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Introductory Article

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Guidelines for the Management of Degenerative Cervical Myelopathy and Spinal Cord Injury: An Introduction to a Focus Issue

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Abstract

Study Design: Introduction to a guidelines project.

Objectives: The objective of this focus issue is to present guidelines that outline how to best manage patients with degenerative cervical myelopathy (DCM) and spinal cord injury (SCI). Topics addressed in this focus issue include: 1) management strategies for patients with mild, moderate and severe DCM; and 2a) timing of surgical decompression; b) the use of methylprednisolone sodium succinate; c) the type and timing of anticoagulation strategies; d) the role of magnetic resonance imaging in clinical decision making and outcome prediction; and e) the type and timing of rehabilitation in patients with SCI.

Methods: Systematic reviews were conducted to address key clinical questions and to synthesize the current body of evidence. A multidisciplinary guideline development group used the results of these reviews, along with their clinical expertise, to develop clinical practice guidelines, in a process that adhered to methodology proposed by the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) Working Group.

Results: The multidisciplinary guideline development group combined the systematic review findings with their clinical expertise and opinions to formulate recommendations on how to manage patients with DCM and SCI.

Conclusions: These guidelines will serve as tools to assist clinicians in their decision making by offering a perspective that combines the available evidence, expertise from a variety of clinicians, and patient values.

Keywords

guidelines, guideline development, spinal cord injury, SCI, degenerative cervical myelopathy, DCM, clinical guidelines

Introduction

Injury to the spinal cord, and its resultant neurologic consequences, remains one of the most challenging, intractable, and poorly understood medical conditions. Such injuries occur along a broad continuum, from the sudden catastrophic paralysis caused by a high-speed motor vehicle accident to the slow and indolent neurologic decline from chronic degenerative spinal stenosis. While both acute traumatic and chronic compressive spinal cord pathologies have been recognized for centuries, many fundamental questions remain about their optimal management. These include seemingly basic questions such as *What is the natural history of neurologic decline (in chronic degenerative cervical myelopathy [DCM)] or recovery [in acute traumatic spinal cord injury; SCI])? What are the best diagnostic modalities and how do these inform treatment decisions?* Intrinsically linked to these enquiries is the basic question surrounding the role of decompressive surgery in stabilizing or improving neurologic function. *What surgery (if any) should be performed? What are the clinical results of such an invasive intervention in terms of altering the natural course*

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of neurologic recovery or decline? If it is to be performed, when would be the optimal timing for surgical intervention? Furthermore, questions remain about the efficacy of other potential treatments aside from surgical decompression. *Might there be medical therapies that could influence neurologic outcome and/or rehabilitative interventions that could promote functional recovery?* This focus issue aims to address these questions in the context of both DCM and acute SCI.

In this focus issue, DCM and acute traumatic SCI were approached in a 2-step fashion. First, systematic reviews were rigorously performed to synthesize the available literature, address the aforementioned clinical questions, and provide the reader with a summary of the current evidence. For methodologic robustness, consistency, and in an attempt to minimize bias, these reviews were conducted by Spectrum Research, who have considerable experience in this arena. Second, a multidisciplinary guideline development group used the results from these systematic reviews as the scientific basis for developing a clinical practice guideline in a process that adhered to methodology proposed by the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) Working Group. This increasingly utilized methodology entails a consensus building approach that extends beyond merely the strength of the available scientific evidence and considers factors such as feasibility, acceptability, and the estimated balance of favorable and unfavorable consequences. The guideline development process also involved a spectrum of stakeholders and therefore reflects perspectives of not just surgeons but also primary care physicians, neurologists, rheumatologists, rehabilitation specialists, and patients.

For DCM (an all-encompassing term proposed to describe all forms of degenerative changes to the spine, including cervical spondylotic myelopathy and ossification of the posterior longitudinal ligament), this guideline summarized the most recent clinical research in this area and developed recommendations to guide clinicians in the management of patients with mild, moderate, and severe myelopathy, as well as nonmyelopathic individuals with evidence of cord compression. For acute traumatic SCI, this guideline revisited some of the most controversial questions of management, including the timing of surgical decompression and the use of high-dose methylprednisolone. For these contentious issues, results from rigorously conducted systematic reviews were considered, as well as patient preferences and other important factors included in the GRADE methodology. It is acknowledged that the recommendations that have emerged from this process will not necessarily end the controversy in these areas, but will likely stimulate further discussion on the optimal management of acute SCI patients. Other topics in the SCI guideline include the role of magnetic resonance imaging in clinical decision making and prognostication, the type and timing of prophylactic anticoagulation, and the use of various rehabilitation strategies.

Obviously, it would be ideal if the clinical and scientific evidence around these issues was so compelling that there was little doubt as to what to recommend in a clinical practice guideline (which of course would probably obviate the need for generating such recommendations). The reality is that uncertainty exists, and that the strength of the available literature for many of our recommendations prevents the development of a forceful clinical practice guideline. Furthermore, the state of the available literature does not absolve the clinician from the tough treatment choices they must make for their patients with DCM or acute traumatic SCI. Ultimately, the goal of these guidelines is to provide tools that could assist clinicians in their decision making by offering a perspective that combines the available evidence, expertise from a variety of clinicians, and patient values. The hope and expectation is that further research in these important areas will contribute to the evolution of these guidelines for the management of both DCM and traumatic SCI.

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