Interlaminar cervical epidural injections (ic-ESI) are commonly performed as one part of a multi-modal analgesic regimen in the management of upper extremity radicular pain.

They are safe and effective treatment options for the management of acute and chronic radiculopathy, spinal stenosis, and other causes of neck pain not responding to more conservative measures.

A systematic review with qualitative best evidence synthesis shows Level II evidence for the efficacy of cervical interlaminar epidural injections with local anesthetic with or without steroids, based on at least one high-quality relevant randomized control trial in each category for disc herniation, discogenic pain without facet joint pain, central spinal stenosis, and cervical postsurgery syndrome ¹⁾.

Limitations

The presence of Central Sensitization has a negative effect on pain scales, disability, and quality of life in patients undergoing cervical epidural steroid injection due to Cervical Disc Herniation²⁾.

Complications

see Cervical interlaminar epidural steroid injection complications

Randomized, double-blind, active control trial

Setting: A specialty referral, private interventional pain management practice in the United States.

Objectives: To evaluate the effectiveness of cervical interlaminar epidural injections of local anesthetic with or without steroids in providing effective and long-lasting relief in the management of chronic neck pain and upper extremity pain in patients with cervical postsurgery syndrome, and to evaluate the differences between local anesthetic with or without steroids.

Methods: Patients were randomly assigned to one of 2 groups: Group I patients received cervical interlaminar epidural injections of local anesthetic (lidocaine 0.5%, 5 mL); Group II patients received cervical interlaminar epidural injections with 0.5% lidocaine, 4 mL, mixed with 1 mL of nonparticulate betamethasone. The study was designed to include 120 patients with 60 patients in each group. This analysis includes 56 patients. Randomization was performed by computer-generated, random allocation sequence by simple randomization.

Outcomes assessment: Outcome measures included the Numeric Rating Scale (NRS), the Neck Disability Index (NDI), employment status, and opioid intake. Assessments at baseline and 3, 6, and 12 months posttreatment. Significant pain relief was defined as 50% or more; significant

improvement in NDI was defined as a reduction of 50% or more.

Results: Significant pain relief (>/= 50%) was demonstrated in 71% of patients in Group I and 68% of patients in Group II. Functional status improvement was demonstrated by a reduction (> 50%) in the NDI scores in 71% of Group I and 64% of Group II at 12 months. The overall average procedures per year were 4.0 ± 0.7 in Group I and 4.1 ± 1.0 in Group II; the average total relief per year was 39.6 \pm 11.8 weeks in Group I and 41.2 ± 15.8 weeks in Group II over the 52 week study period in the patients defined as successful. In the successful group, the combined pain relief and neck disability improvement was seen in 87% in Group I and 72% of the patients in Group II.

Limitations: The study results are limited by the lack of a placebo group and a preliminary report of 56 patients, 28 in each group.

Conclusion: Cervical interlaminar epidural injections with local anesthetic with or without steroids were effective in 67% of patients overall and 87% in Group I and 72% in Group II, in successful group patients with chronic function-limiting neck pain and upper extremity pain secondary to cervical postsurgery syndrome ³⁾.

Case series

Sacaklidir et al. investigated the effect of Central Sensitization on interlaminar epidural steroid injection (ILESI) treatment outcomes in patients with cervical disc herniation (CDH) in a observational study in a university hospital pain management center.

Patients, who underwent ILESI between 2020-2021 due to CDH, were included in the study. The Numeric Rating Scale (NRS-11), Neck Pain and Disability Scale (NPDS), Self-Administered Leeds Assessment of Neuropathic Symptoms and Signs (S-LANSS), and Short Form-12 (SF-12) were used for evaluation of patients. Patients were assessed before the procedure, at the first hour, and 3 months after the procedure. The presence of CS was investigated by the Central Sensitization Inventory (CSI).

A total of 51 patients were included in the study. Twenty-three of the patients had CS, as assessed by the CSI. Although, patients who underwent ESI, had significantly lower NRS-11, S-LANSS, and NPDS scores, and higher SF-12 scores at all follow-up points. The first and third months, NRS-11, S-LANSS, and NPDS were significantly higher, and SF-12 scores were lower in the CS group compared to patients without CS.

Limitations: The short follow-up period and relatively low number of patients can be considered as a limitation. The fact that CS is not evaluated with a more objective method, such as Quantitative Sensory Testing (QST), can be considered as another limitation. Since most clinicians use CSI, so from a "real world" perspective the lack of QST may be observed as a strength of the study. The third limitation is that we did not evaluate the patients' pre- and posttreatment analgesic consumption. Finally, we did not include patients with a history of psychiatric illness, but not evaluating the current psychiatric conditions of the patients could be considered a limitation. Nevertheless, the main strengths of this study are its prospective design and, to our knowledge, it is the first study to explore the effects of CS on cervical ESI treatment.

The presence of Central Sensitization has a negative effect on pain scales, disability, and quality of life in patients undergoing cervical epidural steroid injection due to Cervical Disc Herniation⁴⁾.

Pending Classification

1: Faried A, Dewi S, Herman H, Rahman AN. Lumbar interlaminar epidural steroid injections for chronic low back- and lower extremity-pain in Sjogren's syndrome: A case report. Int J Surg Case Rep. 2022 May;94:107053. doi: 10.1016/j.ijscr.2022.107053. Epub 2022 Apr 6. PMID: 35439726; PMCID: PMC9026938.

2: Conger A, Kendall RW, Sperry BP, Petersen R, Salazar F, Cunningham S, Henrie AM, Bisson EF, Teramoto M, McCormick ZL. One-year results from a randomized comparative trial of targeted steroid injection via epidural catheter versus standard transforaminal epidural injection for the treatment of unilateral cervical radicular pain. Reg Anesth Pain Med. 2021 Sep;46(9):813-819. doi: 10.1136/rapm-2021-102514. Epub 2021 May 14. PMID: 33990435.

3: Shields LBE, Iyer VG, Zhang YP, Shields CB. latrogenic neurological injury after radiofrequency ablation and epidural steroid injections: illustrative cases. J Neurosurg Case Lessons. 2021 May 10;1(19):CASE2148. doi: 10.3171/CASE2148. PMID: 35854838; PMCID: PMC9245771.

4: Nowicki KW, Gale JR, Agarwal V, Monaco EA 3rd. Pneumomyelia Secondary to Interlaminar Cervical Epidural Injection Causing Acute Cord Injury with Transient Quadriparesis. World Neurosurg. 2020 Nov;143:434-439. doi: 10.1016/j.wneu.2020.08.090. Epub 2020 Aug 18. PMID: 32822950.

5: McCormick ZL, Conger A, Sperry BP, Teramoto M, Petersen R, Salazar F, Cunningham S, Michael Henrie A, Bisson E, Kendall R. A Randomized Comparative Trial of Targeted Steroid Injection via Epidural Catheter vs Standard Transforaminal Epidural Injection for the Treatment of Unilateral Cervical Radicular Pain: Six-Month Results. Pain Med. 2020 Oct 1;21(10):2077-2089. doi: 10.1093/pm/pnaa242. Erratum in: Pain Med. 2021 Aug 6;22(8):1888-1890. PMID: 32797232.

6: Mesregah MK, Feng W, Huang WH, Chen WC, Yoshida B, Mecum A, Mandalia K, Van Halm-Lutterodt N. Clinical Effectiveness of Interlaminar Epidural Injections of Local Anesthetic with or without Steroids for Managing Chronic Neck Pain: A Systematic Review and Meta-Analysis. Pain Physician. 2020 Jul;23(4):335-348. PMID: 32709169.

7: Jang JH, Lee WY, Kim JW, Cho KR, Nam SH, Park Y. Ultrasound-Guided Selective Nerve Root Block versus Fluoroscopy-Guided Interlaminar Epidural Block versus Fluoroscopy-Guided Transforaminal Epidural Block for the Treatment of Radicular Pain in the Lower Cervical Spine: A Retrospective Comparative Study. Pain Res Manag. 2020 Jun 13;2020:9103421. doi: 10.1155/2020/9103421. PMID: 32617125; PMCID: PMC7306851.

8: Banik RK, Chen Chen CC. Spinal Epidural Hematoma after Interlaminar Cervical Epidural Steroid Injection. Anesthesiology. 2019 Dec;131(6):1342-1343. doi: 10.1097/ALN.000000000002896. PMID: 31365368.

9: Park KD, Lee WY, Nam SH, Kim M, Park Y. Ultrasound-guided selective nerve root block versus fluoroscopy-guided interlaminar epidural block for the treatment of radicular pain in the lower cervical spine: a retrospective comparative study. J Ultrasound. 2019 Jun;22(2):167-177. doi: 10.1007/s40477-018-0344-z. Epub 2018 Dec 5. PMID: 30519991; PMCID: PMC6531573.

10: Epstein NE. Major risks and complications of cervical epidural steroid injections: An updated review. Surg Neurol Int. 2018 Apr 23;9:86. doi: 10.4103/sni.sni_85_18. PMID: 29740507; PMCID: PMC5926212.

11: Smith GA, Pace J, Strohl M, Kaul A, Hayek S, Miller JP. Rare Neurosurgical Complications of Epidural Injections: An 8-Yr Single-Institution Experience. Oper Neurosurg (Hagerstown). 2017 Apr 1;13(2):271-279. doi: 10.1093/ons/opw014. PMID: 28927205.

12: Benyamin RM, Vallejo R, Wang V, Kumar N, Cedeño DL, Tamrazi A. Acute Epidural Hematoma Formation in Cervical Spine After Interlaminar Epidural Steroid Injection Despite Discontinuation of Clopidogrel. Reg Anesth Pain Med. 2016 May-Jun;41(3):398-401. doi: 10.1097/AAP.000000000000397. PMID: 27035463.

13: Lee JH, Lee SH. Comparison of Clinical Efficacy Between Interlaminar and Transforaminal Epidural Injection in Patients With Axial Pain due to Cervical Disc Herniation. Medicine (Baltimore). 2016 Jan;95(4):e2568. doi: 10.1097/MD.00000000002568. PMID: 26825899; PMCID: PMC5291569.

14: Park CH, Lee SH. Feasibility of Contralateral Oblique Fluoroscopy-guided Cervical Interlaminar Steroid Injections. Pain Pract. 2016 Sep;16(7):814-9. doi: 10.1111/papr.12341. Epub 2015 Aug 27. PMID: 26310909.

15: Kim YD, Ham HD, Moon HS, Kim SH. Delayed Pneumocephalus Following Fluoroscopy Guided Cervical Interlaminar Epidural Steroid Injection: A Rare Complication and Anatomical Considerations. J Korean Neurosurg Soc. 2015 May;57(5):376-8. doi: 10.3340/jkns.2015.57.5.376. Epub 2015 May 31. Erratum in: J Korean Neurosurg Soc. 2015 Jun;57(6):491. PMID: 26113967; PMCID: PMC4479721.

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Manchikanti L, Nampiaparampil DE, Candido KD, Bakshi S, Grider JS, Falco FJ, Sehgal N, Hirsch JA. Do Cervical Epidural Injections Provide Long-Term Relief in Neck and Upper Extremity Pain? A Systematic Review. Pain Physician. 2015 Jan-Feb;18(1):39-60. PubMed PMID: 25675059.

Sacaklidir R, Sanal-Toprak C, Yucel FN, Gunduz OH, Sencan S. The Effect of Central Sensitization on Interlaminar Epidural Steroid Injection Treatment Outcomes in Patients with Cervical Disc Herniation: An Observational Study. Pain Physician. 2022 Sep;25(6):E823-E829. PMID: 36122265.

Manchikanti L, Malla Y, Cash KA, McManus CD, Pampati V. Fluoroscopic cervical interlaminar epidural injections in managing chronic pain of cervical postsurgery syndrome: preliminary results of a randomized, double-blind, active control trial. Pain Physician. 2012 Jan-Feb;15(1):13-25. PMID: 22270734.

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