Predicting Benefit of Spinal Manipulation for Low Back Pain

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This guide is one in a series that offers evidence-based tools to assist family physicians in improving their decision making at the point of care.

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Clinical Question

Is it possible to identify which patients with low back pain are most likely to benefit from spinal manipulation?

Evidence Summary

Two systematic reviews found that spinal manipulation is superior to sham therapy or placebo in patients with acute low back pain, and has effectiveness similar to analgesics, physical therapy, or usual care by a primary care physician.[1,2] Spinal manipulation was not clearly defined in these meta-analyses and could include therapy performed by an osteopathic physician, chiropractor, or physical therapist. In a study of patients with a lesion deemed suitable for manipulation, those receiving osteopathic spinal manipulation required less medication and physical therapy than those who received usual care.[3]

Table 1. Clinical Rule to Predict the Benefit of Spinal Manipulation for Low Back Pain

*Number of criteria present**	*Number of patients*	*Patients benefiting from spinal manipulation (%)*	*Mean improvement in Oswestry score (%)†*
0	27	7.4	16.9
1	73	34.4	37.0
2	41	85.4	64.6

**—Criteria are symptom duration of less than 16 days and no symptoms distal to the knee.*

†—The Oswestry Low Back Pain Disability Questionnaire is a validated survey assessing symptom levels in patients with low back pain. It consists of 10 items scored from 0 to 5 points; higher scores indicate worse symptoms.[7]

Adapted with permission from Fritz JM, Childs JD, Flynn TW. Pragmatic application of a clinical prediction rule in primary care to identify patients with low back pain with a good prognosis following a brief spinal manipulation intervention. BMC Fam Pract. *2005;6(1)29, with additional information from reference 7.*

Because most primary care physicians are not taught which lesions are suitable for manipulation, a group of researchers has developed and validated a five-item clinical rule to predict which patients with low back pain are most likely to benefit from spinal manipulation.[4,5] In the initial study, 75 patients between 18 and 60 years of age with low back pain were identified and referred for physical therapy.[4] Validated questionnaires were used to assess patients' disability levels and beliefs about the effect of activity on low back pain. Only patients with at least a 30 percent disability level were included, and 71 patients completed the study. In a multivariate analysis, the following variables predicted a good response to spinal manipulation: score of less than 19 on the Fear-Avoidance Belief Questionnaire (a validated survey that quantifies the patient's fear of pain and beliefs about avoiding activity), no symptoms distal to the knee, symptom duration of less than 16 days, at least one hip with more than 35 degrees of internal rotation, and hypomobility in the lumbar spine.[4]

The same group of researchers prospectively validated the clinical rule in a new group of 131 consecutive patients between 18 and 60 years of age with low back pain who were referred for physical therapy.[5] Patients were randomized to receive spinal manipulation (two sessions of high-velocity thrust spinal manipulation) plus an exercise program, or to an exercise program alone. Patients in the manipulation group who met four or five of the predictor variables listed above had the best outcome, whereas those meeting three or fewer variables had outcomes similar to those who were only in an exercise program.[5] The validation study

describes the spinal manipulation procedure, as well as how to assess internal rotation of the hip and hypomobility of the lumbar spine.[5]

Use of the five-item rule is limited because it requires patients to complete a survey and requires the physician to assess hypomobility of the lumbar spine. A simpler two-item rule *(Table 1[6,7])* has been validated in patients who participated in the studies used to create and validate the five-item rule, and includes symptom duration of less than 16 days and no symptoms distal to the knee.[6] In this study, 49 percent of the 141 patients were women and the mean age was 35 years.

A limitation of this series of studies is the absence of validation by an external group of researchers. However, a careful review of the literature did not reveal similar prediction rules on this topic or any other validation studies.

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