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Review Article

An evidence-based clinical guideline for the diagnosis and treatment of degenerative lumbar spinal stenosis (update)

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Abstract

BACKGROUND CONTEXT: The evidence-based clinical guideline on the diagnosis and treatment of degenerative lumbar spinal stenosis by the North American Spine Society (NASS) provides evidence-based recommendations to address key clinical questions surrounding the diagnosis and treatment of degenerative lumbar spinal stenosis. The guideline is intended to reflect contemporary treatment concepts for *symptomatic degenerative lumbar spinal stenosis* as reflected in the highest quality clinical literature available on this subject as of July 2010. The goals of the guideline recommendations are to assist in delivering optimum efficacious treatment and functional recovery from this spinal disorder.

PURPOSE: Provide an evidence-based educational tool to assist spine care providers in improving quality and efficiency of care delivered to patients with degenerative lumbar spinal stenosis.

STUDY DESIGN: Systematic review and evidence-based clinical guideline.

METHODS: This report is from the Degenerative Lumbar Spinal Stenosis Work Group of the NASS's Evidence-Based Clinical Guideline Development Committee. The work group consisted of multidisciplinary spine care specialists trained in the principles of evidence-based analysis. The original guideline, published in 2006, was carefully reviewed. A literature search addressing each question and using a specific search protocol was performed on English language references found in MEDLINE, EMBASE (Drugs and Pharmacology), and four additional, evidence-based, databases to identify articles published since the search performed for the original guideline. The relevant literature was then independently rated by a minimum of three physician reviewers using the NASS-adopted standardized levels of evidence. An evidentiary table was created for each of the questions. Final recommendations to answer each clinical question were arrived at via work group discussion, and grades were assigned to the recommendations using standardized grades of recommendation. In the absence of Levels I to IV evidence, work group consensus statements have been

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developed using a modified nominal group technique, and these statements are clearly identified as such in the guideline.

RESULTS: Sixteen key clinical questions were assessed, addressing issues of natural history, diagnosis, and treatment of degenerative lumbar spinal stenosis. The answers are summarized in this document. The respective recommendations were graded by the strength of the supporting literature that was stratified by levels of evidence.

CONCLUSIONS: A clinical guideline for degenerative lumbar spinal stenosis has been updated using the techniques of evidence-based medicine and using the best available clinical evidence to aid both practitioners and patients involved with the care of this condition. The entire guideline document, including the evidentiary tables, suggestions for future research, and all references, will be available electronically at the NASS Web site (www.spine.org) and will remain updated on a timely schedule.

Keywords: Degenerative lumbar spinal stenosis; Natural history; Diagnosis; Imaging; Medical/interventional treatment

Introduction

In an attempt to improve and evaluate the knowledge base concerning the diagnosis and treatment of degenerative lumbar spinal stenosis, the Degenerative Lumbar Spinal Stenosis Work Group of the North American Spine Society's (NASS) Evidence-Based Clinical Guideline Development Committee has developed an evidence-based clinical guideline on the topic. The Institute of Medicine has defined a clinical guideline as ''systematically developed statements to assist practitioner and patient decisions about health care for specific clinical situations'' [1].

The application of the principles of evidence-based medicine (EBM) to guideline development helps to create an explicit linkage between the final recommendations in the guideline and the evidence on which these recommendations are based [2]. When using the principles of EBM, the clinical literature is extensively searched to answer specific questions about a disease state or medical condition. The literature that is identified in the search is then rated as to its scientific merit using levels of evidence, determined by specific rule sets that apply to human and clinical investigations. The specific questions asked are then answered using studies of the highest possible levels of evidence that have been obtained from the searches. As a final step, the answers to the clinical questions are reformulated as recommendations that are assigned grades of strength related to the best clinical evidence available at the time of answering each question. The intent of the grade of recommendation is to indicate the strength of the evidence used by the work group in answering the question asked.

Methods

For this clinical guideline, the guideline development process was broken down into 12 steps. In Step 1, guideline participants, trained in the principles of EBM, carefully reviewed the key questions and content of the 2006 guideline. In Step 2, multidisciplinary teams composed of surgical, medical, interventional, and radiological specialists were assigned to groups and assigned a subset of the questions to be considered and updated. Step 3 consisted of each group reviewing the original search parameters used in the 2006 guideline, and as necessary, updating the search terms and parameters to direct the literature search according to the NASS-instituted Literature Search Protocol. The literature search was then completed in Step 4 by a medical research librarian according to the NASS Literature Search Protocol and stored in a cross-referencing database for future use or reference. The following electronic databases were searched for English language publications: MEDLINE (PubMed), EMBASE (Drugs and Pharmacology), Cochrane Database of Systematic reviews, and Cochrane Central Register of Controlled Trials and Web of Science. Work group members then reviewed all abstracts from the literature search in Step 5. The best research evidence available was identified and used to answer the targeted clinical questions. That is, if adequate Level I, II, or III studies were available to answer a specific question, the work group was not required to review Level IV or V evidence. In Step 6, the members independently developed evidentiary tables summarizing study conclusions, identifying strengths and weaknesses, and assigning levels of evidence. To systematically control for bias, at least three work group members reviewed each article selected and independently assigned a level of evidence as per the NASS Levels of Evidence Table. The final level of evidence assigned was that agreed on by at least two-thirds of the reviewers.

To update and formulate evidence-based recommendations and incorporate expert opinion when necessary, work groups participated in webcasts in Step 7. Expert physician opinion was incorporated only in which Levels I to IV evidence was insufficient, and the work groups deemed a recommendation was warranted. For transparency in the incorporation of consensus, all consensus-based recommendations in this guideline are clearly stated as such. Voting on guideline recommendations was conducted using a modification of the nominal group technique in which each work group member independently and anonymously ranked a recommendation on a scale ranging from 1