

## Epidural Steroid Injection (ESI) – Cervical

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### Purpose

The purpose of this document is to outline Workforce Safety & Insurance's (WSI) treatment guidelines for epidural steroid injections (ESI) – cervical.

### Background

WSI adopted ODG by MCG, formerly Work Loss Data Institute's Official Disability Guidelines (ODG), in July 2005, to use in the utilization review and claim management process. ODG by MCG provides independent, evidence-based medical treatment guidelines for conditions commonly associated with the workplace.

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### Policy

See Appendix: Treatment Guidelines – Epidural Steroid Injection (ESI) – Cervical

## Appendix

### Treatment Guidelines – Epidural Steroid Injection (ESI) – Cervical

The following guideline is an excerpt from ODG by MCG's neck and upper back section accessed on 06/06/2019.

#### **Not Recommended (generally)**

Not recommended based on recent evidence, given the serious risks of this procedure in the cervical region and the lack of quality evidence for sustained benefit. This treatment had been recommended as an option for treatment of radicular pain (defined as pain in dermatomal distribution with corroborative findings of radiculopathy), with specific criteria for use below.

#### **ODG Criteria**

**While not recommended, cervical ESIs may be supported by documenting exceptions to the guidelines, in which case:**

#### **Criteria for the use of Epidural steroid injections, therapeutic:**

*Note: The purpose of ESI is to reduce pain and inflammation, thereby facilitating progress in more active treatment programs, and avoiding surgery, but this treatment alone offers no significant long-term functional benefit.*

- (1) Radiculopathy must be documented by physical examination and corroborated by imaging studies and/or electrodiagnostic testing.
- (2) Initially unresponsive to conservative treatment (exercises, physical methods, NSAIDs and muscle relaxants).
- (3) Injections should be performed using fluoroscopy (live x-ray) for guidance
- (4) No more than two nerve root levels should be injected using transforaminal blocks
- (5) No more than one interlaminar level should be injected at one session
- (6) In the therapeutic phase, repeat blocks should only be offered if there is at least 50% pain relief for six to eight weeks, with a general recommendation of no more than 4 blocks per region per year.
- (7) Repeat injections should be based on continued objective documented pain and function response.
- (8) Current research does not support a “series-of-three” injections in either the diagnostic or therapeutic phase. We recommend no more than 2 ESI injections.
- (9) It is currently not recommended to perform epidural blocks on the same day of treatment as facet blocks or stellate ganglion blocks or sympathetic blocks or trigger point injections as this may lead to improper diagnosis or unnecessary treatment.
- (10) Cervical and lumbar epidural steroid injection should not be performed on the same day;
- (11) Additional criteria based on evidence risk:
  - (i) ESIs are not recommended higher than the C6-7 level;
  - (ii) Cervical interlaminar ESI is not recommended;
  - (iii) Particulate steroids should not be used. ([Benzon, 2015](#))
- (12) Excessive sedation should be avoided.

#### **Criteria for the use of Epidural steroid injections, diagnostic:**

If used for diagnostic purposes, a maximum of two injections should be performed. A second block is not recommended if there is inadequate response to the first block. Diagnostic blocks should be at an interval of at least one to two weeks between injections.

## Appendix

### Treatment Guidelines – Epidural Steroid Injection (ESI) – Cervical (Continued)

To determine the level of radicular pain, in cases where diagnostic imaging is ambiguous, including the examples below:

- (1) To help to evaluate a pain generator when physical signs and symptoms differ from that found on imaging studies;
- (2) To help to determine pain generators when there is evidence of multi-level nerve root compression;
- (3) To help to determine pain generators when clinical findings are suggestive of radiculopathy (e.g. dermatomal distribution), and imaging studies have suggestive cause for symptoms but are inconclusive;
- (4) To help to identify the origin of pain in patients who have had previous spinal surgery.

#### Evidence Summary

In a previous Cochrane review, there was only one study that reported improvement in pain and function at four weeks and at one year in individuals with radiating chronic neck pain. ([Peloso-Cochrane, 2006](#)) ([Peloso, 2005](#)) Other reviews have reported moderate short-term and long-term evidence of success in managing cervical radiculopathy with interlaminar ESIs. ([Stav, 1993](#)) ([Castagnera, 1994](#)) Some have also reported moderate evidence of management of cervical nerve root pain using a transforaminal approach. ([Bush, 1996](#)) ([Cyteval, 2004](#)) A previous retrospective review of interlaminar cervical ESIs found that approximately two-thirds of patients with symptomatic cervical radiculopathy from disc herniation were able to avoid surgery for up to 1 year with treatment. Success rate was improved with earlier injection (< 100 days from diagnosis). ([Lin, 2006](#)) There have been case reports of cerebellar infarct and brainstem herniation as well as spinal cord infarction after cervical transforaminal injection. ([Beckman, 2006](#)) ([Ludwig, 2005](#)) Quadriplegia with a cervical ESI at C6-7 has also been noted ([Bose, 2005](#)) and the American Society of Anesthesiologists Closed Claims Project database revealed 9 deaths or cases of brain injury after cervical ESI (1970-1999). ([Fitzgibbon, 2004](#)) These reports were in contrast to a retrospective review of 1,036 injections that showed that there were no catastrophic complications with the procedure. ([Ma, 2005](#)) The American Academy of Neurology concluded that epidural steroid injections may lead to an improvement in radicular lumbosacral pain between 2 and 6 weeks following the injection, but they do not affect impairment of function or the need for surgery and do not provide long-term pain relief beyond 3 months, and there is insufficient evidence to make any recommendation for the use of epidural steroid injections to treat radicular cervical pain. ([Armon, 2007](#)) In other studies, there was evidence for short-term symptomatic improvement of radicular symptoms with epidural or selective root injections with corticosteroids, but these treatments did not appear to decrease the rate of open surgery. ([Haldeman, 2008](#)) ([Benyamin, 2009](#)) Some experts have said epidural steroid injections should be reserved for those who may otherwise undergo open surgery for nerve root compromise. ([Bigos, 1999](#)) There is limited evidence of the effectiveness of epidural injection of methyl prednisolone and lidocaine for chronic MND with radicular findings. ([Peloso-Cochrane, 2006](#)) The FDA has warned that injection of corticosteroids into the epidural space of the spine may result in rare but serious adverse events, including loss of vision, stroke, paralysis, and death. ([FDA, 2014](#))

Sedation: The use of sedation during ESI remains controversial. Excessive sedation should be avoided because it prevents the patient from reporting pain and from participating in neurologic evaluation after receiving a test dose of local anesthetic. However, some experts have promoted the use of mild sedation to prevent complications due to sudden movements

## Appendix

### Treatment Guidelines – Epidural Steroid Injection (ESI) – Cervical (Continued)

([Malhotra, 2009](#)) A multidisciplinary collaboration led by the FDA recommended that sedation for ESI remain light enough to allow the patient to communicate during the procedure.

([Rathmell, 2015](#)) For a more extensive discussion, see the Pain Chapter. See also the Low Back Chapter.

*Recent evidence:* ESIs should not be recommended in the cervical region, the FDA's Anesthetic and Analgesic Drug Products Advisory Committee concluded. Injecting a particulate steroid in the cervical region, especially using the transforaminal approach, increases the risk for sometimes serious and irreversible neurological adverse events, including stroke, paraplegia, spinal cord infarction, and even death. The FDA has never approved an injectable corticosteroid product administered via epidural injection, so this use, although common, is considered off-label. Injections into the cervical region, as opposed to the lumbar area, are relatively risky due to the narrower epidural space, and the risk for accidental injury in the arterial system is greater in this location. ([FDA, 2015](#)) An AMA review suggested that ESIs are not recommended higher than the C6-7 level; no cervical interlaminar ESI should be undertaken at any segmental level without preprocedural review; and particulate steroids should not be used in therapeutic cervical transforaminal injections. ([Benzon, 2015](#)) According to the American Academy of Neurology (AAN), ESIs do not improve function, lessen need for surgery, or provide long-term pain relief, and the routine use of ESIs is not recommended. They further said that there is in particular a paucity of evidence for the use of ESIs to treat radicular cervical pain. ([AAN, 2015](#)) In this comparative-effectiveness study, no significant differences were found between ESI and conservative treatments. ([Cohen, 2014](#))