Course and Prognostic Factors for Neck Pain in the General Population

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

Linda J. Carroll, PhD,[a,b] Sheilah Hogg-Johnson, PhD,[c,d] Gabrielle van der Velde, DC,[c,e,f,g] Scott Haldeman, DC, MD, PhD,[h,i] Lena W. Holm, DrMedSc,[j] Eugene J. Carragee, MD, FACS,[k,l] Eric L. Hurwitz, DC, PhD,[m] Pierre Côté, DC, PhD,[d,f] Margareta Nordin, PT, DrMedSc,[n,o,p] Paul M. Peloso, MD, MSc, FRCP(C),[q] Jaime Guzman, MD, MSc, FRCP(C),[r,s] and J. David Cassidy, DC, PhD, DrMedSc[t]

Abstract

Study Design: Best evidence synthesis.

Objective: To undertake a best evidence synthesis on course and prognosis of neck pain and its associated disorders in the general population.

Summary of Background Data: Knowing the course of neck pain guides expectations for recovery. Identifying prognostic factors assists in planning public policies, formulating interventions, and promoting lifestyle changes to decrease the burden of neck pain.

Methods: The Bone and Joint Decade 2000–2010 Task Force on Neck Pain and its Associated Disorders (Neck Pain Task Force) conducted a critical review of literature published between 1980 and 2006 to assemble the best evidence on

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From the [a] Department of Public Health Sciences, and [b] the Alberta Centre for Injury Control and Research, School of Public Health, University of Alberta, Alberta, Canada.

[c] Institute for Work and Health, Toronto, Canada.

[d] Department of Public Health Sciences, University of Toronto, Canada.

[e] Department of Health Policy, Management and Evaluation, University of Toronto, Toronto, Canada.

[f] Centre of Research Excellence in Improved Disability Outcomes (CREIDO), University Health Network Rehabilitation Solutions, Toronto Western Hospital.

[g] Division of Health Care Outcomes and Research, Toronto Western Research Institute, Toronto, Canada.

[h] Department of Neurology, University of California, Irvine, CA.

[i] Department of Epidemiology, School of Public Health, University of California, Los Angeles, CA.

[j] Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

[k] Department of Orthopaedic Surgery, Stanford University School of Medicine.

[l] Orthopaedic Spine Center and Spinal Surgery Service, Stanford University Hospital and Clinics, Stanford, CA.

[m] Department of Public Health Sciences, John A. Burns School of Medicine, University of Hawaii, Mānoa, Honolulu, HI.

Departments of [n] Orthopaedics and [o] Environmental Medicine, and [p] Program of Ergonomics and Biomechanics, School of Medicine and Graduate School of Arts and Science, New York University; Occupational and Industrial Orthopaedic Center (OIOC), New York University Medical Center, New York, NY.

[q] Endocrinology, Analgesia and Inflammation, Merck & Co. Rahway, NJ.

[r] Department of Medicine, University of British Columbia.

[s] Occupational Health and Safety Agency for Healthcare in BC, British Columbia, Canada.

[t] Centre of Research Expertise in Improved Disability Outcomes (CREIDO), University Health Network Rehabilitation Solutions, Toronto Western Hospital, Toronto, Canada; Division of Health Care and Outcomes Research, Toronto Western Research Institute, Toronto, Canada; Departments of Public Health Sciences and Health Policy, Management and Evaluation, University of Toronto, Canada.

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Address correspondence and reprint requests to Linda J. Carroll, PhD, 4075, RTF, University of Alberta, Edmonton, Alberta, Canada T6G 2E1 (e-mail: *lcarroll@ualberta.ca*).

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neck pain. Findings from studies meeting criteria for scientific validity were abstracted into evidence tables and included in a best evidence synthesis.

Results: We found 226 articles on the course and prognostic factors in neck pain and its associated disorders. After critical review, 70 (31%) of these were accepted on scientific merit. Six studies related to course and 7 to prognostic factors in the general population. Between half and three quarters of persons in these populations with current neck pain will report neck pain again 1 to 5 years later. Younger age predicted better outcome. General exercise was unassociated with outcome, although regular bicycling predicted poor outcome in 1 study. Psychosocial factors, including psychologic health, coping patterns, and need to socialize, were the strongest prognostic factors. Several potential prognostic factors have not been well studied, including degenerative changes, genetic factors, and compensation policies.

Conclusion: The Neck Pain Task Force undertook a best evidence synthesis to establish a baseline of the current best evidence on the course and prognosis for this symptom. General exercise was not prognostic of better outcome; however, several psychosocial factors were prognostic of outcome. (J Manipulative Physiol Ther 2009;32:S87-S96)

Key words: *neck pain; systematic review; epidemiology; prognosis*

Neck pain is a common human phenomenon.[1] In the general population, up to 30% to 50% of adults will experience neck pain in any given year.[2] Whether neck pain is likely to improve, reoccur, persist, or worsen (in other words, the "course" of neck pain), is an important question—not only to people with neck pain and their health care providers, but also to policy makers and researchers. Knowledge of the course of neck pain helps to guide the expectations of people with neck pain and their health care providers. In addition, this knowledge helps us determine the effectiveness of interventions by establishing whether a particular intervention improves (or worsens) the usual course of recovery from neck pain problems.

Similarly, understanding what determines the course of neck pain (in other words, the prognostic factors), may help patients and providers plan more effective lifestyle changes, and may also lead to more constructive health care policies. This is especially true when it comes to identifying modifiable prognostic factors those which can be influenced by some type of action because these may serve as useful targets for intervention studies. Identifying nonmodifiable prognostic factors those which are not easily amenable to change—is also important, because it allows us to determine which individuals with neck pain are at high risk for developing persistent and limiting neck pain problems.

Like research into factors which play a role in the new onset of neck symptoms, research on the course of neck pain and the identification of prognostic factors requires longitudinal research designs (for example, cohort or case-control studies), which permit tracking of study participants over time. In contrast, cross-sectional studies are those in which the potential explanatory factors and prevalent neck pain are assessed at the same point, providing a "snapshot" in time. Such studies can only suggest possible prognostic associations because of the impossibility of determining temporal sequencing. Any such factor found to be associated with neck pain at one point in time could be a precursor (risk factor), a prognostic factor for failure to recover, or a consequence of neck pain. Although cross-sectional studies are valuable in informing us about the experience of neck pain and in planning policy, they do not inform us about course of neck pain or about what factors predict that course. Therefore, findings from cross-sectional studies are not reported here, but are included with the findings on the burden and determinants of neck pain.[2-4]

Studies of prognostic factors are frequently confused with studies of risk factors. Both require longitudinal research designs; however, cohort studies of risk factors must start with people with no neck pain at the start of the study. The researchers then track these people over months and years to time to identify what factors and characteristics distinguish those who subsequently develop neck pain from those who do not. Studies of prognostic factors must start with people who have neck pain at the start of the study. These individuals are then tracked through time to identify what factors and characteristics distinguish those people who recover from their neck pain from those who do not. In other words, prognostic factors are those factors or circumstances which predict the course of recovery or the failure to recover from neck pain.

In examining findings from longitudinal studies, the strength of the evidence should always be considered. One paradigm classifies cohort studies into a 3-level hierarchy of knowledge. This model has been used to interpret evidence obtained in prognostic studies of breast cancer, whiplash-associated disorders (WAD), and mild traumatic brain injuries.[5-8]

- Phase I studies explore associations between potential prognostic factors and health outcomes in a descriptive way, so that only crude (descriptive) associations are reported. For example, a phase I study would only investigate the association between age and recovery from neck pain.
- Phase II studies involve more extensive analyses, but are still exploratory. These studies use well formulated comparison groups, stratified analyses, and/or multivariable analyses to focus on sets of prognostic factors. For example, a phase II study might include age, gender, physical and mental health status, and frequency of exercise in a multivariable analysis to predict recovery from neck pain.