

Journal Review II

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Medical Researchers Tell Spine Surgeons to Stop

Urrutia G, Kovacs F, Nishishinya MB, Olabe J. Percutaneous thermocoagulation intradiscal techniques for discogenic low-back pain. *Spine* 2007;32:1146-54.

BACKGROUND: Percutaneous thermocoagulation intradiscal procedures insert and heat an electrothermal catheter into the disc under fluoroscopic guidance, with local anesthesia and light intravenous sedation. There are 2 different techniques, depending on whether the heat is generated by radiofrequency (percutaneous intradiscal radiofrequency thermocoagulation [PIRFT]), electrically (intradiscal electrothermal annuloplasty, or intradiscal electrothermal therapy [IDET]).

SYNOPSIS: This was a systematic review that examined the efficacy, effectiveness, and safety of percutaneous thermocoagulation intradiscal techniques for discogenic low-back pain. An electronic search was performed in several databases up to 2005 to identify nonrandomized controlled trials and randomized controlled trials on those techniques. All relevant studies were methodologically assessed independently by 3 reviewers. Randomized clinical trials (RCTs) were assessed following the criteria recommended by the Cochrane Back Review Group. A qualitative synthesis of results was performed.

Six studies were included, with a total of 283 patients. Two open, nonrandomized trials

(95 patients) showed positive results for IDET compared with rehabilitation and PIRFT. Results from 2 RCTs showed no differences between PIRFT and placebo, and between different PIRFT techniques. Two RCTs compared IDET with placebo. One suggested differences only in pain and in disability, while the best-quality RCT showed no differences. Side effects were not always reported.

RESEARCH QUALITY:

Overall, this was a high-quality systematic review.

Quality Details: This study used the following: 1) appropriate design; 2) a clearly focused question; 3) clearly stated and appropriate inclusion and exclusion criteria; 4) a clearly described, thorough search of the literature; 5) multiple independent reviewers appraising the studies; 6) a thorough assessment of the studies; 7) a description of the data extraction process; and 8) a conclusion that flowed logically from the evidence.

CONCLUSION: The studies with low-quality research methods supported the use of these interventions. Studies that used higher-quality methods with less bias, however, did not. The available evidence does not support the efficacy or effectiveness of percutaneous thermocoagulation intradiscal techniques for the treatment of discogenic low-back pain.

COMMENT: *In the United States, more than 75,000 IDET procedures have been performed since 1998.¹ The evidence, however, does not support the effec-*

tiveness of IDET or PIRFT. Moreover, these surgical methods are associated with serious and not infrequent adverse events and high costs.² These medical researchers made the following statement about surgeons who perform IDET or PIRFT: "For ethical, clinical, and legal reasons, this behavior [performing IDET or PIRFT] seems inappropriate." We support this conclusion and recommend that surgeons cease performing this procedure until there is evidence to support its use.

Spine Surgeons Urged to Be Cautious

Shim CS, Lee SH, Shin HD, Kang HS, Choi WC, Jung B, Choi G, Ahn Y, Lee S, Lee HY. CHARITE versus ProDisc: a comparative study of a minimum 3-year follow-up. *Spine* 2007;32:1012-8.

SYNOPSIS: This study evaluated the clinical and radiologic outcomes of total disc replacement (CHARITE and ProDisc). Fifty-seven patients who underwent total disc replacement were followed for more than 3 years. Radiologic data were evaluated for facet degeneration of the replaced segment and degeneration of the disc at the adjacent level (above the index level).

Both function and pain demonstrated clinical improvement. Degradation of the facets was seen in more than 32% of the cases. Degradation of disc degeneration at the adjacent level was

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seen in more than 19% of the cases.

RESEARCH QUALITY:

Overall, this was a moderate-quality study.

Quality Details: This study used the following: 1) appropriate design; 2) a clearly focused question; 3) clearly stated and appropriate inclusion and exclusion criteria; 4) independent research personnel for interviewing patient status; 5) independent neurosurgeons for assessing the imaging; and 6) well-defined decision rules for interpreting the data.

CONCLUSION: While clinical outcomes of total disc replacement were fair (the data were from an uncontrolled design), the facet joint of the index level and the disc at the adjacent level showed an aggravation of

the degenerative process in a large number of patients.

COMMENT: *It has been stated that the incidence of progression of disc degeneration in the normal population is about 10% or less during 5-year follow-up.³ Lumbar total disc replacement is regarded as a potential alternative to spinal fusion in the treatment of degenerative disc disease. This study, however, raises serious concerns of possible late consequences from total disc replacement. This is a surprising finding because the most meaningful benefit of total disc replacement (disc arthroplasty) over spinal fusion is that it can avert the hastened degeneration of the adjacent segment, a widely known and unfavorable sequela of spinal fusion.⁴⁻⁶ Disc arthro-*

plasty may not have a protective effect on the adjacent segment in clinical practice.

Warning: Practitioners should not automatically use information from research studies to make decisions about patient care because health care literature suffers from inconsistent quality and frequently distorts research findings. Before relying on the findings of a research study, a practitioner should perform a critical appraisal to determine whether the conclusion is supported by the study's data. Moreover, the results of a study can only provide the likelihood of effects. Even conclusions from multiple studies do not provide a definitive answer. Instead, they indicate the direction of the evidence. ■

References

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