

## Original Research

### Assessment of efficacy of caudal epidural injections in patients with chronic low back pain

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#### ABSTRACT:

**Background:** One of the oldest challenges in the history of medicine is the attempt to understand pain. Lumbar epidural steroid injection is performed via a transforaminal (TF), caudal (C), or interlaminar (IL) approach in the lumbar spine; these approaches offer different advantages and disadvantages, which may result in different outcomes. Hence; under the light of above mentioned data the present study was undertaken for assessing the role of caudal epidural injections in management of chronic low back pain. **Materials & methods:** A total of 100 cases with chronic low back ache for atleast 3 months were taken and treated with epidural injection of steroid and followed upto a period of 6 months. At the conclusion of the injection a note was made of the following: relief of pain and its extent was measured subjectively as well as by straight leg raising test, and motor and sensory examination. If the first injection failed to relieve symptoms, further injections could be given at 3-week interval. A total of three injections appeared to be a reasonable limit. A visual analogue scale was presented to patient before and after the procedure and at follow up and then subsequently every 2 months and values will be recorded in the Performa attached. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. **Results:** Mean Pre-injection VAS was 7.12, while mean VAS at post-last injection, 1 week post-last injection, 3 weeks post last injection, 6 weeks post last injection, 4 months post last injection and 6 months post last injection was found to be 3.55, 3.12, 3.02, 3.08, 3.45 and 3.36 respectively. Significant results were obtained while comparing the mean VAS at different time intervals. **Conclusion:** Administration of caudal epidural injection in chronic low back pain patients provided effective relief of pain and a functional improvement.

**Key words:** Caudal, Epidural

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#### INTRODUCTION

One of the oldest challenges in the history of medicine is the attempt to understand pain. Pain has a valuable role in medical action, as the symptom par excellence and, therefore, as a precious and meaningful tool. Low back pain is a considerable health problem in all developed countries and is most commonly treated in primary healthcare settings. It is usually defined as pain, muscle tension, or stiffness localised below the costal margin and above the inferior gluteal folds, with or without leg pain (sciatica).<sup>1-3</sup>

Low back pain is a common disorder. Nearly everyone is affected by it at some time. For most people affected by low back pain substantial pain or disability is short lived and they soon return to normal activities regardless of any advice or treatment they

receive. A small proportion, however, develop chronic pain and disability.<sup>4</sup>

Development of tools for the detection of dorsal Lumbar epidural steroid injection (LESI) was first suggested as a conservative treatment for radicular pain in 1952 by Robecchi and Capra and it has since become one of the most commonly utilized conservative interventions for radiculopathy.<sup>31</sup> Steroids are used to reduce inflammation in the epidural space. LESI is performed via a transforaminal (TF), caudal (C), or interlaminar (IL) approach in the lumbar spine; these approaches offer different advantages and disadvantages, which may result in different outcomes.<sup>4-6</sup> Hence; under the light of above mentioned data the present study was undertaken for

assessing the role of caudal epidural injections in management of chronic low back pain.

### MATERIALS & METHODS

The present study was undertaken for assessing the role of caudal epidural injections in management of chronic low back pain. 100 cases admitted to evaluate the functional outcome/pain relief after caudal epidural injection in chronic low back ache. A total of 50 cases with chronic low back ache for atleast 3 months were taken and treated with epidural injection of steroid and followed upto a period of 6 months. Before the injection was given the procedure was carefully explained to the patient, who was told to expect increase in intensity of his symptoms during the injection. At the conclusion of the injection a note was made of the following: relief of pain and its extent was measured subjectively as well as by straight leg raising test, and motor and sensory examination. If the first injection failed to relieve symptoms, further injections could be given at 3-week interval. A total of three injections appeared to be a reasonable limit. A visual analogue scale was presented to patient before and after the procedure and

at follow up and then subsequently every 2 months and values will be recorded in the Performa attached. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test was used for assessment of level of significance. P-value of less than 0.05 was taken as significant.

### RESULTS

A total of 100 patients were analysed. Mean age of the patients of the present study was 46.9 years. 34 and 40 percent of the patients belonged to the age group of 41 to 50 years and 51 to 60 years respectively. Discogenic pain and radicular pain were the cause of lower back pain in 40 percent and 16 percent of the patients. In 46 percent of the patients, two injections were administered, while in 28 percent of the patients, 3 injections were administered. Mean Pre-injection VAS was 7.12, while mean VAS at post-last injection, 1 week post-last injection, 3 weeks post last injection, 6 weeks post last injection, 4 months post last injection and 6 months post last injection was found to be 3.55, 3.12, 3.02, 3.08, 3.45 and 3.36 respectively. Significant results were obtained while comparing the mean VAS at different time intervals.

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

Age group (years)	CAUDAL EPIDURAL	
	Number	Percentage
18-30	16	16
31-40	10	10
41-50	34	34
51-60	40	40
Total	100	100
MEAN $\pm$ SD	46.9 $\pm$ 11.5	

**Table 2: Number of epidural injections**

Number of epidural injections	Number of patients	Percentage of patients
One	26	26
Two	46	46
Three	28	28
Total	100	100

**Table 3: Mean VAS Score**

Time interval	Mean VAS	p-value
Pre-injection	7.12	0.000 (Significant)
Post- last injection	3.55	
Post- last injection 1 week	3.12	
Post- last injection 3 weeks	3.02	
Post- last injection 6 weeks	3.08	
Post- last injection 4 months	3.45	
Post- last injection 6 months	3.36	

### DISCUSSION

Low back pain is a problem that is common and costly to society, and its effective management remains a challenge. It is a common global problem and according to the Centers for Disease Control and Prevention (CDC), it is the one of the leading cause of disability among adults. Pain is non-specific in about

85% of people. About 4% of people with low back pain in primary care have compression fractures, and about 1% have a tumour. The prevalence of prolapsed intervertebral disc among people with low back pain in primary care is about 1% to 3%. Ankylosing spondylitis and spinal infections are less common. This review only covers chronic low back pain where

a definitive diagnosis cannot be made. Risk factors include heavy physical work; frequent bending, twisting, and lifting; and prolonged static postures. Psychosocial risk factors include anxiety, depression, and mental stress at work.<sup>6-10</sup>

A total of 100 patients were analysed. Mean age of the patients of the present study was 46.9 years. 34 and 40 percent of the patients belonged to the age group of 41 to 50 years and 51 to 60 years respectively. Discogenic pain and radicular pain were the cause of lower back pain in 40 percent and 16 percent of the patients. In 46 percent of the patients, two injections were administered, while in 28 percent of the patients, 3 injections were administered. Bhatti AB et al evaluated the efficacy of the different types of epidural injections (EI) to prevent surgical intervention in patients suffering from chronic sciatica due to lumbar disc herniation (LDH). Studies were identified by searching PubMed, MEDLINE, and Google Scholar to retrieve all available relevant articles. Significant improvement in the pain scores and functional disability scores were observed. Additionally, greater than 80% of the patients suffering from chronic sciatica caused by LDH could successfully prevent surgical intervention after EI treatment with or without steroids. They concluded that EI provides new hope to prevent surgical intervention in patients suffering from sciatica caused by LDH.<sup>9</sup> Billy GG et al evaluated and determined whether demographic, comorbid factors, or physical examination findings may predict the outcome of caudal epidural steroid injections in managing patients with chronic low back pain and radiculopathy. They concluded that the mean length of relief following a caudal injection is reduced by 62% in patients who exhibit pain with lumbar extension.<sup>10</sup>

In the present study, mean Pre-injection VAS was 7.12, while mean VAS at post-last injection, 1 week post-last injection, 3 weeks post last injection, 6 weeks post last injection, 4 months post last injection and 6 months post last injection was found to be 3.55, 3.12, 3.02, 3.08, 3.45 and 3.36 respectively. Significant results were obtained while comparing the mean VAS at different time intervals. Lee JH et al investigated whether TFESI was more useful than CESI for achieving clinical outcomes in patients with LDH. Comprehensive reviews of selected articles revealed better clinical benefits with TFESI than with CESI, possibly because TFESI had the ability to deliver medication directly into the target area. Because of a low level of evidence and no significant results on meta-analysis, TFESI could be weakly recommended over CESI.<sup>11</sup> Chumnanvej S et al determined the pain reduction result by controllable caudal catheter (CCC) in leg pain patients who were poor surgical candidates. The pain reduction result by CCC was comparable with TF-SNRB in early follow-up. They are also useful for patients who are not candidates for surgery.<sup>12</sup>

## CONCLUSION

Administration of caudal epidural injection in chronic low back pain patients provided effective relief of pain and a functional improvement.

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