Systematic review of cervical discography as a diagnostic test for chronic spinal pain
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CRD summary
This review concluded that cervical discography performed according to International Association for the Study of Pain criteria may be a useful tool for evaluating chronic cervical pain, without disc herniation or radiculitis. The paucity of good-quality data means the conservative conclusion drawn by the authors’ conclusions is appropriate.

Authors' objectives
To evaluate the validity and usefulness of cervical provocation discography in the management and diagnosis of discogenic pain.

Searching
MEDLINE, EMBASE, NIH Clinical Trials Registry and The Cochrane Library were searched from inception to December 2008. References were screened. Search terms were reported. The review was restricted to studies published in full in English in peer-reviewed journals.

Study selection
Studies that reported discography findings alone or in combination with other tests in symptomatic patients with cervical pain of greater than three months duration were eligible for inclusion. Studies had to provide details on pain provocation and disc morphology. Discography had to be performed according to International Association for the Study of Pain (IASP) criteria (utilise fluoroscopy, pain provocation and control disc). Studies that included patients with ethical barriers or chronic spinal pain due to disc protrusion or verifiable non-discogenic aetiology were excluded, as were studies performed intraoperatively and those that did not provide data on diagnostic validity.

All included studies enrolled patients with chronic neck pain.

Assessment of study quality
Two reviewers independently assessed study quality according to the Agency for Healthcare Research and Quality (AHRQ) criteria. Studies were assigned a score out of 100 according to guidelines developed by the American Society of Interventional Pain Physicians (ASIPP). Studies had to score at least 50 to be included in the analysis. Disagreements were resolved through discussion with a third reviewer.

Data extraction
It appeared that data were extracted on the proportion of patients with positive diagnoses.

Methods of synthesis
A narrative synthesis was presented structured according to the modified quality of evidence developed by the United States Preventive Services Task Force (USPSTF) to summarise levels of evidence based on study design.

Results of the review
Three studies (n=405) were included in the review. All three studies scored 10/15 for study population, 10/10 for adequate description of the test, 10/15 for appropriateness of references standard, 10/15 for reproducibility of reference standard, 15/15 for evaluation of test without knowledge of disease state, 0/15 for independent blind interpretation of test and reference standard and 15/15 for avoidance of verification bias.
There was level II-2 evidence (evidence obtained from at least one properly designed small diagnostic accuracy study) for diagnostic validity of cervical provocation discography. The prevalence of cervical discogenic pain ranged from 16% to 20% (two studies).

Results for 17 studies that reported surgical outcomes that did not meet the review inclusion criteria were presented.

**Authors' conclusions**

Cervical discography performed according to IASP criteria may be a useful tool for evaluating chronic cervical pain without disc herniation or radiculitis.

**CRD commentary**

The review addressed a broad objective, supported by appropriate inclusion criteria. A large number of studies that did not fulfill inclusion criteria were considered in the results. The search was adequate for published studies, but restriction of the review to full-text published English-language studies raised the possibility of language and publication biases. Study quality was assessed using relevant criteria. Appropriate steps were taken to minimize reviewer bias and errors in assessment of study quality [A: at each stage in the review process]. Limited details of the design of included studies were reported.

Given the paucity of good-quality data, the reliability of the conservative authors' conclusions drawn by the authors is appropriate.

**Implications of the review for practice and research**

**Practice**: The authors did not state any implications for practice.

**Research**: The authors stated that larger studies with preserved investigational criterion were needed.

**Funding**

None.

**Bibliographic details**


**PubMedID**

19305482

**Original Paper URL**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Animals; Cervical Vertebrae; Chronic Disease; Evidence-Based Medicine /methods; False Positive Reactions; Humans; Intervertebral Disc /pathology /radiography; Neck Pain /etiology /physiopathology /radiography; Pain Measurement /methods; Spinal Diseases /complications /radiography

**AccessionNumber**

12009107240

**Date bibliographic record published**

16/12/2009
Date abstract record published
31/03/2010

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.