The Rates of False-Positive Lumbar Discography in Select Patients Without Low Back Symptoms

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Abstract

Study Design. Experimental disc injections in subjects with no history of low back symptoms.

Objective. To determine in an experimental setting the relative pain response and pain-related behavior in selected subjects without a history of low back pain undergoing lumbar discography. This study aimed to select a study population that more closely represented patients undergoing discography in clinical practice.

Summary of Background Data. Previous work has shown that in young, healthy men with little degenerative disc disease and no history of low back problems, discographic injections usually did not cause significant pain. This group differed from the patients who usually undergo discographic evaluation in clinical practice. Most clinical patients are older, have significant degenerative disc disease, have behavioral changes associated with chronic pain, and often have confounding psychosocial troubles. The authors undertook to study discography in subjects without low back pain but with clinical profiles similar to patients undergoing discography in clinical practice.

Methods. Twenty-six individuals, mean age 43 years, with no history of low back pain had lumbar discography according to the strict protocol of Walsh et al. Of these, 10 were pain-free; 10 had chronic neck and arm pain, but no low back symptoms; and 6 had primary somatization disorders without low back symptoms.

Results. Significant positive pain response and pain-related behavior with discography were found in 10% of the pain-free group, in 40% of the chronic cervical pain group, and in 83% of the somatization disorder group completing the injections. Twenty-four subjects had negative control discs. Discs with anular disruption were more likely to be painful on injection, particularly in those individuals with ongoing compensation issues, chronic pain, or abnormal psychological testing.

Conclusion. If strict criteria are applied, the rate of false-positive discography may be low in subjects with normal psychometric profiles and without chronic pain. Significantly painful injections were very common in subjects with anular disruption and chronic pain or abnormal psychometric testing.

Discography may be a useful tool in the evaluation of spinal disorders. Although there may be several accepted indications for this test, the use of discography in diagnosing the etiology of low back pain is perhaps the most controversial. Patients
with intractable low back pain (LBP) frequently are evaluated with lumbar
discography to ascertain if the disc itself may be the primary cause of their pain.
Patients with positive concordant pain, that is, pain similar to their usual painful
symptom, on disc injection and a relatively pain-free control disc injection usually
are thought to be symptomatic from the disc that seemed painful on injection. Some authors claim that although there is neither a characteristic clinical pattern
nor characteristic disc morphologic pattern to International Classification of
Diseases, patients with positive discography should be considered to be primarily
symptomatic from that lesion. 24,25 It also is supposed by some that although
theoretically possible, it is very unlikely that a patient with back pain and positive
discography would have other (nondiscogenic) primary causes of their low back
symptoms. 24,25,28

Early work by Holt 12 and Massie and Stevens 20 suggested that patients without
symptomatic low back troubles might exhibit pain on injection of discs, particularly
if these are degenerated. This concept was evaluated by Walsh et al 28 in a
rigorous study of healthy young men without low back problems. It was reported
that provocative lumbar disc injection in this group did not cause substantial pain,
according to the authors' criteria, even in degenerated discs. Limitations of this
study, as noted by the authors, were: a small sample size (10 subjects); subjects
were young men, and women were excluded by protocol; and subjects were paid
volunteers with possible biases created by compensation. The characteristics of
patients undergoing lumbar discography in clinical practice have been shown to be
different than the subject group used in the Walsh et al 28 study in various ways.
These differences include: 1) chronic low back pain patients are generally older
than the Walsh et al 28 group; 2) because they are older, clinical patients have
more degenerative disc changes 6,13; 3) there is a high prevalence of abnormal
psychological profiles in patients with chronic low back pain 3,5,7-9,15,22; 4)
generally chronic pain behavior is already existing at the time of discography
3,5,7-9,14,15,22; and 5) there is a high (up to 80%) prevalence of compensation
claims. 24

The purpose of this study was to expand on the work of Walsh et al. 28 The authors
intended to evaluate the pain intensity and pain-related behavior in cohorts of
subjects without low back pain whose demographic, psychological, and chronic pain
profiles more closely matched the group of clinical patients usually undergoing
lumbar discography for low back pain.