TITLE: Thermal Radiofrequency Neurotomy for the Treatment of Back Pain: Clinical Effectiveness and Safety

DATE: 28 November 2012

RESEARCH QUESTIONS

1. What is the clinical effectiveness of thermal radiofrequency neurotomy for the treatment of back pain?
2. What is the clinical safety of thermal radiofrequency neurotomy for the treatment of back pain?

KEY MESSAGE

Two systematic reviews, two randomized controlled trials, and three non-randomized studies were identified regarding thermal radiofrequency neurotomy for the treatment of back pain.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2012, Issue 11), University of York Centre for Reviews and Dissemination (CRD) databases, CINAHL, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2007 and November 18, 2012. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.
RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials and non-randomized studies. Two systematic reviews, two randomized controlled trials, and three non-randomized studies were identified regarding thermal radiofrequency neurotomy for the treatment of back pain. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

All of the included studies\(^1-7\) determined radiofrequency neurotomy to be effective for the management of back pain for differing periods of time. No studies identified any major safety issues associated with the procedure. The conclusions of each included study are summarized in Table 1.

Table 1: Summary of Included Studies

<table>
<thead>
<tr>
<th>Authors, Year</th>
<th>Target Treatment Area</th>
<th>Conclusions</th>
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</thead>
<tbody>
<tr>
<td><strong>Systematic Reviews</strong></td>
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<tr>
<td>Datta et al.(^1) (2009)</td>
<td>lumbar facet joint</td>
<td>Based on the outcomes of three studies included in the review, the authors determined there was strong evidence to recommend radiofrequency neurotomy for the treatment of chronic low back pain.</td>
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<tr>
<td>Hanser et al.(^2) (2007)</td>
<td>sacroiliac joint</td>
<td>Based on the outcomes of five studies included in the review, the authors determined there was limited evidence to support radiofrequency neurotomy for the treatment of sacroiliac joint pain.</td>
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<td><strong>Randomized Controlled Trials</strong></td>
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<tr>
<td>Nath et al.(^3) (2008)</td>
<td>lumbar zygapophysial joints</td>
<td>Significant improvement in back pain, leg pain, and back and hip movement was observed in patients in the active treatment group. The authors determined that radiofrequency neurotomy could be a beneficial treatment for a select group of patients with chronic low back pain.</td>
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<tr>
<td>Simopolous et al.(^4) (2008)</td>
<td>dorsal root ganglion and segmental nerves</td>
<td>Patients were randomly assigned to pulsed or pulsed plus continuous radiofrequency nerve lesioning. After two months of treatment, patients in both groups experienced a reduction in pain intensity. This benefit was lost by eight months. The authors concluded that both</td>
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<td></td>
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<td>treatment methods appeared to be safe.</td>
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<td>Non-Randomized Studies</td>
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<td>Siegenthaler et al.⁵ (2011)</td>
<td>cervical zygapophysial joint</td>
<td>Ultrasound localization was used to identify the nerves of interest before undergoing a shortened radiofrequency procedure with fluoroscopy. The majority of patients were successfully treated with a median time of pain relief of 44 weeks.</td>
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<tr>
<td>Speldewinde⁶ (2011)</td>
<td>zygapophysial and sacroiliac joints</td>
<td>Radiofrequency neurotomy was used to denervate zygapophysial or sacroiliac joints. Patients were surveyed and the majority classified the procedure as being successful. The authors reported few adverse events.</td>
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<tr>
<td>Rambaransingh et al.⁷ (2010)</td>
<td>zygapophysial joint</td>
<td>Patients underwent repeated radiofrequency neurotomy for the treatment of chronic neck or back pain and were followed using the PDQ-S. The authors concluded that treatment resulted in the effective reduction of pain and disability outcomes for approximately 10 months.</td>
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PDQ-S = Pain Disability Questionnaire-Spine
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


APPENDIX – FURTHER INFORMATION:

Guidelines and Guidance Documents


   See: Recommendations for ablative techniques

   See: 12.3.1.3 Radiofrequency Facet Joint Denervation, page 212

Review Articles


Coverage Policies


