

Anderberg L, Annertz M, et al. Transforaminal steroid injections for the treatment of cervical radiculopathy: a prospective and randomised study. Eur Spine J 2007;16:321-328.

Design: Randomized clinical trial

Population/sample size/setting:

- 40 patients (20 men, 40 women, mean age 51) treated for cervical radiculopathy at a university neurosurgery department in Sweden
- Eligibility criteria were unilateral cervical radiculopathy with arm pain distal to the elbow on the same side as corresponding cervical degenerative MRI changes, either at one or two levels
 - o If the MRI correlated with the symptom level, the patient was required to have a 50% reduction in arm pain 30 minutes after a selective nerve root block using 0.5 ml of mepivacaine (10 mg/ml)
- Exclusion criteria were spinal cord compression and myelopathy

Main outcome measures:

- Randomized to transforaminal injection with either mepivacaine (0.5 ml) plus steroid (40 mg methylprednisolone acetate) (n=20) or to mepivacaine plus saline (n=20), with all injections done under fluoroscopy
- Injections were done by a neuroradiologist who was aware of the injectate; the patient and the evaluating neurosurgeon/physical therapist were blinded
- Outcomes were assessed with a 10 item questionnaire immediately prior to and 3 weeks after treatment, in which the patient reported changes in symptoms of pain, strength, mobility, analgesic use, and sleep
 - o Each question had 3 possible answers: no change, change for the better, change for the worse
- In the steroid group, there were 13 patients with single-level and 7 with two-level degeneration; in the control group, there were 16 patients with single-level and 4 with two-level degeneration
- The 40 patients answered a total of 400 questions regarding symptom changes
 - o In the steroid group, 17% of the answers indicated a reduction in symptoms
 - o In the control group, 16% of the answers indicated a reduction in symptoms
- In the steroid group, 8/20 patients reported benefit from the treatment, 6 of them reporting benefit persisting at 3 weeks; in the control group, 7/20 reported benefit, with 6 reporting lasting benefit at 3 weeks
- No serious complications were reported; 4 patients had an increase in radicular pain for a few days after the injection, but at 3 weeks, none reported a persisting negative effect from the injections

Authors' conclusions:

- There was no short-term difference between the combination of steroid and local anesthetics and the combination of saline and local anesthetics for cervical degenerative disease with radiculopathy
- All patients had confirmation of the diagnosis with MRI and nerve root blocks, and should represent a population optimal for transforaminal steroid injections
- Future studies should focus on defining separate subgroups of cervical radiculopathy (hard discs, soft discs, foraminal stenosis) and compression of different structures (lateral part of spinal cord, root entry zone, dorsal root ganglion, ventral root)
- Spondylotic radicular pain decreases over time with conservative treatment and steroid injections can probably help some patients avoid surgery, and this could be a good reason to continue the treatment

Comments:

- Although 40 patients were randomized after meeting the MRI and nerve root block entry criteria, the authors did not report how many patients were screened and examined, and how many were excluded from the study
- An equal number of patients reported benefit from anesthetic plus saline as from anesthetic plus steroid; the authors did not present a reason why anesthetic injection could not be an equally good reason for continuing surgery if avoiding surgery is the goal of treatment
- Some details regarding risk of bias (allocation concealment) were not reported, but follow-up was complete, patient selection was optimal, and the results have a low risk of bias
- The study was too small to define subgroups who could benefit from injections for cervical radiculopathy
- This appears to be the only RCT comparing steroid versus placebo for cervical radiculopathy; other studies have been retrospective or have compared different techniques for delivery of steroid in the cervical spine

Assessment: Adequate for evidence that cervical transforaminal injection of anesthetic plus steroid is similar to injection of anesthetic plus saline for cervical radiculopathy