Manual Therapy and Exercise in Treatment of Patients with Cervical Radiculopathy: A Protocol for a Case Series

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Manual Therapy and Exercise in Treatment of Patients with Cervical Radiculopathy: A Protocol for a Case Series
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Purpose
Cervical radiculopathy (CR) most commonly originates from space occupying lesions, resulting in upper extremity radicular pain. Numerous physical therapy interventions are available for treating CR symptoms, however present practice patterns incorporate the application of a combination of interventions with inconclusive or mixed results. Clinical practice guidelines advocate for the utilization of thoracic manipulation to treat CR. It is hypothesized that the use of specific manual therapy techniques combined with exercise will have a positive effect on CR as measured by reduced levels of pain, disability, and improved range of motion (ROM), yet there is minimal evidence to support this theory. Therefore, the purpose of this case series is to observe the short-term effects of specific manual therapy techniques and exercise directed to the thoracic and cervical spine in patients with CR.

Methods/Subject
The protocol utilized a one-group pretest-posttest design. This quasi-experimental design is intended to determine the short-term effects of thoracic manipulation, cervical rotation mobilization and exercise on pain and disability. Subjects completed the Neck Disability Index (NDI), the Numeric Pain Rating Scale (NPRS) at pre and post intervention, and a Global Rating of Change (GROC). Inclusion criteria: Subjects 18-60 years old, scored a 5 or higher on the NDI, and tested positive for at least 3 out of the 4 test items as reported in Wainner et al’s clinical prediction rule (CPR) for CR (Figure 1). Exclusion criteria: Any red flag items indicating non-musculoskeletal origin of symptoms or contraindications to manipulation. Interventions included thoracic manipulations followed by local cervical rotation mobilization (Figure 2) and exercise prescription (Figure 3).

Results
Of 5 subjects screened, only one participant fit the inclusion criteria of our study. This subject demonstrated decreases in NDI as well as Arm NPRS scores that met minimal detectable change (MDC) thresholds immediately following treatment and at 48 hour follow up. The subject also showed improved ROM scores immediately post intervention for right rotation and left rotation following 48 hour follow-up.

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<tbody>
<tr>
<td>AROM R Rot</td>
<td>49</td>
<td>60</td>
<td>52</td>
</tr>
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<td>AROM L Rot</td>
<td>52</td>
<td>54</td>
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<td>5</td>
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<td>3</td>
<td>2</td>
<td>2</td>
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<td>NDI</td>
<td>13</td>
<td>8</td>
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Conclusion
Due to having only a single subject qualify for inclusion, we were unable to draw statistically meaningful conclusions about our protocol. This could be due to the fact that this condition does not commonly affect the demographics represented in the subject pool. However, the subject who did qualify showed improvement on the NDI and NPRS outcome measures. This subject demonstrated improvement in left rotation after 48 hours suggesting improved tolerance to left sided reduction in intervertebral foramens space associated with rotation to the ipsilateral side, further suggesting possible reduction in nerve root irritability. Based on this study’s limited results, further investigation on this protocol is warranted.

References