

MacVicar J, King W, et al. The Effectiveness of Lumbar Transforaminal Injection of Steroids: A Comprehensive Review with Systematic Analysis of the Published Data. Pain Med 2013 14:14-28.

Design: Systematic review of published trials

Authors' results and conclusions:

- A systematic review of clinical studies of transforaminal injection of steroids (TFIS) concludes:
 - o That they are effective in a limited number of patients, with up to 70% of patients having at least 50% relief at 1 to 2 months after treatment, and that 30% of patients have complete relief
 - o TFIS is more often successful in patients with contained disc herniations than with other disc herniations (sequestered, extruded) and in patients with low grades of nerve compression
 - o TFIS is not a placebo, being more effective than saline injection
 - o TFIS reduces the burden of illness, restoring function and reducing the need for other health care and surgery
 - o TFIS is cost-effective in patients with contained herniations
- Restricting a systematic review to randomized trials misrepresents the volume of evidence available and can overlook otherwise informative studies
- Randomized trials may enroll patients who are not representative of those seen by practicing physicians
- It is not appropriate to score articles for quality because scales for this purpose have not been validated and because they may complicate a review with technicalities
- The data in each publication were appraised for how well they supported the effectiveness of the procedure in question

Reasons for not citing as evidence:

- The authors raise an important and nontrivial issue concerning the appropriateness of looking only at randomized trials in conducting systematic reviews of the effectiveness of clinical interventions
- The authors also cite evidence which suggests that scoring of clinical studies for quality should not be done, since no scale has been validated for this purpose (Olivo 2008)
 - o The Division of Workers' Compensation recognizes the principle that the interpretation of medical literature is not standardized, and does not rely on scoring systems for evaluation of literature as evidence of the effectiveness of any intervention
 - o However, many of the considerations applied to the evaluation of literature have been validated, even though the scoring systems have not been validated
 - For example, allocation concealment of the randomization list, participant and evaluator blinding, and adequate method of randomization have been validated as guards against the risk of bias
- The authors' dismissal of the "technicalities" of randomized trials overlooks the issue of studies' vulnerability to the risk of bias, a word which does not appear in the article

- The authors do raise some important and valuable issues which deserve research
 - o The studies of epidural steroid injection cited in Pinto's recent meta-analysis could not be analyzed for the differential effectiveness of injections in different patient subgroups
 - o The difference between effectiveness of injections in patients with contained disc herniations versus other disc pathologies is biologically plausible and deserves further study
 - The authors cite a study (Karppinen 2001) which was a post hoc subgroup analysis of a separately published randomized trial in which the type of disc herniation was mentioned (bulge, contained herniation, extrusion) but was not part of the planned analysis
 - While highly interesting, the hypothesis of the contained versus extruded disc is not established as evidence, even though it warrants some attention as a consideration for patient selection for steroid injection
- The authors do acknowledge that the evidence for TFIS for central canal stenosis is speculative, which is consistent with recent opinion that central stenosis is not a good indication for epidural steroid injection

Assessment: Inadequate as evidence for the effectiveness of TFIS for any lumbar spine condition (neglect of the very important issue of bias in observational studies), but does raise a worthy hypothesis for separate study (contained disc herniation as a predictor of success)

References:

Karppinen J, Ohinmaa A, et al. Cost Effectiveness of Periradicular Infiltration for Sciatica. *Spine* 2001;26(23):2587-2595

Olivio SA, Macedo LG, et al. Scales to Assess the Quality of Randomized Controlled Trials: A Systematic Review. *Phys ther* 2008;88(2):156-175.