

Cochrane Corner

Are epidural corticosteroid injections effective for lumbosacral radicular pain? A Cochrane Review summary with commentary

Francesco Negrini
IRCCS Istituto Ortopedico Galeazzi, Italy

Abstract.

BACKGROUND: Epidural corticosteroid injection is one of the most common non-surgical procedures for lumbosacral radicular pain.

OBJECTIVE: To assess efficacy and safety of epidural corticosteroid injections compared with placebo injections in patients with lumbosacral radicular pain.

METHODS: A summary and commentary of a Cochrane Review by Oliveira et al.

RESULTS: 25 studies with a total of 2740 participants were included in the review. Moderate quality evidence pointed out a small effect on leg pain at immediate and short-term follow-up and on disability at short-term and intermediate follow-up. Adverse events were not different between corticosteroid and placebo injections.

CONCLUSIONS: Epidural corticosteroid injection is slightly more effective than placebo for leg pain and disability at short-term follow up. Clinicians and patients however should be informed of the small effect size of the treatment.

Keywords: Epidural corticosteroid injections, lumbosacral radicular pain, sciatica, low back pain

The aim of this commentary is to discuss in a rehabilitation perspective the published Cochrane Review “Epidural corticosteroid injections for lumbosacral radicular pain” (Oliveira et al., 2020) by Oliveira et al.^a, under the direct supervision of Cochrane Back and Neck Group. This Cochrane Corner is produced in agreement with NeuroRehabilitation by Cochrane Rehabilitation.

*Address for correspondence: Francesco Negrini, IRCCS Istituto Ortopedico Galeazzi, Via R. Galeazzi 4, 20161, Milan, Italy. Tel.: +39 0266214057; E-mail: francesco.negrini2@grupposandonato.it.

^aThis summary is based on a Cochrane Review previously pub-

1. Background

Lumbosacral radicular pain refers to pain radiating to lower limbs due to a dysfunction in the spinal nerve root. It is a fairly common pathology, with an

lished in the Cochrane Database of Systematic Reviews 2020, Issue 4, Art. No.:CD013577, DOI: 10.1002/14651858.CD013577 (see www.cochranelibrary.com for information). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and Cochrane Database of Systematic Reviews should be consulted for the most recent version of the review.

The views expressed in the summary with commentary are those of the Cochrane Corner author and do not represent the Cochrane Library or Wiley.

34 estimated one-year prevalence ranging from 3% to
35 14%. While prognosis is generally favorable, after
36 four years more than a half of patients reported symp-
37 toms (Tubach et al., 2004). Epidural corticosteroid
38 injection is one of the most common non-surgical pro-
39 cedure for lumbosacral radicular pain (Manchikanti
40 et al., 2012). It consists in injecting corticosteroid
41 directly in the epidural space in order to relieve pain
42 and eventually limit resultant disability.

43 Epidural corticosteroid injections for lumbosacral 44 radicular pain

45 (Oliveira CB, Maher CG, Ferreira ML, Hancock
46 MJ, Oliveira VC, McLachlan AJ, Koes BW, Ferreira
47 PH, Cohen SP, Pinto RZ, 2020)

48 2. Objective

49 The aim of this Cochrane Review was to investi-
50 gate the efficacy and safety of epidural corticosteroid
51 injections compared with placebo injection on pain
52 and disability in patients with lumbosacral radicular
53 pain.

54 3. What was studied and methods

55 A comprehensive search of the following databases
56 up to 25 September 2019 was performed: Cochrane
57 Back and Neck group trial register, CENTRAL,
58 MEDLINE, Embase, CINAHL, PsycINFO, Inter-
59 national Pharmaceutical Abstracts, and two trial
60 registers. The population addressed in this review was
61 patients suffering from lumbosacral radicular pain.
62 The interventions studied was epidural corticosteroid
63 injections, compared to placebo injections. The pri-
64 mary outcomes studied were leg pain measured by
65 Visual Analogue Scale (VAS) and disability mea-
66 sured by self-reported questionnaire (e.g. Oswestry
67 Disability Index or Roland-Morris Disability Ques-
68 tionnaire). Secondary outcomes included overall and
69 back pain intensity, percentage of patients who had
70 pain relief, percentage of patients with disability
71 reduction from baseline, and adverse events mea-
72 sured by the proportion of patients reporting any
73 untoward medical occurrence after an epidural corti-
74 costeroid injection.

75 4. Results

76 The review included 25 studies with a total of 2740
77 participants.

The review shows that:

- 78 • Epidural corticosteroid injections were proba- 79
80 bly slightly more effective compared to placebo 81
82 injection for reducing leg pain at immedi- 83
84 ate follow-up (MD -15.0 , 95% CI -25.88 to 85
86 -4.12 on a 0 to 100 scale; 1 trial, 158 partici- 87
88 pants; moderate-quality evidence) and at short- 89
90 term follow-up (MD -4.93 , 95% CI -8.77 to 91
92 -1.09 on a 0 to 100 scale; 8 trials, 949 partici- 93
94 pants; moderate-quality evidence). Epidural 95
96 corticosteroid injections probably have no effect 97
98 compared to placebo injection for reducing leg 99
100 pain at intermediate follow-up (MD 9.10 , 95% 101
102 CI -1.44 to 19.64 on a 0 to 100 scale; 1 trial, 158 103
104 participants; moderate-quality evidence) and at 105
106 long-term follow-up (MD -0.35 , 95% CI -6.23 107
108 to 5.53 on a 0 to 100 scale; 3 trials, 453 partici- 109
110 pants; moderate-quality evidence). 111
112 • Epidural corticosteroid injections probably have 113
114 no effect compared to placebo injection in reduc- 115
116 ing disability at immediate follow-up (SMD 117
118 0.08 , 95% CI -0.17 to 0.33 ; 2 trials, 243 partici- 119
120 pants; very low quality evidence) and long-term 121
122 follow-up (SMD -0.14 , 95% CI -0.38 to 0.10 ; 123
124 7 trials, 882 participants; low quality evidence). 125
126 Epidural corticosteroid injections were proba-
127 bly slightly more effective compared to placebo
128 injection for reducing disability at short-term
129 follow-up (SMD -0.27 , 95% CI -0.39 to -0.14 ;
130 12 trials, 1367 participants; moderate-quality
131 evidence) and at intermediate follow-up (SMD
132 -0.20 , 95% CI -0.40 to -0.01 ; 6 trials, 866
133 participants; low quality evidence).
134 • It is uncertain whether epidural corticosteroid
135 injections result in an increased risk of minor
136 adverse events (risk ratio (RR) 1.14 , 95% CI
137 0.91 to 1.42 ; 8 trials, $n=877$; very low quality
138 evidence). Most studies did not report the tim-
139 ing of possible adverse events, and just reports
140 adverse events the authors considered related to
141 treatment. Only one study reported a major drug
142 reaction: one patient on anticoagulant therapy
143 had a retroperitoneal haematoma as a complica-
144 tion of the corticosteroid injection.

122 5. Conclusions

123 The authors concluded that epidural corticosteroid
124 injection were probably slightly more effective than
125 placebo for leg pain and disability at short-term

126 follow up, with only minor adverse effects, and it was
127 uncertain if there were differences in frequency of
128 adverse effects. However, treatment effects are small
129 and might not be considered clinically significant by
130 clinicians and patients.

131 6. Implications for practice in 132 neurorehabilitation

133 Taken together, the evidence included in the review
134 suggests an effect of epidural corticosteroid injections
135 on short-term pain and disability, but at the
136 same time warns both clinicians and patients that
137 the effect might be small, and even not clinically
138 significant. Clinicians should inform patients about
139 the small effect size of this specific treatment. Furthermore,
140 the review by Oliveira et al. suggests that
141 adverse events are mostly minor and it is uncertain
142 if there are differences in that regard between epidural
143 and placebo injections. Unfortunately, evidence
144 about safety is still of very low quality, and further
145 studies are needed to clarify both efficacy and safety
146 of epidural corticosteroid injections.

147 Conflict of interest

148 The author declares no conflicts of interest.

Acknowledgments

The author thanks Cochrane Rehabilitation and
Cochrane Musculoskeletal Group for reviewing the
contents of the Cochrane Corner.

References

- Manchikanti, L., Falco, F. J. E., Singh, V., Pampati, V., Parr, A. T., Benjamin, R. M., Fellows, B., & Hirsch, J. A. (2012). Utilization of interventional techniques in managing chronic pain in the Medicare population: Analysis of growth patterns from 2000 to 2011. *Pain Physician*, *15*(6), E969-982.
- Oliveira, C. B., Maher, C. G., Ferreira, M. L., Hancock, M. J., Oliveira, V. C., McLachlan, A. J., Koes, B. W., Ferreira, P. H., Cohen, S. P., & Pinto, R. Z. (2020). Epidural corticosteroid injections for lumbosacral radicular pain. *The Cochrane Database of Systematic Reviews*, *4*, CD013577. <https://doi.org/10.1002/14651858.CD013577>
- Tubach, F., Beauté, J., & Leclerc, A. (2004). Natural history and prognostic indicators of sciatica. *Journal of Clinical Epidemiology*, *57*(2), 174-179. [https://doi.org/10.1016/S0895-4356\(03\)00257-9](https://doi.org/10.1016/S0895-4356(03)00257-9)