

TREATMENT OF NECK PAIN

Injections and Surgical Interventions: Results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders

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ABSTRACT

Study Design: Best evidence synthesis.

Objective: To identify, critically appraise, and synthesize literature from 1980 through 2006 on surgical interventions for neck pain alone or with radicular pain in the absence of serious pathologic disease.

Summary of Background Data: There have been no comprehensive systematic literature or evidence-based reviews published on this topic.

Methods: We systematically searched Medline for literature published from 1980 to 2006 on percutaneous and open surgical interventions for neck pain. Publications on the topic were also solicited from experts in the field. Consensus decisions were made about the scientific merit of each article; those judged to have adequate internal validity were included in our Best Evidence Synthesis.

Results: Of the 31,878 articles screened, 1203 studies were relevant to the Neck Pain Task Force mandate and of these, 31 regarding treatment by surgery or injections were accepted as scientifically admissible. Radiofrequency neurotomy,

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Corporate/Industry, Foundation, and Professional Organizational funds were received in support of this work. No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subject of this manuscript.

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0161-4754/\$36.00

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doi:10.1016/j.jmpt.2008.11.018

cervical facet injections, cervical fusion and cervical arthroplasty for neck pain without radiculopathy are not supported by current evidence. We found there is support for short-term symptomatic improvement of radicular symptoms with epidural corticosteroids. It is not clear from the evidence that long-term outcomes are improved with the surgical treatment of cervical radiculopathy compared to nonoperative measures. However, relatively rapid and substantial symptomatic relief after surgical treatment seems to be reliably achieved. It is not evident that one open surgical technique is clearly superior to others for radiculopathy. Cervical foraminal or epidural injections are associated with relatively frequent minor adverse events (5%–20%); however, serious adverse events are very uncommon (<1%). After open surgical procedures on the cervical spine, potentially serious acute complications are seen in approximately 4% of patients.

Conclusion: Surgical treatment and limited injection procedures for cervical radicular symptoms may be reasonably considered in patients with severe impairments. Percutaneous and open surgical treatment for neck pain alone, without radicular symptoms or clear serious pathology, seems to lack scientific support. (J Manipulative Physiol Ther 2009;32: S176-S193)

Key words: best evidence synthesis; surgery; injections; cervical spine; neck pain; whiplash-associated disorder; radiculopathy

Surgical interventions are frequently recommended for persons with neck pain. When neck pain is associated with certain pathologic conditions, the decision to consider surgery is not controversial. After acute injuries such as penetrating trauma with hemorrhage, or blunt trauma with demonstrable instability causing neurologic deterioration, surgery may reasonably be considered as a means to arrest or reverse a catastrophic loss. In nontraumatic conditions such as spinal infection or neoplasm with airway or neurologic compression, again, the consequences of delaying or neglecting surgical intervention may be serious or even fatal.

However, most people with neck pain, whether their symptoms follow minor trauma or develop insidiously, have neither clear aggressive pathology nor imminent risk to vital functions. As described elsewhere in this report,¹ the mandate of the Neck Pain Task Force was to look at neck pain in the absence of fractures or dislocations, and not involving primary structural conditions caused by serious disease such as metabolic, neoplastic, inflammatory, or infectious disease. This paper deals with evidence regarding surgical intervention for people with more common kinds of neck pain (with or without radicular problems). As opposed to the neck pain associated with serious structural disease, the role of surgery in alleviating more common kinds of neck pain is less well understood.

Surgical intervention involves a direct manipulation of specific anatomic structures. The decision to operate depends on knowing that a specific structure is diseased *and* that it is responsible for a certain clinical illness *and* that the condition is amenable to treatment.

- *For persons with combined neck and radicular pain*, the site of neurologic symptoms and signs, or electrophysiological changes may be confirmed by neurologic compression seen on imaging studies. In these cases, the pathoanatomic site of the problem may be clear, and a surgical approach to relieve specific nerve impingement, such as decompression or fusion, may be practically considered. Nonetheless, the efficacy and effectiveness of these measures have not been well defined in the literature to date.²⁻⁴

- *For persons with neck pain alone*, in the absence of serious destructive lesions, the specific anatomic cause(s) of pain and illness can rarely be known with certainty. Imaging studies may reveal no abnormality or show common degenerative changes that are most frequently observed among people without serious neck pain problems. Although most persons with neck pain do not have specific structural disease that is clearly causing specific symptoms, surgical interventions, such as fusion, radiofrequency neurotomy, *etc.*, are nonetheless sometimes recommended and performed.

The primary objective of this paper is to identify, critically appraise, and synthesize literature from 1980 through 2006 on surgical interventions for neck pain without serious underlying pathologic conditions.¹ Secondary objectives are to identify (1) gaps in and problems with the surgical literature and (2) areas where the resources associated with surgical interventions should be expended in an effort to reduce the individual and societal burden of neck pain and its associated disorders.

We will follow this outline in presenting our findings:

- Quantitative results of the literature screening
- Summary of evidence for surgical treatment of axial neck pain (alone)
 - Neck Pain associated with suspected facet joint pain
 - Neck pain associated with suspected discogenic pain or common degenerative changes.
 - Neck pain associated with suspected post-traumatic ligamentous injury
- Summary of surgical treatment for axial neck pain (with radicular symptoms)
 - Percutaneous surgical treatment of cervical radiculopathy
 - Surgical patients compared to persons without neck pain
 - Open surgical treatment of cervical radiculopathy: Decompression *versus* fusion methods
 - Open surgical treatment of cervical radiculopathy: Comparing different fusion techniques
 - Expected outcomes after surgical treatment of cervical radiculopathy

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