A Systematic Review Comparing Physical Therapy Interventions for the Treatment of Cervical Spine Pain in Whiplash Associated Disorder

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Background and Objectives

The purpose of this systematic review is to determine if a multimodal/multidisciplinary approach including manual therapy is an effective treatment for whiplash associated disorder (WAD).

Methods

The databases CINAHL complete, MEDLINE and SPORTDiscus were systematically searched using keywords related to WAD and manual therapy. The search was limited to randomized controlled trials. The initial search provided 52 publications that were then screened by title and abstract, followed by an in-depth full text analysis after which only three articles still met the study criteria. After a secondary search one additional study was identified. These 4 remaining studies were evaluated for quality using the PEDro scale and all met the criteria of scoring 7/10 or higher in order to be included in this review.

Results

Two of the four studies found that spinal manipulative therapy, exercise, and a combination of the two were more effective than treatment as usual in treating WAD. In both of these studies spinal manipulative therapy improved patient outcomes in regard to patient satisfaction and a decrease in medication use, indicating a reduction in cervical spine pain with this multimodal approach. Two other studies included motor control and cognitive behavioral training with traditional interventions for the treatment of WAD. Each of these studies found evidence of these adjunct interventions improving overall outcomes including an improved Pain Disability Index, indicating that a multidisciplinary approach including strength/endurance training and cognitive behavioral therapy improves outcomes.

Discussion and Conclusion

This review indicates that incorporating a multimodal/multidisciplinary approach utilizing cognitive behavior therapy, spinal manipulative therapy, endurance/strength training, and motor control training may be best at reducing cervical spine pain in WAD patients. Research on this subject is still lacking necessitating a greater number of high-quality studies before drawing more definitive conclusions.

Summary of Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>PEDro Score</th>
<th>Subjects</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Results</th>
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<td>2009 Ask¹</td>
<td>9/10</td>
<td>25 subjects with a history of WAD grade 1 or 2 still having symptoms or disability 6 weeks after injury</td>
<td>- Motor control utilizing pressure biofeedback to train deep and superficial neck synergists. - Endurance/strength training of neck and upper body</td>
<td>Primary: Neck Disability Index Secondary: VAS, work status, and pain drawing. GPE-52, neck muscle endurance, cervical ROM, PGIC, satisfaction with care</td>
<td>Both interventions were effective in treating patients with sub-acute WAD. No statistical significant differences between groups.</td>
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<td>2001 Bronfort²</td>
<td>8/10</td>
<td>191 patients with a primary problem of mechanical neck pain that persisted for 12 weeks or more</td>
<td>- SMT and low-technology exercise (SMT/Exercise) - MedX Exercise</td>
<td>- Questionnaire for neck performance (cervical, strength, endurance, and ROM) - Patient expectations</td>
<td>SMT/Exercise showed superior outcomes to SMT alone or MedX Exercise. MedX Exercise was superior to SMT alone.</td>
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<tr>
<td>2008 Wicksell³</td>
<td>7/10</td>
<td>30 adults ages 45-64 with sciatica with or without LBP persisting for 2-weeks to 3-months with leg pain &gt; LBP in a radicular distribution</td>
<td>Treatment as usual (TAU) with Cognitive behavioral therapy (CBT)</td>
<td>Primary: PDI and SWLS Secondary: TSK, IES, HADS, VAS and pain interference</td>
<td>CBT with TAU was effective at improving outcome measures over TAU alone for all outcome measures</td>
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<tr>
<td>2012 Bronfort⁴</td>
<td>9/10</td>
<td>272 persons with non-specific neck pain</td>
<td>- SMT - Medication - HEA</td>
<td>All patients were instructed in the use of resistive tubing for home Primary: participant rated pain. Secondary: self-reported disability, global improvement, medication use, satisfaction, general health status, adverse events</td>
<td>SMT showed more improvements than medication at weeks 8, 12, 26, and 52 for pain. HEA was better than medication at 26 weeks. SMT and HEA showed no difference at any point.</td>
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Abbreviations: WAD = whiplash associated disorder; VAS = Visual Analogue Scale for Pain; GPE-52 = Global Physiotherapy Examination; ROM = Range of Motion; PGIC = Patients’ Global Impression of Change; SMT = Spinal Manipulative Therapy; PDI = Pain-Disability Index; SWLS = Satisfaction with Life Scale; TSK = Tampa Scale of Kinesiophobia; IES = Impact of Event Scale; HADS = Hospital Anxiety and Depression Scale; HEA = Home Exercise with Advice.

References


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