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## **OUTCOMES FROM MRI CONFIRMED SYMPTOMATIC CERVICAL DISC HERNIATION PATIENTS TREATED WITH HIGH VELOCITY, LOW AMPLITUDE, SPINAL MANIPULATIVE THERAPY: A PROSPECTIVE COHORT STUDY WITH 3 MONTH FOLLOW-UP**

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### **Background**

Patients with radiculopathy from cervical disc herniations typically have neck pain with associated arm pain following the distribution of the involved nerve root. The treatment of patients with cervical radiculopathy is often surgical if conservative therapies fail. The research evidence supporting spinal manipulative therapy (SMT) as a treatment for cervical disc herniations is severely lacking.

### **Purpose**

The purpose of this study is to address the paucity of research evidence and investigate the clinical outcomes of patients with cervical radiculopathy from disc herniation (CDH) who are treated with SMT

### **Design:**

Prospective cohort outcomes study.

### **Methods**

Patients between 18 and 65 years of age with neck pain and moderate to severe arm pain in a dermatomal pattern, sensory, motor or reflex changes corresponding to the involved nerve root and at least one positive orthopaedic test for cervical radiculopathy were included. MRI proven CDH at the corresponding spinal segment was required.

### **Outcome measures**

Before the first treatment the patients completed a questionnaire consisting of a numeric pain scale (NRS) and the Neck Pain and Disability (NDI) questionnaire. At two-weeks, one-month and three-months after the initial consultation the patients were called by a trained research assistant and the NDI, NRS and patient's own global impression of change (PGIC) data were collected.

## **Treatment Procedure**

The manipulative procedure was a high velocity, low amplitude adjustment with rotation to the opposite side and lateral flexion to the same side of the affected arm. Treatments were repeated 3–5 times per week for the first 2–4 weeks and continued 1–3 times per week until the patient was asymptomatic.

## **Statistical Analysis**

Only patients responding 'better' or 'much better' on the PGIC scale was categorized as 'improved'. The proportion (%) of patients improved with the intervention was calculated. Descriptive statistics were calculated. Scores on the pre- and post-treatment NRSs and NDI were compared using the Wilcoxon test for matched pairs. Scores on the NRSs and NDIs were compared for acute vs. chronic patients using the Mann Whitney U test.

## **Results**

47 patients with baseline and 3 month outcome data were included. At two weeks 58.3% of patients were 'improved', 69.8% at 1 month and 85.1% at 3 months. No patients were 'worse'. Statistically significant decreases in neck pain, arm pain and NDI scores were noted for all time points compared to the baseline scores ( $p < 0.0001$  for all comparisons). In patients with symptoms over 4 weeks ( $n = 19$ ), 73.7% were 'improved' at 3 months.

## **Conclusions**

A high proportion of patients with symptomatic, MRI confirmed CDH treated with SMT report significant improvement at 3 months after start of treatment. No serious adverse events were reported. Even sub-acute/chronic patients showed significant improvement.

## **Clinical Implications**

SMT is not contraindicated as a treatment for patients with symptomatic cervical disc herniation. Although this is not a randomized clinical trial, these results suggest that particularly in subacute and chronic patients SMT may be an effective treatment.