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### Original Research

## Evaluation of outcomes in chronic low back pain patients treated by caudal epidural injections

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#### ABSTRACT:

**Background:** To evaluate the outcomes in chronic low back pain patients treated by caudal epidural injections. **Materials & methods:** A total of 25 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 in relation to relief of pain. A visual analogue scale was presented to patient before and after the procedure and at follow up. **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 and 4 months post last injection was found to be 3.56, 3.44, 3.2, 3.10 and 3.38 respectively. Significant results were obtained while comparing the mean VAS at different time intervals. **Conclusion:** There is insufficient evidence to support the use of injection therapy in chronic low-back pain.

**Key words:** Chronic, Back Pain, Steroid

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#### INTRODUCTION

Chronic low-back pain is a very common problem for which there is currently no universally effective treatment. Patients with chronic low-back pain have many treatment options and it is important for them to understand the evidence behind each treatment option they may be considering.<sup>1,2</sup> Since the first report of the use of epidural steroid injections (ESIs) by Lievre et al. in 1953, 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>3,4</sup>

Epidural injections are administered by accessing the lumbar epidural space by multiple routes including caudal, transforaminal, and interlaminar. While significant differences have been described between these 3 approaches, with the caudal approach, multiple advantages include being target specific for a

lower levels, thus reaching the primary site of pathology, its ability to reach the ventrolateral epidural space in a significant proportion of patients, and that it can be safely performed in cases of post surgery syndrome with hardware, etc.<sup>5-7</sup> Hence; the present study was conducted for evaluation of outcomes in chronic low back pain patients treated by caudal epidural injections.

#### MATERIALS & METHODS

The present study was a prospective observational study of 25 cases to evaluate the outcome after caudal epidural injection in chronic low back pain. A total of 25 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. The principal aim in this exercise was to obtain the patient's confidence. The injection was

made through the sacral hiatus which was located by palpation using the index finger or thumb. At the conclusion of the injection a note was made in relation to relief of pain. A visual analogue scale was presented to patient before and after the procedure and at follow up. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software.

## RESULTS

Mean age of the patients was 49.2 years. 72 percent of the patients of the present study were females while

the remaining 28 percent were males. Mean weight of the patients was 77.25 Kg. In 56 percent of the patients, two injections were administered, while in 24 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 and 4 months post last injection was found to be 3.56, 3.44, 3.2, 3.10 and 3.38 respectively. Significant results were obtained while comparing the mean VAS at different time intervals.

**Table 1: Number of epidural injections**

Number of epidural injections	Number of patients	Percentage of patients
One	5	20
Two	14	56
Three	6	24
Total	25	100

**Table 2: Mean VAS Score**

Time interval	CAUDAL EPIDURAL		p- value
	Mean	SD	
Pre-injection	7.12	1.12	0.000 (Significant)
Post- last injection	3.56	0.87	
Post- last injection 1 week	3.44	0.76	
Post- last injection 3 weeks	3.21	0.72	
Post- last injection 6 weeks	3.10	0.71	
Post- last injection 4 months	3.38	0.75	

## DISCUSSION

Chronic low back pain arising from various structures of the spine constitutes the majority of the pain problems in the United States and across the world. With the increasing prevalence of chronic persistent low back pain, numerous modalities of treatments applied to manage chronic low back pain are also exploding. Epidural injections are one of the most commonly utilized modalities of treatment in managing chronic low back pain and lower extremity pain, in addition to numerous other modalities including surgical interventions.<sup>8,9</sup>

The therapeutic effects of epidural steroid injections are attributed to an inhibition of the synthesis or release of pro-inflammatory substances. Corticosteroid delivered into the epidural space is able to attain high local concentrations. Reports on thousands of patients indicate that epidural corticosteroid injections are relatively straightforward and safe. Recent reviews on epidural steroid injection have shown variable results. In a review of 12 randomised clinical trials half showed that epidural steroid was more effective, whereas the other half reported it to be no better or worse than the reference treatment.<sup>9</sup> A meta-analysis of 11 placebo controlled trials showed an improvement (75% reduction of pain) both in the short term, as well as in the long term. The conclusions drawn were that epidural steroid is effective in the management of sciatica

accompanying low back pain. Analysis by the numbers needed to treat gives a measure of the clinical benefit of this study. The numbers needed to treat were six (95% confidence interval 4 to 12) for short term benefit and 11 (6 to 90) for long term benefit.<sup>8-11</sup> Hence; the present study was conducted for evaluation of outcomes in chronic low back pain patients treated by caudal epidural injections.

Mean age of the patients was 49.2 years. 72 percent of the patients of the present study were females while the remaining 28 percent were males. Mean weight of the patients was 77.25 Kg. In 56 percent of the patients, two injections were administered, while in 24 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 and 4 months post last injection was found to be 3.56, 3.44, 3.2, 3.10 and 3.38 respectively. Parr AT et al evaluated the effect of caudal epidural injections with or without steroids in managing various types of chronic low back pain. The available literature on caudal epidural injections with or without steroids in managing various types of chronic low back pain with or without lower extremity pain was reviewed. The level of evidence was classified as good, fair, or poor based on the quality of evidence developed by the U.S. Preventive Services Task Force (USPSTF). Data sources included relevant literature identified through

searches of PubMed and EMBASE from 1966 to December 2011, and manual searches of the bibliographies of known primary and review articles. The primary outcome measure was pain relief (short-term relief = up to 6 months and long-term > 6 months). Secondary outcome measures of improvement in functional status, psychological status, return to work, and reduction in opioid intake were utilized. For their systematic review, 73 studies were identified. Of these, 51 were excluded and a total of 16 studies met inclusion criteria for methodological quality assessment with 11 randomized trials and 5 non-randomized studies. For lumbar disc herniation, the evidence is good for short- and long-term relief of chronic pain secondary to disc herniation or radiculitis with local anesthetic and steroids and fair relief with local anesthetic only. In managing chronic axial or discogenic pain, spinal stenosis, and post surgery syndrome, the indicated evidence is fair.<sup>12</sup>

Significant results were obtained while comparing the mean VAS at different time intervals. Benoist M et al carried out a literature search of systematic reviews analysing the effectiveness and complications of ESIs (Epidural steroid injection). 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.<sup>13</sup>

## CONCLUSION

There is insufficient evidence to support the use of injection therapy in chronic low-back pain. However, it cannot be ruled out that specific subgroups of

patients may respond to a specific type of injection therapy.

## REFERENCES

1. Tulder M, Furlan A, Bombardier C, Bouter L. Updated method guidelines for systematic reviews in the Cochrane Collaboration Back Review Group. *Spine* 2003;28(12):1290-9.
2. Ware JE, Sherbourne C. The MOS 36-item short-form Survey (SF-36): I. Concept framework and item selection. *Med Care* 1992;30:473-83.
3. Lievre JA, Bloch-Michel H, Attali B. L'injection transacrée: étude clinique et radiologique. *Bull Soc Med Hop Paris*. 1957;73:1110-1117.
4. Lievre JA, Bloch-Michel H, Pean G, et al. L'hydrocortisone en injection locale. *Rev Rhum*. 1953;20:310-311.
5. Manchikanti L, Singh V, Caraway DL, Benyamin RM, Hirsch JA. Medicare physician payment systems: Impact of 2011 schedule on interventional pain management. *Pain Physician* 2011; 14:E5-E33.
6. Bogduk N, Christophidis N, Cherry D. Epidural use of steroids in the management of back pain. Report of working party on epidural use of steroids in the management of back pain. National Health and Medical Research Council, Canberra, Commonwealth of Australia, 1994; pp 1-76
7. Manchikanti L, Datta S, Derby R, Wolfer LR, Benyamin RM, Hirsch JA. A critical review of the American Pain Society clinical practice guidelines for interventional techniques: Part 1. Diagnostic interventions. *Pain Physician* 2010; 13:E141-E174.
8. Carette S, Leclaire R, Marcoux S, Morin F, Blaise GA, St-Pierre A, et al. Epidural corticosteroid injections for sciatica due to herniated nucleus pulposus. *N Engl J Med* 1997;336: 1634-40.
9. Koes BW, Scholten RJ, Mens JM, Bouter LM. Efficacy of epidural steroid injections for low back pain and sciatica: a systematic review of randomized clinical trials. *Pain* 1995;63: 279-88.
10. Watts RW, Silagy CA. Meta-analysis and the efficacy of epidural corticosteroids in the treatment of sciatica. *Anaesthesia Intensive Care* 1995;223: 564-9.
11. Samanta A, Beardsley J. Sciatica: which intervention? *BMJ* 1999;319: 302-3.
12. Parr AT, Manchikanti L, Hameed H, Conn A, Manchikanti KN, Benyamin RM, Diwan S, Singh V, Abdi S. Caudal epidural injections in the management of chronic low back pain: a systematic appraisal of the literature. *Pain Physician*. 2012 May-Jun;15(3):E159-98. PMID: 22622911.
13. Benoist M, Boulu P, Hayem G. Epidural steroid injections in the management of low-back pain with radiculopathy: an update of their efficacy and safety. *Eur Spine J*. 2012 Feb;21(2):204-13.