as the dorsal root ganglion. Thus trans foraminal epidural steroid injection (TFESI) under fluoroscopic guidance has emerged as the preferred approach to the epidural space [5-7]. As we are working in rural medical college and having pain clinic, getting patients

referral mainly from orthopedics for low back pain with radiculopathy and few patients from surgery and other specialties . So keeping in mind these patients we designed a study to see quality assessment and pain improvement of Trans foraminal epidural steroid injection in LBA with radiculopathy. Patient population in our study was neither homogenized nor randomized. It was usual population coming to our PAC clinic.

MATERIAL AND METHODS

Low back pain is not a disease but it is a syndrome with number of etiologies and presentations. It can be manifestation of underlying disc herniation, degeneration of disc or spondolisthesis. Facet joint, sacroiliac joint involvement and myofascial pain may be responsible for low back pain. ESI have a good role in low back pain treatment but applying specific treatment for generalized back pain is going to dilute the assessment of efficacy of ESI. So, we planned a study targeting a specific treatment for specific problem. All the patients having low back pain with radiculopathy were included in study for TFESI.

Inclusion criteria were-

1) Radiculopathy
2) Radiologic evidence of disc pathology
3) Age between 19-70 yrs.

Any patient who received a single injection or maximum of three injections was included in study. Exclusion criteria were severe canal stenosis, cauda equina syndrome, coagulation abnormalities and patient refusal.

All patients who visited our Pain clinic from Oct 2015 to Oct 2016, with complaints of low back pain with radiculopathy were included in study. Patients were divided into 2 categories with spinal stenosis and disc herniation in group A and spondolisthesis and previous back surgery in group B. Each group had 30patients and fluoroscopic guided trans foraminal epidural steroid injection was given by a single pain physician.

For better understanding of patient's symptoms and clinical findings proforma was filled for each patient. Same proforma was filled at the time of subsequent visits all the patients who qualified for study were asked for follow up visits. Follow up schedule was 1 week, 3 weeks and 4 months, 6 months and 1 year. The proforma was designed to investigate a prespecified set of domains for assessing patient improvement after injection.

Performa

1 Demographics Age, sex

2 Duration of pain complaints

3 Pain complaints: Location of pain and its referred pattern is identified

- Upper back
- Lower back
- Thigh: posterior thigh
  Anterolateral thigh
  Anterior thigh
- Calf Medial
  Lateral
- Foot dorsal surface
  Plantar surface
- Hip
- Knee
- Groin
- Anal
- Whole body
- Other sites

4 Intensity of pain VAS Score was used which is linear numeric rating scale

0……2……..4…….6…….8……..10

No pain worst pain

Pain score at first visit

Pain score at second visit

Pain score at third visit

Pain score at fourth visit

5 Quality of pain

- Dull
- Stabbing

- Hot burning
- Shooting
- Piercing

6 Any numbness or tingling
7 Any bladder or bowel involvement
8 What increases the pain?

- Sitting
- Lying down
- Rest
- Exercise
- Movement

9 factors decreasing pain

- Sitting
- Lying down
- Standing
- Walking
- Rest

10 How pain is affecting patient's life

- Sleep
- Activities of daily life
- Working or stopped working

11 Patient goal for seeking treatment (Patient satisfaction index)

I. Patient satisfied with injection
II. Patient had relief, can sleep comfortably and no pain while walking
III. Patient had relief, can sleep comfortably but pain while walking
IV. Patient had pain while walking and cannot sleep comfortably
V. Pain is not relieved at all, but wants to go for one more injection
VI. Pain is not relieved at all, and do not wants to go for another injection

12 Pain medications

RESULTS

Total 90 patients visited our pain clinic during study duration but 60 patients were included in study who were having low back pain with radiculopathy and turned up for follow up. Demographic data is shown in table 1. Number of injections varied. In the groups 40% patient had one injection, 46.6% had 2 injections and 13.3 % had three injections in a year follow up. In group A 46.6% patients had one injection as compare to 33.3% of patients in group B had relief with one injection. Equal no of patients had second injections in both the groups. While only 6.6% of patients in group A had third injection and 10% in group B had third injection.

Most of patients were having L4-5 and L5-S1 disc pathology. So, we recorded data for L5 and S1 root block as well. Out of 60 patients 41.6% of patients had L5 and 53.3% of had S 1 root block. Intensity of pain was measured by Visual analogue score from 0 to 10. Zero for no pain to 10 for worst pain experienced by patients. 90% of patients were having VAS score from 7-10 before treatment in both the groups. While during their first follow up after 2 wks. of injection 33% in group A and 49% in group B had pain score from 7-10.40 % off patients in group A at 4 wks. of follow up had very good pain relief with VAS score from 2-4 while in group B 23% had pain score 2-4 at 4 wks. of follow up.

Patients having pain after 8 wks. of injection with VAS score 7 or > 7 were given repeat injection with informed consent. Only one patient (3%) in group A and 3 patients (10%) in group B refused for another injection with no pain relief. After one year 50 % of patients in group A had pain score 4-6 while in group B 50% of patients had pain score from 5-7. Patient satisfaction score was measured in terms of goal of treatment achieved from patient's perspective. In group A 40% of patients had good pain relief with good sleep and no pain while in group B 50 % of patients had relief at rest but increase pain while walking.

TFESI offered significant improvement in Group A, with 33% of patients at 4 wks and 40% of patients at 8 wks having pain score 2-4. While in group B 13 % of patients at 4 wks and 26% of patients at 8 wks had pain score of 2-4.40% of patients at 4 wks. And 46% of patients at 8 wks. We're having pain score 5-7. So, improvement in pain score was appreciably higher in group A.

Table 1: Descriptive characteristics

	All patients	Group A	Group B
Age mean	45 yrs.	42 yrs.	48 yrs.
Gender Male Female	34 26	16 14	18 12
No of injections 1 2 3	 24 28 8	 14 14 2	 10 14 6
L5 root block	25	11	14
S1 root block	32	18	14

Table 2: VAS score before treatment

Score	Group A	Group B
8-10	18	16
5-7	10	13
4-6	2	1
2-4	-	-
0-2	-	-

Table 3: VAS score Post injection in Group A

VAS Score	2 wks.	8wks	16 wks.	24 wks.	48 wks.
8-10	2	-	2		4
5-7	8	10	8	14	9
4-6	10	8	10	10	15
2-4	10	12	8	5	2
0-2	-	-	-	-	-

Table 4: VAS score post injection in group B

VAS score	2 wks.	8 wks.	16 wks.	24 wks.	48 wks.
8-10	4	2	2		4
5-7	12	14	14	15	15
4-6	6	10	9	10	11
2-4	8	4	5	5	-
0-2	-	-	-	-	-

Table 5: Patient Satisfaction Index

Patient score	Group A	Group B
1	2	-
2	12	4
3	8	14
4	5	7
5	2	2
6	1	3

DISCUSSION

Pain, paresthesias and numbness in a typical dermatomal distribution with or without the accompanying signs of weakness, diminished reflexes and positive straight leg raise test is defined as lumbar radicular syndrome. Chronic back pain patients present two broad challenges to proper assessment by a pain physician. The inherently subjective nature of pain complaints and wide ranging influence of chronic pain on patients functioning makes assessment of method of pain relief difficult. So, to overcome this problem we designed a study based on systematic approach that involves standardized assessment of multiple domains of patient functional and psychophysiological measurement of pain.

A well conducted clinical interview can be a rich source of information on patient pain and assessment of pain relief.[8,9]By adopting such proforma we can focus on examination of pain, its intensity, emotional and physical functioning of pain and what patient is experiencing out of it. We can plan and modify our treatment according to patient's perspective of pain relief. Like in rural area where their

daily income is very low, most of time patient wants any cost-effective treatment to relieve his or her pain to assume them activities of daily life.

Looking at complex scenario of chronic pain patients aim of our study were three-fold

1) A well conducted clinical interview based on focused examination to assess behavioral and psychophysiological status of patient before treatment and after treatment
2) Focusing on specific target population that is low back pain with radiculopathy for specific treatment that is trans foraminal epidural steroid injection.
3) By dividing low back pain with radiculopathy into two categories based on underlying cause for trans foraminal ESI to further concentrate on evaluation of its efficacy.

Logic of epidural corticosteroid administration rests on the anti-inflammatory effect of corticosteroids, which are administered directly onto inflamed nerve root. Out of three approaches available Interlaminar, trans foraminal and caudal, trans foraminal administration allows a more precise application of corticosteroid at the level of inflamed nerve root. Three high quality, placebo controlled trials evaluating trans foraminal approach reported mixed results.[10].One showed long term benefit in one year,[11]one showed mixed short term benfits,12] and one showed no benefit.[13]

In our study, we focused on fluoroscopic guided trans foraminal injection technique by sub - pedicular approach. We used contrast omnipaque to confirm our spread of injectate to avoid complications. Purpose of our study was not to prove superiority of trans foraminal injection technique but to highlight our experience of low back pain with radiculopathy patients over a period of one year. Our experience was positive for beneficial effects of trans foraminal injections in low back pain with radiculopathy as in previous studies [14, 15]. One more thing which came from our experience is that for rural population where education is a problem and patients are really very poor, we can give them good pain relief by filling meticulous proforma based on pain localization and sites determination .Another interesting aspect of running a pain clinic in rural area is that patients are more willing to go for injections for pain relief as compare to having medications which cost them a lot or surgery which leads to inability to earn their living for longer time. So, provided we being as a pain physician adequately assesses them, meticulously examine them and explain them about the procedure and its implications can get good results in terms of patient satisfaction.

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