

# The Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders

## Executive Summary

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In 2000, The Task Force on Neck Pain and Its Associated Disorders was established. In 2002, the Task Force was given official status by the Steering Committee of the Bone and Joint Decade, an initiative of the United Nations and the World Health Organization.

Over its lifespan, the Task Force consisted of a 5-member Executive Committee, a 13-member Scientific Secretariat, a 17-member Advisory Committee, and 18 research associates and graduate students. Committee members originated from 9 countries and represented 19 clinical and scientific disciplines or specialties. The Task Force was affiliated with 8 collaborating universities and research institutes in 4 countries, and 11 professional organizations agreed to become nonfinancial sponsors.

Members of the Neck Pain Task Force feel that the most productive use of this review is to inform and empower the public—more specifically people with neck pain or who are at risk of developing neck pain. The most valuable outcome and contribution will be a change of attitudes and beliefs about neck pain and its prevention, diagnosis, treatment, and management.

This supplement contains the results of a systematic review of the literature and best evidence synthesis. A total of 31,878 citations were screened, and 1203 relevant articles were accepted for review. Ultimately, some 552 scientific papers were deemed to be scientifically admissible for the best evidence synthesis.

In addition, a number of original research projects were conducted within the Task Force mandate. These included a population-based case-control and case-crossover study on the risk of vertebrobasilar stroke with chiropractic care; a study on the epidemiology of

vertebrobasilar stroke in 2 Canadian provinces; a decision analysis of nonsteroidal anti-inflammatory drugs (NSAIDs), exercise, and manual therapy for patients with neck pain; and finally, a study of the prevalence and incidence of work absenteeism associated with neck pain from a cohort of Ontario workers' compensation claimants.

### ■ Key Findings From the Task Force

#### *Epidemiology of Neck Pain*

- Most people can expect to experience some neck pain in their lifetimes, although for the majority, neck pain will not seriously interfere with normal activities.
- Depending on the case definitions used, the 12-month prevalence of neck pain ranged from 12.1% to 71.5% in the general population, and from 27.1% to 47.8% in workers. However, neck pain with associated disability was less common: 12-month prevalence estimates ranged from 1.7% to 11.5% in the general population.
- Each year, between 11% and 14.1% of workers reported being limited in their activities because of neck pain. Neck pain was common in all occupational categories, and the results of the Ontario cohort study suggest that worker's compensation data significantly underestimate the burden of neck pain in workers.
- The number of persons seeking health care in emergency rooms for traffic-related Whiplash-associated disorders (WAD) has been increasing over the past 3 decades.

#### *Risk Factors for Neck Pain*

- Analysis of risk factors for neck pain suggest that this disorder has a multifactorial etiology. Nonmodifiable risk factors for neck pain included age, gender, and genetics. There is no evidence that common degenerative changes in the cervical spine are a risk factor for neck pain.
- Modifiable risk/protective factors for neck pain include smoking, exposure to environmental tobacco, and physical activity participation. In the workplace high quantitative job demands, low social support at work, sedentary work position, repetitive work, and precision work increased the risk of neck pain. However, there is a lack of evidence that workplace interventions were effective in reducing the incidence of neck pain in workers.

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- Eliminating insurance payments for pain and suffering, and improving benefits disability costs were both associated with a lower incidence of whiplash claims and faster recovery from symptoms. Devices aimed at limiting head extension during rear-end collisions were found to have a preventive effect.

### **Course and Prognosis**

- Most people with neck pain do not experience a complete resolution of symptoms. Between 50% and 85% of those who experience neck pain at some initial point will report neck pain again 1 to 5 years later. These numbers appear to be similar in the general population, in workers and after motor vehicle crashes.
- The prognosis for neck pain also appears to be multifactorial. Younger age was associated with a better prognosis, whereas poor health and prior neck pain episodes were associated with a poorer prognosis. Poorer prognosis was also associated with poor psychological health, worrying, and becoming angry or frustrated in response to neck pain. Greater optimism, a coping style that involved self-assurance, and having less need to socialize, were all associated with better prognosis.
- Specific workplace or physical job demands were not linked with recovery from neck pain. Workers who engaged in general exercise and sporting activities were more likely to experience improvement in neck pain. Postinjury psychological distress and passive types of coping were prognostic of poorer recovery in WAD. There is evidence that compensation and legal factors are also prognostic for poorer recovery from WAD.

### **Assessment of Neck Pain**

- The assessment for fracture in the emergency room and the diagnosis of neck pain with radiculopathy are of value, but there is little evidence that diagnostic procedures for neck pain without severe trauma or radicular symptoms have validity and utility.
- Screening protocols to alert low-risk patients with blunt trauma to the neck have high predictive values in detecting cervical spine fracture. Computerized tomography scan has better validity and utility in cervical trauma for high-risk or multi-injured patients. The clinical physical examination is more predictive at excluding a structural lesion or neurologic compression than at diagnosing any specific etiologic condition in patients with neck pain. All other assessment tools such as electrophysiology, imaging, injections, discography, functional tests, and bloods test lack validity and utility.
- Reliable and valid self-assessment questionnaires given to neck pain patients can provide useful information for management and prognosis.
- The finding of degenerative changes on imaging has not been shown to be associated with neck pain.

### **Treatments for Neck Pain (Noninvasive and Invasive)**

- A number of nonsurgical treatments appeared to be more beneficial than usual care, sham, or alternative interventions but none of the active treatments were clearly superior to any other in the short or long term. Educational videos, mobilization, manual therapy, exercises, low-level laser therapy, and perhaps acupuncture appeared to have some benefit. For both WAD and other neck pain without radicular symptoms, interventions that focused on regaining function and returning to work as soon as possible were relatively more effective than interventions that did not have such a focus.
- There is evidence for short-term symptomatic improvement of radicular symptoms with epidural or selective root injections with corticosteroids, but these treatments did not appear to decrease the rate of open surgery.
- Evidence is lacking to support intra-articular steroid injections or radiofrequency neurotomy. It is not clear from the evidence that long-term outcomes are improved with the surgical treatment of cervical radiculopathy compared with nonoperative measures. However, relatively rapid and substantial relief of pain and impairment in the short term (6–12 weeks after surgery) after surgical treatment appears to have been reliably achieved.
- Early results from trials of cervical disc arthroplasty appear to show 1- to 2-year outcomes for radicular symptoms that are similar to outcomes for anterior fusion surgery. There is no evidence to support the use of cervical disc arthroplasty in patients with neck pain who do not have primary radicular pain.

### **Vertebrobasilar Stroke Study Findings**

There was an association between chiropractic services and subsequent vertebrobasilar artery stroke in persons under 45 years of age, but a similar association was also observed among patients receiving general practitioner services. This is likely explained by patients with vertebrobasilar artery dissection-related neck pain or headache seeking care before having their stroke.

### **Decision Analysis Study Findings**

- Quality of life years (QALYs) associated with standard NSAIDs, Cox-2 NSAIDs, exercise, manipulation, and mobilization were compared in a decision-analytic model. None of the active treatments was found to be clearly superior to any other in the short or long term when estimates of the course of neck pain, adverse event risks, treatment effectiveness and risk, and patient-preferences for health outcomes were considered.

### **A New Conceptual Model for Neck Pain**

The Neck Pain Task Force proposes a new conceptual model for the course and care of neck pain. The model is centered on persons with neck pain or who are at risk for

neck pain. The model describes neck pain as an episodic occurrence over a lifetime with variable recovery between episodes. It outlines the options available to deal with neck pain; the factors that determine available options, choices, and consequences; and the short- and long-term impacts of neck pain.

### ***A New Classification System for Neck Pain***

For the subset of individuals who seek clinical care, the Neck Pain Task Force recommends a 4-grade classification system of neck pain severity that is intended to help in the interpretation of scientific evidence. The new system will also help people with neck pain, researchers, clinicians, and policy makers in framing their questions and decisions:

- Grade I neck pain: No signs or symptoms suggestive of major structural pathology and no or minor interference with activities of daily living; will likely respond to minimal intervention such as reassurance and pain control; does not require intensive investigations or ongoing treatment.
- Grade II neck pain: No signs or symptoms of major structural pathology, but major interference with activities of daily living; requires pain relief and early activation/intervention aimed at preventing long-term disability.
- Grade III neck pain: No signs or symptoms of major structural pathology, but presence of neurologic signs

such as decreased deep tendon reflexes, weakness, and/or sensory deficits; might require investigation and, occasionally more invasive treatments.

- Grade IV neck pain: Signs or symptoms of major structural pathology, such as fracture, myelopathy, neoplasm, or systemic disease; requires prompt investigation and treatment.

When choosing treatments to relieve grades I and II neck pain, patients and their clinicians should consider the potential side effects and personal preferences regarding treatment options.

### ***Preventing Neck Pain***

Preventive efforts are best directed at reducing major injuries and dealing effectively with neck pain to avoid the development of disabling neck pain. It is clear that we need more conceptually sound and theory driven research in this area.

### ***The Need for Future Research***

Neck pain is multifactorial in its etiology and in its impact on affected persons. Future research should be directed to assessing the impact of modifiable risk factors through innovative treatment approaches. Changes in public policy which address these risk factors may significantly reduce the burden and cost of neck pain in society.