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Original Articles

Abstracts & Literature Review

Nuckols TK, Lim YW, Wynn BO, Mattke S, Maclean CH, Harber P et al. Rigorous development does not ensure that guidelines are acceptable to a panel of knowledgeable providers. *J Gen Intern Med* 2007 Nov 21; [Epub ahead of print]

BACKGROUND: Rigorous guideline development methods are designed to produce recommendations that are relevant to common clinical situations and consistent with evidence and expert understanding, thereby promoting guidelines' acceptability to providers. No studies have examined whether this technical quality consistently leads to acceptability.
OBJECTIVE: To examine the clinical acceptability of guidelines having excellent technical quality.
DESIGN AND MEASUREMENTS: We selected guidelines covering several musculoskeletal disorders and meeting 5 basic technical quality criteria, then used the widely accepted AGREE Instrument to evaluate technical quality. Adapting an established modified Delphi method, we assembled a multidisciplinary panel of providers recommended by their specialty societies as leaders in the field. Panelists rated acceptability, including "perceived comprehensiveness" (perceived relevance to common clinical situations) and "perceived validity" (consistency with their understanding of existing evidence and opinions), for ten common condition/therapy pairs pertaining to Surgery, physical therapy, and chiropractic manipulation for lumbar spine, shoulder, and carpal tunnel disorders.
RESULTS: Five guidelines met selection criteria. Their AGREE scores were generally high indicating excellent technical quality. However, panelists found 4 guidelines to be only moderately comprehensive and valid, and a fifth guideline to be invalid overall. Of the topics covered by each guideline, panelists rated 50% to 69% as "comprehensive" and 6% to 50% as "valid".
CONCLUSION: Despite very rigorous development methods compared with guidelines assessed in prior studies, experts felt that these guidelines omitted common clinical situations and contained much content of

uncertain validity. Guideline acceptability should be independently and formally evaluated before dissemination.

Guidelines examined:

- American Academy of Orthopaedic Surgeons. Guidelines and support documents for hip pain, knee injury, knee osteoarthritis, low back pain/sciatica, shoulder pain and wrist pain. 2001–2003.
- American College of Occupational and Environmental Medicine. Occupational Medicine Practice Guidelines: Evaluation and Management of Common Health Problems and Functional Recovery in Workers, Second Edition. Beverly Farms, Massachusetts; 2004.
- Intracorp. Intracorp Optimal Treatment Guidelines. Philadelphia, Pennsylvania; 2003.
- McKesson. InterQual Care Management Criteria for Workers' Comp & Clinical Evidence Summaries. (Formerly QualityFirst® Workers' Compensation/Disability Guidelines). Newton, Massachusetts. 2004.
- Work Loss Data Institute. Official Disability Guides (ODG), Treatment in Workers' Compensation. San Diego, CA; 2004.

Editor Comments: This study published online in the *Journal of General Internal Medicine* examined the quality of five guidelines covering various musculoskeletal disorders. The panel concluded that despite rigorous development, the quality of the published guidelines did not always meet their high standards.

Arthritis & Rheumatism
Volume 56, Issue 11 , Pages 3620 – 3625
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Abstract
Objective

To investigate the relationship between carpal tunnel syndrome (CTS) and keyboard use at work in a general population.

Methods

A health status questionnaire was mailed to 2,465 persons of working age (25-65 years) who were randomly selected from the general population of a representative region of Sweden. The questionnaire required the subjects to provide information about the presence and severity of pain, numbness and tingling in each body region, employment history, and work activities, including average time spent using a keyboard during a usual working day. Those reporting recurrent hand numbness or tingling in the median nerve distribution were asked to undergo a physical examination and nerve conduction testing. The prevalence of CTS, defined as symptoms plus abnormal results on nerve conduction tests, was compared between groups of subjects that differed in their intensity of keyboard use, adjusting for age, sex, body mass index, and smoking status.

Results

Eighty-two percent responded to the questionnaire, and 80% of all symptomatic persons attended the examinations. Persons who had reported intensive keyboard use on the questionnaire were significantly less likely to be diagnosed as having CTS than were those who had reported little keyboard use, with a prevalence that increased from 2.6% in the highest keyboard use group (≥4 hours/day), to 2.9% in the moderate use group (1 to <4 hours/day), 4.9% in the low use group (<1 hour/day), and 5.2% in the no keyboard use at work group (P for trend = 0.032). Using ≥1 hour/day to designate high keyboard use and <1 hour/day to designate low keyboard use, the prevalence ratio of CTS in the groups with high to low keyboard use was 0.55 (95% confidence interval 0.32, 0.96).

Conclusion

Intensive keyboard use appears to be associated with a lower risk of CTS.

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Crowned Dens Syndrome

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Investigation performed at the Department of Orthopaedic Surgery, Senboku Kumiai General Hospital, Akita, and the Department of Orthopaedic Surgery, Tohoku University School of Medicine, Sendai, Japan

Background: Patients with crowned dens syndrome typically present with severe neck pain and have calcium deposits around the odontoid process of the axis on radiographs. To our knowledge, the cases of only thirty-five patients have been reported in the English-language literature and the clinical features remain unclear. The purposes of this study were to examine the clinical features of crowned dens syndrome, determine treatment outcomes, and propose diagnostic criteria.

Methods: Forty patients with severe neck pain had calcium deposition around the odontoid process on computed tomography scans, and they were thus diagnosed as having crowned dens syndrome. Data were collected in relation to these patients, including the date of onset of neck pain, the presence of inflammatory indicators (increased body temperature, C-reactive protein levels, and white blood-cell count), and treatment outcomes.

Results: The male-to-female ratio was 0.6, and two-thirds of the patients were more than seventy years of age. All patients had markedly restricted neck motion, particularly in rotation, and all had one or more positive inflammatory indicators. Calcium deposition was detected in all areas around the odontoid process, but chiefly behind the process. Pain was typically relieved by nonsteroidal anti-inflammatory drugs, prednisolone, or both. A combination of both appeared to be the most effective.

Conclusions: We believe that crowned dens syndrome is more common than previously recognized, especially in elderly patients. It is diagnosed on the basis of acute and severe neck pain; marked restriction of neck motion, particularly in rotation; the presence of inflammatory indicators, such as an elevated C-reactive protein level; calcium deposition around the odontoid process detected by computed tomography; no history of trauma; and the exclusion of other inflammatory diseases and tumors. Prednisolone and nonsteroidal anti-inflammatory drugs in combination are the recommended treatment for symptom relief.

Level of Evidence: Therapeutic Level IV

Editor's (Jahn) Comments: This article demonstrates the continuing value of CT when assessing spinal osseous structures. Laboratoy studies appear to be essential for differential diagnosis. I am unaware of any chiropractic literature that addresses this condition and manipulative therapy (and its possible contraindications).

Case History

Clinical Pearl

Upright Dynamic MRI

Written by James Demetrious, DC, FACO – Contributing Editor

Chiropractic radiographic procedure often utilizes erect, upright postures during imaging acquisition. In doing so, chiropractic physicians assess the effect of gravity on weight-bearing spinal structures. Unfortunately, when obtaining advanced diagnostic imaging in clinical practice, most available MRI facilities provide images of patients in the non-weight-bearing, recumbent positions.

Upright, dynamic positional and functional MRI scans provide weight-bearing visualization and improved conspicuity of soft tissue structures under physiologic loads that are of significant importance to the biomechanical assessment of spinal dysfunction (Figure 1). Patients can assume varied postures that allow assessment of functional changes related to end range motion.

The accompanying image of the lumbar spine provides an excellent example of information gained utilizing upright imaging technology while a patient assumes a posture of lateral flexion. In the coronal T2 weighted image, degenerative intervertebral disc changes are manifest by disc space narrowing and decreased signal intensity of the L3/4, L4/5 and L5/S1 discs (Figure 2). Additional, compelling information gained includes the visualization of decreased intersegmental lateral flexion of the aforementioned motor units.

The combination of these findings provide objective evidence of the relationship of altered segmental motion to degenerative changes. As the intervertebral disc is an avascular structure that requires segmental motion to achieve diffusion of nutrients and waste across vertebral endplates, this image may provide evidence related to impaired motion and its adverse affect upon intervertebral disc health.

The effect of end range motion visualized via dynamic MRI may provide correlation to neurologic sequelae that are commonly observed in clinical practice. In the accompanying sagittal T2 weighted image of the upright extended cervical spine, intrusion within the spinal canal is appreciated by visualization of increased intervertebral disc bulges and infolding of the ligamentum flavum (Figure 3). These findings may correlate with clinical findings of neurogenic claudication in patients exhibiting disc herniations on cervical extension.

It would be interesting to assess upright dynamic MRI technology related to chiropractic. Such a study could be designed to assess the effect of pre-/post-chiropractic care. Dynamic upright MRI technology may have the potential to clarify and better define the role of chiropractic in spinal care.

Figure 1.

Figure 2. (Utilized with permission by Fonar, Inc.)

Figure 3. (Utilized with permission by Fonar, Inc.)

Editorial Comments

Darren Hancock wrote:

School based scoliosis screening: an analysis of socio-demographics, compliance, efficacy and a proposed role for physical therapists in a state mandated program

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Boston, MA, USA. 13–16 May 2007

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The electronic version of this abstract is the complete one and can be found online at:
http://www.scoliosisjournal.com/content/2/S1/S43
Published:12 October 2007

Objective
School scoliosis screening programs are mandated across the United States, but their efficacy remains controversial [1-3]. This study investigates data from the Massachusetts program, examining its efficacy and follow up attained after a positive screen.
Study design
This retrospective cohort study analyzes data for 272,337 students in grades 5–9 from 1989 to 2005 in Massachusetts. Regression and data analyses determined the incidence of scoliosis over the life of the program, its predictive value, specificity and the rate of follow up attained after screening.
Results

The incidence of scoliosis was 0.55%, or 1489 students from 1989 to 2005. The program's positive predictive value was low, at .50%, or 1 confirmed diagnosis per 200 students screened. Children in lower socioeconomic strata were more likely to be identified for possible scoliosis than other students. Girls were identified and diagnosed with scoliosis increasingly over time. Compared to other programs, fewer students per thousand were positively screened for scoliosis in MA, though follow up evaluation was incomplete for 72% of those students.
Conclusion
Sociodemographic factors may influence the identification of students at risk. Methodological issues significantly influence the program's efficacy and ability to meet its goals, including bringing those identified to follow up care.
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Bunge EM, Juttmann RE, de Koning HJ: Steering Committee of the NESCIO Group. Screening for scoliosis: do we have indications for effectiveness?
Journal of Medical Screening 2006, 13:29-33. PubMed Abstract | Publisher Full Text |

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Current Events

Spring 2008 Academy Diplomate Examination

The Academy Orthopedic Diplomate Examination will be held May 3, 2008, at Texas College of Chiropractic in Pasadena, Texas.

The candidate who successfully completes the Academy Orthopedic Certifying Examination will receive the designation *Diplomate of the Academy of Chiropractic Orthopedists* (**DACO)**
Applications are available from the: Academy at www.dcorthoacademy.com
If you wish to participate please contact Cheryl at the Academy office at 515-981-9654.

Review class

Review class sponsored by Texas Council of Chiropractic Orthopedists (TCCO) and Texas College of Chiropractic will be held January, 2008. For detail call Texas College of Chiropractic postgraduate department at 800-533-9822

Computer Model To Help Women Detect Risk of Hip Fracture

The application's developer maintains that by considering 11 risk factors, the tool can assess a woman's risk of hip fracture more accurately than a bone density scan. The computer model is publicly available on the Internet. *Sacramento Bee*.

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Special Announcement:

Prior to the AMA Guides 4th Edition, range of motion assessment served as the foundation for defining impairment. With the 4th, published in 1993, the Injury (Diagnosis-Related Estimates - DRE) model was introduced and served as the primary rating method. Most impairments were categorized on the basis of clinical findings resulting in a fixed impairment number for each category; surgery did not modify the original impairment. The 5th Edition, published in 2000, uses both the Diagnosis-Related Estimates (DRE) and the Range of Motion methods dependent on the condition. Categorization was based typically on findings at maximal medical improvement, definitions for the categories were revised, and four whole person permanent impairment values were provided for each category. The 6th Edition, scheduled for December 2007, uses a methodology based on the International Classification of Functioning, Disability and Health (ICF) and ratings are based primarily on a specific diagnosis, which results in assignment to an impairment class (IC), using grids designed for this purpose. The impairment value within a class is further refined by considering information related to functional status, physical examination findings, and the results of clinical testing. Range of motion is no longer used as a basis for defining impairment since current evidence does not support this as a reliable indicator of specific pathology or permanent functional status.

The College on Forensic Sciences (CFS), a CCO and ACA affiliate, has added the AMA's *Guides to the Evaluation of Permanent Impairment* (6th edition) to the list of impairment rating products sold via its website. CFS offers these products to assist with their organizational objectives of providing, delivering and conducting educational and training opportunities for professionals seeking training in forensics, disability, impairment rating and federal programs leading to board or subspecialty certification.

Order ($40 off the AMA suggested list price) a copy now by going to http://www.forensic-sciences.org. Click on the products button and then impairment rating publications.

Attribution

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