

Management of Chronic Lower Back Pain: An Observational Study

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Abstract

Background: Low backache with lumbosacral radiculopathy remains the most challenging musculoskeletal problem for its therapeutic management. Caudal epidural steroid administration is an effective treatment for chronic low back pain (LBP).

Materials and Methods: 150 patients were treated with caudal epidural steroid injection for chronic low backache of more than three months at our institute. They were evaluated clinically before and after epidural steroid on the basis of pain, unrestricted activities of day-to-day life and work performance on the basis of visual analogue scale and Oswestry disability index.

Results: A total of 150 patients were followed for one year. Out of 150, 65 were males and 85 females with chronic LBP. Lumbar disc herniation was seen in 52, lumbar canal stenosis in 23 and degenerative disc disease in 30 cases while 45 cases had non-specific LBP. Follow up was done at one week, one month and then every three months up to twelve months of treatment (post third ESI 9 months).

Conclusion: Epidural steroids are slowly proving to be a reliable alternative for all aviating pain and radiculopathy for a short term.

Keywords: epidural steroids, backache, lumbosacral radiculopathy

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Introduction

Low back pain combined with radicular pain remains as one of the most challenging musculoskeletal problems for its therapeutic management.[1] Lumbar radiculopathy (sciatica)with a prevalence of 9.9% to 25% is less prevalent than low back pain alone and is characterized by back pain radiating down the knees to the foot and toes, with variable neurological findings.[2] Conservative treatment, percutaneous spine interventions and surgery have all been used as treatments; and the particular

treatment that's chosen depends on the severity of the clinical and neurologic presentation. In 1930, Evans reported that sciatica could be treated by epidural injection. The use of epidural corticosteroid injections for the treatment of axial and radicular back pain was first reported in 1953. [3] The treatment of chronic axial and/or radicular low back pain, which is the most frequently encountered complaint in orthopedic practice, includes a wide range of options. Lumbar epidural steroid

applications and surgical methods can be used when the conservative methods are inadequate.[4] When epidural steroid administration was found to be effective for management of sciatica, it was adapted for other types of neural blockade that included facet joint blocks. [5,6]

Methyl prednisolone acetate, triamcinolone diacetate and triamcinolone acetonide etc. have been used for neural blockade for pain management. Concerns regarding steroid toxicity to nerves originate from potential toxicity by multiple chemical entities like polyethylene glycol, benzyl alcohol etc. used in epidural steroid injections. Epidural steroid injections (ESI) provide a significant pain free period for patients to undergo rehabilitation and hence an early recovery to work. Surgical treatment is offered to patients not responding to conservative methods or in patients with worsening neurological deficits.[7]

The aim of this study was to evaluate the outcomes in cases of chronic low back ache of more than three months managed by caudal epidural steroid injections at department of Orthopaedics, Government Medical College, Bettiah, West Champaran, Bihar, India.

Materials and Methods:

A prospective study was conducted in the Department of Orthopaedics, Government Medical College, Bettiah, West Champaran, and Bihar, India for 1 year.

Inclusion and Exclusion criteria:

Patients with chronic low back pain and sensory symptoms not responding to conservative management were included in this study. Patients with a previous history of lumbar disc surgery and any motor deficit were excluded from study.

Dose Formulation: Methylprednisolone-80 mg, bupivacane 0.5% (6ml), normal saline 32 ml. [7]

Methodology:

Patient was put in prone position with a pillow under pubic symphysis. Area of skin over sacral hiatus was infiltrated with 1% lignocaine. After piercing sacrococcygeal ligament, an 18-gauge Tuohy needle was introduced into sacral canal through sacral hiatus route. Accurate placement of epidural injection needle was confirmed by lateral view of c arm image intensifier and ESI dose was given.[8]

We noted the pain scores on visual analogue scale (VAS) and Oswestry disability index (ODI) to evaluate the results after caudal ESI. Cases were evaluated as per their ability to perform activities and their ability to return to work before and after the administration of ESI. A total of three epidural doses were given. Second dose was given after a gap of three weeks to patients with insignificant / no pain relief. Third dose was given only in patients not achieving any pain relief after three months. Further follow up included evaluation of VAS and ODI after a periodical gap of three months regularly up to one year. Cases were categorized excellent, good, fair and poor depending upon pre decided criteria of pain relief and activity levels as per VAS and ODI scores.[8]

Results:

Total 215 ESI were given to 150 patients. 105 patients were given single injection, while 35 had two and 20 received three ESI doses. We included total 150 cases in this study, 65 were males and 85 females with chronic LBP. Out of 150 cases of LBP, Lumbar disc herniation was seen in 45, lumbar canal stenosis in 23 and degenerative disc disease in 30 cases while 52 cases had non-specific LBP. (Table 3) Follow up was done at one week, one month and then every three months up to twelve months of treatment (post third ESI 9 months). Mean pre ESI, VAS was 8.21 while it was 4.90 at one year of treatment. (Table 4) Mean pre ESI, ODI score was

61.02 while after twelve months of treatment with ESI it was 40.05 at one year. (Table 5) We obtained excellent results in

28.00 percent, good in 34.00 percent, fair in 24.00 percent while poor in 14.00 percent patients. (Table 6)

Table 1: Showing number of epidural doses given

Number of patients=150	Number of ESI doses	Total doses=215
105	01	105
35	02	70
20	03	40

Table 2: Showing sex distribution of cases of ESI

Gender	Number of cases=150	Percentage
Males	65	43.33
Females	85	56.67

Table 3: Showing causes of LBP

Cause Number of	Number of cases=150	Percentage
Non specific	45	34.67
Lumbar disc herniation	52	30.00
Lumbar canal stenosis	23	15.33
Degenerative disc disease	30	20.00
Total	150	100

Table 4: Showing mean VAS score

Time interval	Mean	SD (standard deviation)
Pre injection	8.21	1.67
At one week	4.15	0.89
At one month	3.62	0.78
At 3 months	4.08	0.70
At 6 months	4.26	0.74
At 9 months	4.51	0.90
One year	4.90	0.71

Table 5: Showing ODI score (percentage)

Time interval	Mean	SD
Pre injection	61.02	9.797
At one week	27.89	5.89
At one month	25.12	3.72
At 3 months	22.71	4.02
At 6 months	25.36	6.91
At 9 months	45.60	8.35
One years	49.05	8.93

Table 6: Showing results after intervention by ESI

Result	Number of patients=150	percentage
Excellent	42	28.00
Good	51	34.00
Fair	36	24.00
Poor	21	14.00

Discussion:

Back pain especially in lumbar region has become a routine problem due to faulty postures, lack of exercises, and excessive burden on spine with or without history of minor to moderate trauma. Prolonged use of analgesics is neither advisable nor beneficial. Lumbar tractions, various physiotherapy techniques, manipulations, all have been used for LBP but with inconsistent results.[8] Back pain is the fifth most common reason individuals seek medical care in USA, and annually, 30 to 50 billion dollars is spent on healthcare to treat it annually.[9] Lumbar tractions, various physiotherapy techniques, manipulations, all have been used for LBP but with inconsistent results. Surgical interventions are recommended for incessant cases or with a deteriorating neurological status only. With such a limited armamentarium, there are a big number of unsatisfied / unrelieved patients of LBP visiting various orthopaedic departments.[9]

Epidural steroid injections can be used by caudal, interlaminar or transforaminal approaches. Robechhi and Capra [10] and Lievre [11] described use of ESI by transforaminal route while use of corticosteroids by caudal epidural space was reported by Cappio.[12] We used caudal epidural technique and found satisfying results. We used caudal epidural technique and found satisfying results.

Peng et al [13] observed in a study over 42 patients that leakage of chemical mediators or inflammatory cytokines produced in a painful disc into epidural space through annular tear could lead to injury to adjacent

nerve roots and might constitute the primary pathophysiological mechanism of radiating leg pain in patients with discogenic low back pain but with no disc herniation. Ackerman et al [14] documented change of pain score and functional score only after 2 weeks of treatment with ESI and followed cases up to 24 weeks. We could obtain comparable results after second ESI at One month.

In a meta-analysis study, Choi H J et al studied long-term benefits of epidural steroids in LBP in terms of pain, disability and subsequent surgery. Their study suggested benefits for less than six months only.[15] Their study suggested benefits for less than six months only. We achieved short term benefits of pain relief for 9 to 12 months after caudal ESI. In a systemic review by Jun L et al for comparing effectiveness of transforaminal versus caudal ESI for managing lumbosacral radicular pain, they found both transforaminal and caudal ESI to be similarly effective. [16] Singh H et al concluded that better results can be obtained with caudal ESI in patients presenting earlier. ESI should not be given to antenatal patients (due to fluoroscopy exposure), cases with any bleeding disorder, any local or systemic infections. These should be avoided in patients with allergy to local anesthetic agents and patients with congestive cardiac failure and diabetes mellitus. Corticosteroids may cause adrenal dysfunction and suppression of hypothalamic pituitary axis suppression in larger doses.[17] Though dural puncture (0.5 to 5%), 4 bacterial meningitis, aseptic meningitis and epidural abscess [18,19] have been reported with use of ESI, we

reported complication of pain at the ESI site only in 13 patients. This was managed with conservative means.

Conclusion:

ESI can be used as alternate method of treatment to patients with chronic LBP not responding to other conventional non-surgical methods of treatment. The present study concluded that ESIs are very effective and significantly reduce pain in patients with chronic function-limiting LBP.

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