

Manipulation of the Lumbar Spine and SI Joint

THE EVIDENCE

Four major Clinical Practice Guidelines (CPGs) dealing with the management of LBP have been published.^{1,2,4,16} The following paragraphs contain the key findings and strength of evidence taken from the portion of the CPG that dealt specifically with manipulation. It should be noted that while manipulation did not receive the highest possible weight-of-evidence rating, it received the highest rating level given to any treatment that was evaluated.

1994- Agency for Health Care, Policy, and related Research (AHCPR); rating scale: A – D (best to worst)⁴

Manipulation can be helpful for patients with acute low back problems without radiculopathy when used within the first month of symptoms. (Strength of Evidence = B (A-D ratings))

When findings suggest progressive or severe neurologic deficits, an appropriate diagnostic assessment to rule out serious neurologic conditions is indicated before beginning manipulation therapy (Strength of Evidence= D). For patients with radiculopathy, the scientific evidence was also inconclusive about either the effectiveness or the potential harms of manipulation.

<http://text.nlm.nih.gov/frs/pick?collect=ahcpr&dbName=lbpc&cd=1&t=919360476>

1996- Royal College of General Practitioners (RCGP); rating scale: 3 – 1 stars (best to worst)¹⁶

Within the first six weeks of onset of acute or recurrent low back pain, manipulation provides better short-term improvement in pain and activity levels and higher patient satisfaction than the treatments to which it has been compared (Strength of Evidence= 3 stars).

The risks of manipulation for low back pain are very low, provided patients are selected and assessed properly and it is carried out by a trained therapist or practitioner. Manipulation should not be used in patients with severe or progressive neurological deficit in view of the rare but serious risk of neurological complication (Strength of Evidence= 2 stars).

<http://www.rcgp.org.uk/rcgp/clinspec/guidelines/backpain/backpain5.asp#Guideline>

1998- New Zealand Guidelines; rating scale: Strong – Weak (best to worst)¹

Manual loading of the spine using short or long leverage methods is safe and effective in the first 4-6 weeks of acute low back symptoms (Strength of Evidence = Moderate).

http://www.nzgg.org.nz/library/gl_complete/backpain1/index.cfm#contents

1999- DoD/VA Low-Back Pain Guidelines; rating scale: (A-D)²

When used within the first month of symptoms, manipulation can be helpful for patients with acute LBP without radiculopathy. Strong theoretical arguments exist to couple manipulation with an active exercise and education regime. Additionally, the panel felt strongly that manipulation should be considered as a method to speed reactivation of the patient.

When findings suggest progressive or severe neurological deficits, an appropriate diagnostic assessment to rule out serious neurological conditions is indicated before beginning manipulation therapy. Selected patients with a nonprogressive radiculopathy may benefit from a trial of spinal manipulation.

There is insufficient evidence to recommend manipulation for all patients with radiculopathy.

<http://www.cs.amedd.army.mil/qmo/lbpfr.htm>

The following information is attributed to peer-reviewed publications regarding the indications, safety, and comparative safety of spinal manipulation in general:

Indications: Although the need to identify which individuals are most likely to benefit from manipulation has been recognized,⁹ no definitive criteria have clearly been established. However, one systematic review found common characteristic of individuals who responded to manual therapy and the early results of one prospective trial are promising.

-Based on a meta-analysis, DiFabio reported the following characteristics of patients with LBP who were likely to benefit from manual therapy intervention:

- a. Duration of current episode less than one month;
- b. Acute onset;
- c. Pain free at least 6 months prior to the current episode;
- d. No history of previous manipulation or surgery;
- e. No evidence of systemic illness, structural deformity, or loss of strength or muscle stretch reflexes; f. Not pregnant; and

- f. Were not receiving payments or involved in litigation related to their condition. Gender was non-significant.⁷

-Flynn and colleagues found in a recent trial⁸ that subjects who had the following examination findings responded with dramatic success to manipulation (successful response to manipulation defined by a 50% reduction in Oswestry score in less than 5 days):

- a. Fear Avoidance Behavior Questionnaire work subscale score <18;
- b. Duration of symptoms 15 days or less;
- c. No symptoms distal to the knee;
- d. Lumbar spine hypomobility at any level;
- e. Either hip with greater than 35 degrees of internal rotation. Patients with 3 or more of any of these findings have a high likelihood of dramatic success.

These subjects had severe LBP with Oswestry scores > 30 but did not have significant sensory-motor loss. While the 3 or more findings predicted dramatic success, patients with fewer findings may respond more favorably than the passage of time.

Harm: The estimated rate of occurrence of cauda equina syndrome as a complication of lumbar spinal manipulation is estimated to be on the order of less than one case per 100 million manipulations.¹³ Overall serious or severe complication of lumbar spinal manipulation seem to be rare.⁵

Senstad et.al.¹¹ reported the following complications resulting from 4712 manipulative treatments (all regions) in 1058 patients:

-55% of individuals had local discomfort, headache, tiredness, or radiating discomfort. These symptoms were mild or moderate in 85% of these individuals and 74% resolved within 24 hours.

-Dizziness, nausea, hot skin or “other” complaints accounted for less than 5% of reactions.

-Muscle and joint soreness are relatively common but rarely lead to even short-term impairment in functional status.

Comparative Harm: It is helpful to consider the safety and complications associated with what is perhaps the most frequently prescribed treatment for acute LBP---non-steroidal anti-inflammatory drugs (NSAIDs)---

in order to put the safety of manipulation in context.

-Major side effects involve the GI tract, and 1% to 3% of users are thought to develop GI bleeding due to NSAID use.¹⁵

-Each year, 7,600 deaths and 76,000 hospitalizations in the U.S. may be attributable to NSAIDs.¹⁴

-Standard NSAIDs produce side effects in just less than 30% of exposed individuals, especially if used for more than 4 weeks.¹⁰

-COX-2 inhibitors have not established a clinically meaningful safety advantage over NSAIDs.³

CONSIDERATIONS:

There is overwhelming evidence for the safety and effectiveness of manipulation for the treatment of patients with acute low back pain. Fortunately, the evidence we have suggests that manipulation of the lumbo-sacral spine in patients with acute LBP elicits a robust treatment effect despite the variety of factors associated with its application (professional discipline, techniques, prescription parameters, etc.). Unfortunately, many physical therapists (PTs) and probably other health care professionals appear to be reluctant to use manipulation in the treatment of patients with acute LBP despite evidence for its effectiveness. This reluctance is best illustrated by the following quote: *“Over the past 10 years, for example, we have seen some very compelling evidence supporting manipulation for patients with acute LBP, yet manipulation is used by physical therapists in typical outpatient settings at a lower-than-expected rate. What seems to be incontrovertible is the fact that evidence exists to support the use of certain treatment procedures for patients with LBP and, like other health care professionals, physical therapists' behavior, in many instances, does not comply with such guidelines.”*⁶

A detailed review of the evidence also suggests that the safety and effectiveness of manipulation is not dependent on type of practitioner, technique used, or years of experience.^{4, 12} In other words, safe and effective manipulation of the lumbo-sacral spine is not the exclusive domain of any single profession nor an esoteric skill that requires years of training to develop. To be sure, there are still many questions that remain to be answered, such as: “How do I identify patients who are likely to respond to manipulation?”; “How do I identify patients who are likely to have an adverse response to manipulation?”; and “What manipulative techniques are most effective?” Positive steps are currently being taken to address these and many other important questions.⁸ However, these unanswered questions are not a sufficient excuse to withhold an effective treatment (manipulation) from patients suffering with acute LBP.

CONCLUSIONS:

1. Manipulation is safe and effective in the short-term for relief of acute LBP. Safety and effectiveness are not dependent upon the type of practitioner or technique used.
2. Given the known efficacy of other treatments for acute LBP, manipulation should be utilized frequently in the management of patients with acute LBP. However, in spite of the evidence, manipulation is currently being underutilized, by PTs in particular, in the management of LBP.
3. Serious complications due to manipulation are extremely rare. Minor complications are frequent, resolve rapidly, and in the majority of cases these complications are no different than sensory or affective phenomenon often experienced during normal daily activities.
4. The efficacy and safety of manipulation for patients with LBP and radiculopathy are unknown

References

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