

FUNCTION IN PATIENTS WITH CERVICAL RADICULOPATHY OR CHRONIC WHIPLASH-ASSOCIATED DISORDERS COMPARED WITH HEALTHY VOLUNTEERS

Anneli Peolsson, PhD, PT,^{a,b} Maria Landén Ludvigsson, MSc, PT,^{c,d} Johanna Wibault, MSc, PT,^c Åsa Dederer, PhD, PT,^{e,f} and Gunnel Peterson, MSc, PT^{c,g}

ABSTRACT

Objective: The purposes of this study were to examine whether any differences in function and health exist between patients with cervical radiculopathy (CR) due to disk disease scheduled for surgery and patients with chronic whiplash-associated disorders (WADs) and to compare measures of patients' physical function with those obtained from healthy volunteers.

Methods: This is a cross-sectional study of patients with CR (n = 198) and patients with chronic WAD (n = 215). Patient data were compared with raw data previously obtained from healthy people. Physical measures included cervical active range of motion, neck muscle endurance, and hand grip strength. Self-rated measures included pain intensity (visual analog scale), neck disability (Neck Disability Index), self-efficacy (Self-Efficacy Scale), and health-related quality of life (EuroQol 5-dimensional self-classifier).

Results: Patient groups exhibited significantly lower performance than the healthy group in all physical measures ($P < .0005$) except for neck muscle endurance in flexion for women ($P > .09$). There was a general trend toward worse results in the CR group than the WAD group, with significant differences in neck active range of motion, left hand strength for women, pain intensity, Neck Disability Index, EuroQol 5-dimensional self-classifier, and Self-Efficacy Scale ($P < .0001$).

Conclusions: Patients had worse values than healthy individuals in almost all physical measures. There was a trend toward worse results for CR than WAD patients. (J Manipulative Physiol Ther 2014;xx:1-8)

Key Indexing Terms: Cervical vertebrae; Neck pain; Radiculopathy; Whiplash injuries; Outcome measures

^a Guest Researcher, NHMRC CCRE (Spinal Pain, Injury and Health), The University of Queensland, Brisbane, Australia.

^b Associate Professor, Department of Medical and Health Sciences, Physiotherapy, Faculty of Health Sciences, Linköping University, Linköping, Sweden.

^c PhD Student, Department Medical and Health Sciences, Physiotherapy, Faculty of Health Sciences, Linköping University, Linköping, Sweden.

^d Physical Therapist, Rehab Väst, County Council of Östergötland, Motala, Sweden.

^e Doctor, Division of Physiotherapy, Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden.

^f Head, Department of Physical Therapy, Karolinska University Hospital, Stockholm, Sweden.

^g Physical Therapist, Centre for Clinical Research Sörmland, Uppsala University, Uppsala, Sweden.

Submit requests for reprints to: Anneli Peolsson, Associate Professor, PhD, PT, Department of Medical and Health Sciences, Physiotherapy, Hälsans hus plan 12, Campus US, Linköping University, SE-58183 Linköping, Sweden. (e-mail: Anneli.Peolsson@liu.se).

Paper submitted June 30, 2013; in revised form December 30, 2013; accepted January 23, 2014.

0161-4754/\$36.00

Copyright © 2014 by National University of Health Sciences. <http://dx.doi.org/10.1016/j.jmpt.2014.01.003>

Longstanding problems of cervical radiculopathy (CR) and indirect neck trauma (whiplash-associated disorder [WAD]) are common, with CR incidence of 83/100000¹ and WAD incidence of 235 to 300/100000.² In recent studies, up to 50% of WAD patients^{3,4} and 30% to 100% of postsurgical CR patients⁴⁻⁹ report personal suffering from prolonged symptoms, with persistent pain, disability, and reduced health-related quality of life (HRQoL). Physical function and treatment have been severely understudied both for CR patients scheduled for surgery^{9,10} and for chronic WAD patients,¹¹ particularly for patients with verified neurological and musculoskeletal findings (WAD Grade III).¹¹ Evidence of effective physiotherapy is inconclusive because there have been few randomized controlled trials involving these specific groups of patients.¹²⁻¹⁵ There is an urgent need for increased knowledge of both groups' function and health to better understand how to tailor successful exercise regimens.

Patients with CR scheduled for surgery have specific magnetic resonance imaging (MRI)-verified pathology of cervical disk disease consistent with clinical findings. It is, therefore, of interest to compare CR patients with WAD

patients, whose diagnosis often persists with clinical signs but without radiologic findings,¹⁶ with respect to self-reporting questionnaires and physiotherapist-obtained measures of function. Active cervical range of motion (AROM), neck muscle endurance (NME), and hand strength are all factors of importance for activities of daily living; they are reduced in other neck pain populations^{8,17} and should be addressed in rehabilitation programs.¹⁸ For patients with chronic WAD^{19,20} or CR,⁵⁻⁹ these factors have been insufficiently evaluated in relatively small samples that exhibit reduced function.^{5-9,19-22}

It is important to investigate whether and to what extent these patient groups differ from a healthy population and whether there are differences in CR patients regarding the onset of symptoms (suddenly after a special occasion, or slowly progressing) and in WAD patients regarding Quebec classification.²³ Information is contradictory regarding whether WAD Grade is related to outcome,^{24,25} and to our knowledge, the literature lacks studies investigating whether the type of symptom onset in CR patients is related to functional outcome.

This study primarily aimed to examine whether any differences in pain intensity, physical function, or HRQoL exist between patients with CR and patients with chronic WAD and to compare these measures of physical function in these patient groups with measures obtained from healthy volunteers. Secondary goals were to investigate whether there were any differences between patients classified as WAD Grade II and Grade III, to determine whether symptoms of CR appeared after a specific occasion, and to investigate correlations between physical measures and self-reported ones.

METHODS

Participants

This study included 198 patients with MRI-verified CR due to cervical disk disease who were scheduled for surgery the following day (mean age 50 years \pm SD 8.5 years, 104 men and 94 women; Fig 1) and 215 patients with chronic WAD (6 months to 3 years since accident) classified as Grade II ($n = 122$) or Grade III ($n = 93$)²³ (mean age, 40 \pm 11.4 years; 78 men and 137 women; Fig 2). Patients' data were compared with data obtained previously from healthy volunteers (for hand strength and neck AROM: $n = 101$; mean age, 43 \pm 10.5 years; 50 men and 51 women^{24,25}; for NME: $n = 116$, mean age 45 \pm 11.7 years, 60 men and 56 women).²⁸

Patients with CR (recruited from neurosurgical clinics) and WAD (identified through electronic medical records from county councils and recruited after inquiries by mail including a short questionnaire) were participants in ongoing randomized clinical trials. Their baseline values were used in the present study. For inclusion criteria, please

Surgical inclusion criteria

- Cervical disk disease verified by MRI and compatible with clinical findings (examined by a neurosurgeon) showing cervical nerve root compression
- Radiculopathy
- Persistent neurologic deficit from a cervical nerve root (duration ≥ 2 mo)

Study inclusion criteria

- Scheduled for surgery for cervical disk disease (with either an anterior approach with fusion or a posterior approach) in 1-3 segmental levels
- Age 18-70 y

Study exclusion criteria

- Myelopathy
- Earlier fracture or luxation of the cervical column
- Malignancy, spinal tumor, spinal infection, or previous surgery in the cervical column
- Systemic disease or a trauma that contraindicates the treatment program or the study measurements/assessments
- Diagnosed severe psychiatric disorder, such as schizophrenia or psychosis
- Known drug abuse
- Lack of familiarity with the Swedish language

Fig 1. Inclusion and exclusion criteria for patients with cervical radiculopathy. MRI, magnetic resonance imaging.

see Figures 1 and 2. For both patient groups, eligibility criteria were verified through telephone interviews, medical files when indicated, and physical examination by an experienced physiotherapist.

Volunteers with healthy necks were randomly selected from computerized employee records from a university hospital and a university by an independent researcher and were stratified with respect to sex and age.²⁶⁻²⁸ Individuals claiming to be healthy without recurrent neck pain, earlier neck trauma, or neck surgery and without any recent neck treatment were included. Individuals with upper extremity problems were excluded from the hand strength measurements. Pregnant women were also excluded. Raw data from these earlier published normative data of healthy controls²⁶⁻²⁸ were used for comparisons between healthy volunteers and patients.

All different parts of the study received approval from the Regional Medical Research Ethics Committee at Linköping University in Sweden, and the study was conducted in accordance with the Declaration of Helsinki. All participants received verbal and written information about the study as well as practical demonstration of the measurements.

Measurements

All measurements were obtained from WAD and CR patients. Only physical measures were obtained from the healthy volunteers.

Background Data. Background data included age, sex, and WAD Grade (II or III)²³ for WAD patients and whether the onset of symptoms was associated with a specific occasion in CR patients.

Download English Version:

<https://daneshyari.com/en/article/5863944>

Download Persian Version:

<https://daneshyari.com/article/5863944>

[Daneshyari.com](https://daneshyari.com)