

## Analysis of Role of Caudal Epidural Steroid Injection in Chronic Low Back Ache at a Tertiary Care Hospital

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### ABSTRACT

**Background:** Low back pain is a huge health problem in all countries and is most commonly treated in primary healthcare settings. Hence, under the light of above-mentioned data, the present study was undertaken for assessing the role of caudal epidural steroid injection in chronic low back ache.

**Materials & Methods:** A total of 25 patients with chronic low back pain were enrolled in the present study. Detail demographic detail and complete medical and clinical history of all the patients was obtained. History of low back pain was recorded in all the patients. Three caudal epidural injections were given at an interval of three weeks. VAS score was calculated at post third injection, post injection one month and post third injection three months.

**Results:** Mean pre-treatment VAS score was 6.2. Mean VAS post-third injection was 3.8. Mean VAS at one-month post-injection was 3.5. Mean VAS at three months post-third injection was 3.2. Significant reduction in the mean VAS post-treatment was observed at different time intervals.

**Conclusion:** Caudal epidural steroidal injections are effective in treating patients with Low back pain.

**Key words:** Epidural, Injection, Steroid.


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### INTRODUCTION

Low back pain is a huge health problem in all countries and is most commonly treated in primary healthcare settings. It is the most common musculoskeletal condition affecting the adult population. In present scenario, epidural steroids are one of the most common methods among other numerous treatment modalities including surgical interventions for management of chronic low back pain.<sup>1,2</sup> Corticosteroids are routinely used in the treatment of chronic low back pain. They suppress the biochemical factors of inflammation and hence reduce the pain.<sup>3-5</sup> The rationale behind the epidural steroids injection is based upon strong anti-inflammatory effects of corticosteroids irrespective of the routes of administration. It has also been showed that the efficacy of caudal epidural injection has been done by taking the comparison of steroid plus local anaesthetic and steroid only or with steroid plus local anaesthetic and local anaesthetic only.<sup>6</sup> Hence; under the light of above-mentioned data, the present study was undertaken for assessing the role of caudal epidural steroid injection in chronic low back ache.

### MATERIALS & METHODS

The present study was conducted in the Department of Anaesthesiology, Narayan Medical College & Hospital, Rohtas, Sasaram, Bihar (India) and it included assessment of role of role of caudal epidural steroid injection in chronic low back ache. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol.

A total of 25 patients with chronic low back pain were enrolled in the present study. Detail demographic detail and complete medical and clinical history of all the patients was obtained. History of low back pain was recorded in all the patients. Three caudal epidural injections were given at an interval of three weeks. VAS score was calculated at post third injection, post injection one month and post third injection three months. All the values were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for assessment of level of significance.

**RESULTS**

In the present study, a total of 25 patients were analysed. Mean age of the patients of the present study was 49.5 years. There were 15 females and 10 males. Mean pre-treatment VAS score was 6.2. Mean VAS post-third injection was 3.8. Mean VAS at one-month post-injection was 3.5. Mean VAS at three months post-third injection was 3.2. Significant reduction in the mean VAS post-treatment was observed at different time intervals.

**Table 1: Age-wise distribution of patients**

Age group (years)	Patients	
	Number	Percentage
20-30	3	20
31-40	3	13.4
41-50	11	33.3
51-60	8	33.3
MEAN	49.6	

**Table 2: Gender-wise distribution**

Gender	Patients	
	Number	Percentage
Males	10	40
Females	15	60

**Table 3: Mean VAS Score**

Time interval	VAS		p- value
	Mean	SD	
Pre-injection	6.2	3.2	0.00
Post- third injection	3.8	1.8	(Significant)
1 month	3.5	1.5	
3 months	3.2	1.1	

**DISCUSSION**

Since the first report of the use of epidural steroid injections (ESIs), corticoid injection therapy has been commonly and increasingly used in the treatment of lumbosacral radiculopathies. Injection of steroids in the epidural space was initially empirical and developed progressively following the observation of the beneficial effects of intra-articular steroid injections in osteoarthritic joints.<sup>8</sup> Hence; under the light of above-mentioned data, the present study was undertaken for assessing the role of caudal epidural steroid injection in chronic low back ache.

In the present study, a total of 25 patients were analysed. Mean age of the patients of the present study was 49.5 years. There were 15 females and 10 males. Mean pre-treatment VAS score was 6.2. Mean VAS post-third injection was 3.8. Manchikanti L et al determined the efficacy of all three anatomical epidural injection approaches (caudal, interlaminar, and transforaminal) in the treatment of lumbar central spinal stenosis. A systematic review was performed on randomized trials published from 1966 to July 2014 of all types of epidural injections used in the management of lumbar central spinal stenosis. Methodological quality assessment and grading of the evidence was performed. The evidence in managing lumbar spinal stenosis is Level II for long-term improvement for caudal and lumbar interlaminar epidural injections. For transforaminal epidural injections, the evidence is

Level III for short-term improvement only. The interlaminar approach appears to be superior to the caudal approach and the caudal approach appears to be superior to the transforaminal one. The available evidence suggested that epidural injections with local anesthetic alone or with local anesthetic with steroids offer short- and long-term relief of low back and lower extremity pain for patients with lumbar central spinal stenosis.<sup>9</sup>

In the present study, mean VAS at one-month post-injection was 3.5. Mean VAS at three months post-third injection was 3.2. Significant reduction in the mean VAS post-treatment was observed at different time intervals. It is now admitted that interrelated mechanical and biochemical factors are involved in the genesis of nerve root pain. In clinical practice, ESIs are essentially used in the treatment of radiculopathies caused by discal herniation or by lumbar canal stenosis. In the case of discal herniation, cells from the degenerated disc fragments produce numerous inflammatory mediators including TNF and various other inflammatory cytokines. High levels of phospholipase A2, precursor of prostaglandins E2, have also been found in herniated discs. All these neurotoxic substances may penetrate within the intraneural capillaries causing axonal ischemia, which in turn is responsible for nerve root pain.<sup>7-9</sup>

Benoist M et al conducted a literature search of systematic reviews analysing the effectiveness and complications of ESIs. The scientific quality of the reviews was assessed using the validated index of Oxman and Guyatt. We relied on data abstraction and quality ratings of the placebo-controlled trials as reported by high-quality systematic reviews. Two types of systematic reviews were found. The Cochrane high-quality systematic reviews combining the three approaches and different pathologies were predominantly non-conclusive. The second type of review, emanating from the US Evidence-based Practice Centers, distinguishing between the routes of administration and between the principal pathologies found a moderate short-term benefit of ESIs versus placebo in patients with disc herniation and radiculitis, in keeping with the clinical experience. ESIs are generally well tolerated and most complications are related to technical problems. Cases of paraplegia, complicating the foraminal route and related to the violation of a radiculomedullary artery, have been recently reported. They are predominantly observed in previously operated patients. Epidural steroid injections have a moderate short-term effect in the management of low-back pain with radiculopathy.<sup>10</sup>

**CONCLUSION**

From the above results, it can be concluded that caudal epidural steroidal injections are effective in treating patients with Low back pain.

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