

Bedfordshire and Hertfordshire Priorities Forum statement

Number: 55

Subject: Back Injections: the elective use of epidural and facet joint injections and denervation of facet joints in management of back pain

Date: May 2015

Date of review: May 2018

Guidance

Guidance on epidural injections is on page 1, facet joint injections on page 4, and radiofrequency denervation on page 6 of this guidance.

1. Epidural Injections for Lumbar Back Pain

CCGs will fund lumbar interlaminar and lumbar transforaminal epidural injections for patients with radicular pain due to herniated disc (sciatica) when the following criteria have been met:

- The patient has radicular pain (below the knee for lower lumbar herniations, into the anterior thigh for upper lumbar herniations) consistent with the level of spinal involvement;

OR

- There is evidence of nerve-root irritation with a positive nerve-root tension sign (straight leg raise—positive between 30° and 70° or positive femoral tension sign);

AND

- Symptoms persist despite some non-operative treatment for at least 3 months (e.g. analgesia, physical therapy, bed rest etc);

AND

- The patient is 18 years or above.

AND

- Epidural injections beyond the first three injections are provided as part of a comprehensive pain management programme.

To prevent complications associated with steroids patients may receive up to 3 injections in 12 months 2-3 months apart provided there has been >50% reduction in symptoms for six weeks.

Evidence

Epidural injection for the management of spinal pain is one of the commonest interventions performed in many countries. Spinal pain is a common cause of chronic pain with lifetime prevalence 54-80%. Annual prevalence of chronic low back pain ranges from 15-45%.

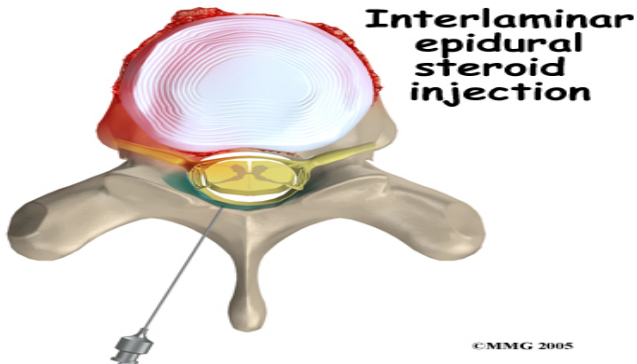
There are several approaches for epidural injections:

- Inter-laminar entry can be directed more closely to the assumed site of pathology.
- The transforaminal approach is target specific and requires the least

- volume to reach the target site.
- The caudal approach is the least complicated with minimal risk but requires the highest volume of all three to reach the target site

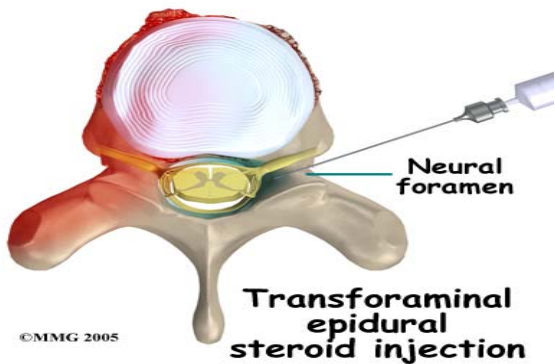
Interlaminar epidural injections

There is level strong (level II-2 evidence) (1) that interlaminar epidural injection is effective for short-term relief of lumbar radicular pain.



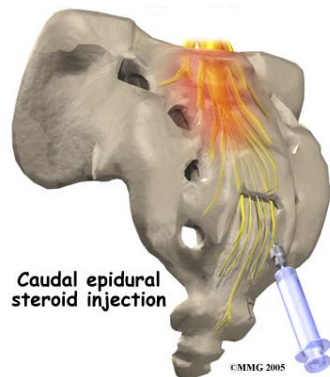
Transforaminal epidural injections

There is strong evidence (level II-1) (2) that lumbar transforaminal epidural injection provide short term relief of lumbar nerve root pain and moderate level (II-2) of evidence for long-term relief.



Caudal epidural injections

There is insufficient evidence (level III) (3) for the use of caudal epidural injections in the management of spinal pain.



Cost effectiveness

A 2005 NHS R&D HTA (4) concluded that epidural steroid injections do not provide good value for money if NICE recommendations are followed. Although epidural steroid injections appear relatively safe, it was found that they confer only transient benefit in symptoms and self-reported function in a small group of patients with sciatica at substantial costs.

Complications

The most common type of complications are related to needle placement and drug administration including dural puncture, spinal cord trauma, subdural injections, abscess formation etc.

References

1. Allan T. Parr, Sudhir Diwan, Salahadin Abdi. Lumbar Interlaminar Epidural Injections in Managing Chronic Low Back and Lower Extremity Pain: A Systematic Review. *Pain Physician* 2009; 12:163-188
2. Ricardo M. Buenaventura, Sukdeb Datta, Salahadin Abdi, Howard S. Smith. Systematic Review of Therapeutic Lumbar Transforaminal Epidural Steroid Injections. *Pain Physician* 2009; 12:233-251
3. Ann Conn, Ricardo M. Buenaventura, Sukdeb Datta, Salahadin Abdi, Sudhir Diwan. Systematic Review of Caudal Epidural Injections in the Management of Chronic Low Back Pain. *Pain Physician* 2009; 12:109-135
4. Price C, Arden N, Coglan L, Rogers P. Cost-effectiveness and safety of epidural steroids in the management of sciatica. *Health Technol Assess* 2005;9(33).

2. Therapeutic facet joint injections

CCGs will fund the specific facet joint injections as specified below:

- Intra-articular injections for the management somatic or non-radicular pain of lumbar origin.
- Medial branch blocks for the management of somatic or non-radicular pain of cervical, thoracic and lumbar back origin.

Criteria

CCGs will fund facet joint injections when all the following criteria are met:

- Facet joint pain is confirmed by controlled diagnostic local anaesthetic block;
- AND
- The pain has lasted for more than 3 months and average pain levels of ≥ 6 on a scale of 0 to 10. Levels of pain must be assessed using a validated tool e.g. McGill Pain Questionnaire, Pain Visual Analogue Score (VAS)
- AND
- The pain has resulted in significant impact on daily functioning;
- AND
- All conservative management options (bed rest, exercise, pharmacotherapy including analgesia and muscle relaxants) have been tried for at least 3 months and failed.
- AND
- Therapeutic facet joint injections beyond the first three injections are provided as part of a comprehensive pain management programme.

In the diagnostic phase the patient may receive 2 injections 1-2 weeks apart, in the therapeutic phase, up to 3 injections 2-3 months apart provided there has been >50% reduction in symptoms for eight weeks.

Evidence

Facet or zygapophysial joints are common sources of chronic spinal pain accounting for approximately 15-45% of cases of chronic low back pain, 36-60% of chronic neck pain and 34-48% of cases of thoracic pain. Facet joint pain syndrome is poorly defined without clear clinical diagnostic criteria.

Facet joint injections involve the instillation of analgesic and/or corticosteroid into the facet joint and around its nerve supply (ramus medialis of the ramus dorsalis) usually under fluoroscopic guidance. There are three types of injections- intraarticular injections, medial branch blocks and neurolysis of the medial branch nerves.

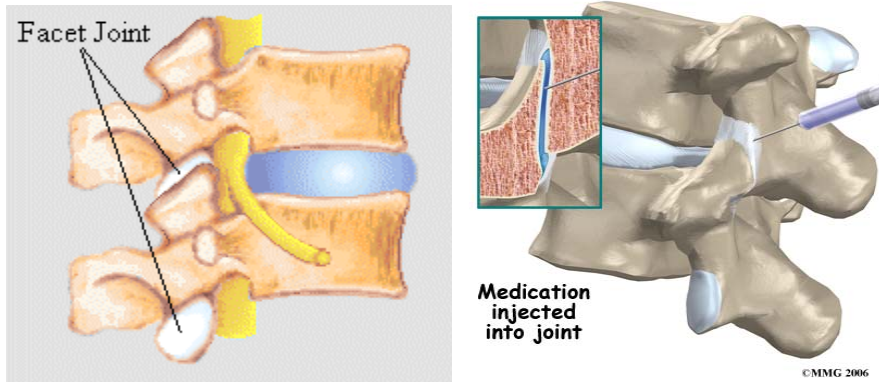
Intra-articular Injections

There is moderate evidence of effectiveness of short and long term pain relief (Short term <6 weeks, long term > 6 weeks) of chronic low back pain following of intra-articular injection of steroids and local anaesthetic.

There is limited evidence of effectiveness of short and long term pain relief of chronic neck back pain following of intra-articular facet injection.

Medial Branch Blocks

There is moderate evidence of effectiveness of short and long term pain relief of cervical, thoracic and lumbar back pain following medial branch block.



Diagnostic facet joint blocks

Diagnostic facet joint blocks have a specificity of 8% and sensitivity varying from 27-63% for cervical spine, 42-58% thoracic spine and 17-50% in the lumbar spine. The positive predictive value has been estimated at 31% and the diagnostic effect may be confounded by leakage into the periarticular tissues.

Complications

The most common complications are related to needle placement and drug administration e.g. dural puncture, spinal cord trauma, infection, intra-arterial and intravenous injection, spinal anaesthesia, chemical meningitis etc.

References

- (1) Airaksinen O, Hildebrand J et al. European Guidelines for the Management of Chronic Non-Specific Back Pain. Nov 2004
- (2) Boswel MV, Trescot AM, Datta S et al. Interventional Techniques: Evidence based practice Guidelines in the Management of Chronic Spinal Pain. Pain Physician 2007; **10**: 7-111
- (3) Laxmaiah M, Boswell MV, Singh V, et al. Comprehensive Evidence-Based Guidelines for Interventional Techniques in the Management of Chronic Spinal Pain. Pain Physician 2009; **12**:699-802

3. Thermal radiofrequency denervation of lumbar and cervical facet joints

Criteria

CCGs will fund thermal radiofrequency controlled denervation of the medial branch of the dorsal rami of the lumbar and cervical facet joints (medial branch neurotomy) in the following circumstances (all must apply):

- Patients aged over 18.
- Non-radicular lumbar (all levels) or cervical (C3-4 and below) facet joint pain.
- Failure of six months of non-invasive therapy, such as medication and physiotherapy and bed rest.
- Average pain levels of ≥ 6 on a scale of 0 to 10. Levels of pain must be assessed using a validated tool e.g. McGill Pain Questionnaire, Pain Visual Analogue Score (VAS)
- Radiological imaging has ruled out any correctable structural lesion e.g. MRI.
- At least 2 anaesthetic diagnostic blocks, one of which must be of the medial branch of the dorsal ramus innervating the target facet joint with at least 80% reduction in pain following each block during the activities that normally generate pain. The pain relief must be consistent with the expected duration of the anaesthetic block.
- All procedures must be performed under fluoroscopy (x-ray guidance).

CCGs **will not** fund cryoneurolysis or laser denervation.

CCGs **will not** fund this procedure in patients with facet joint pain associated with a neurological deficit, radiculopathy or overt disc herniation, metastatic disease, patients awaiting back surgery, multiple, focal or chronic pain syndromes.

CCGs **will fund** one injection per side per level i.e. one facet neurotomy at the same side at the same level or two joint levels unilaterally or bilaterally. CCGs will not fund re-treatment at the same location unless at least six months have elapsed since prior treatment.

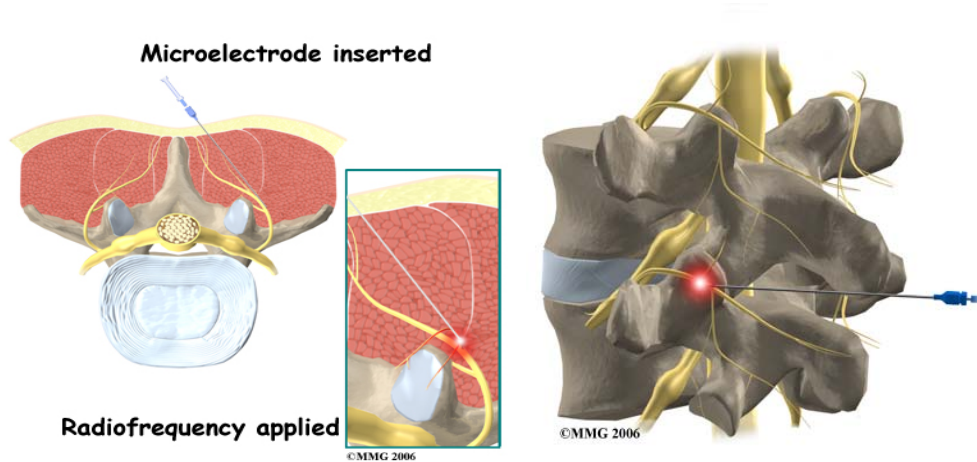
If more than one region are involved all regions be treated at the same time, provided all procedures are performed safely. Cervical and thoracic are considered as one region and lumbar and sacral are considered as one region

Background

Facet or zygapophysial joints are paired diarthrodial joints between posterior elements of adjacent vertebrae. They are innervated by the medial branches of the dorsal rami. Facet joints pain is responsible for spinal pain in 15-45% of patients with low back pain, 36-67% of people with neck pain and 34-48% of people with thoracic pain (1).

The procedure

Radiofrequency facet denervation involves percutaneous neurotomy of the medial branches of the dorsal rami by radiofrequency thermoneurolysis, cryoneurolysis or laser denervation.



The procedure relieves pain by denervating the sensory nerve that supplies the painful facet joint. This can be undertaken by radiofrequency thermoneurolysis using thermal or pulsed mode, cryoneurolysis or laser denervation.

During thermal radiofrequency denervation an insulated, cannulated needle is placed on the nerve supplying the painful facet joint under x-ray guidance (fluoroscopy). The nerve is then stimulated to ensure correct localization. Radiofrequency energy generating heat at 80°C is applied for approximately 90 seconds. Pulsed radiofrequency denervation is a relatively new technology in which pulsed radiofrequency energy is applied at 42 °C, the nerve is temporarily disabled not totally destroyed.

Diagnostic facet joint blocks

Diagnostic facet joint blocks have a specificity of 8% and sensitivity varying from 27-63% for cervical spine, 42-58% thoracic spine and 17-50% in the lumbar spine. The positive predictive value has been estimated at 31% and the diagnostic effect may be confounded by leakage into the periarticular tissues.

Complications

The most common complications are related to needle placement and drug administration e.g. dural puncture, spinal cord trauma, infection, intraarterial and intravenous injection, spinal anaesthesia, chemical meningitis etc (1,2).

Evidence

The evidence for radiofrequency facet denervation is largely derived from small randomised controlled trials, prospective and retrospective uncontrolled studies. There is moderate level evidence that the procedure is effective for short –term (<3 months) and long term relief of cervical and lumbar facet joint pain. Success is dependent on careful selection of patients including response to diagnostic anaesthetic blocks (1).

There is insufficient evidence to support:

- Facet neurotomy using cryoneurolysis or laser denervation.
- Radiofrequency denervation in the thoracic and sacral regions.

References

(1) Laxmaiah M, Boswell MV, Singh V, et al. Comprehensive Evidence-Based Guidelines for Interventional Techniques in the Management of Chronic Spinal Pain. *Pain Physician* 2009; 12:699-802

(2) Gofeld M, Jitendra J, Faclier G. Radiofrequency denervation of the lumbar zygapophyseal joints: 10-year prospective clinical audit. *Pain Physician* 2007, **10**:291-299