Manual Physical Therapy, Cervical Traction and Neuromuscular Re-Education in Patients with Cervical Radiculopathy: A Case Series

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Cervical Lateral Glides

- Coppieters et al, JOSPT, 2003
- Allison et al, Man Ther, 2003

Thoracic Spine Manipulation

Strengthening Exercises

Neck Disability Index

MCID= 7 points
Cleland et al, Spine, 2005

A Clinical Prediction Rule for Classifying Patients With Neck Pain Who Demonstrate Short-Term Improvement With Cervical Traction
Strengthening and Conditioning: Chronic Neck Pain

Chronic Neck Pain: Presentation
- Lower pain and disability scores
- Longer symptom duration (> 4 weeks)
- No Peripheralization/Centralization with AROM
- No signs of root compression

Chronic Neck Pain: Treatment
- Strengthening exercises for cervical and upper quarter muscles

Strengthening Exercises

Philadelphia Panel Clinical Practice Guidelines

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* TENS= transcutaneous electrical nerve stimulation, EMG= electromyographic, nd= no data, ID= insufficient data, A= benefit demonstrated, C= no benefit demonstrated, I= evidence from randomized controlled trials, II= evidence from controlled clinical trials

(191 patients, randomized, no control)
- Group 1: Manipulation and exercise (n = 63)
- Group 2: Exercise only (n = 60)
- Group 3: Manipulation only (n = 64)
- Duration of Symptoms: > 12 wks
- Treatment: 20 one-hour visits
- 2-year follow-up of previous study

(Phil Panel Guidelines; Spine, 2002)
Exercise Description

• “Low tech” exercise:
  – Light stretching & UQ dumbbell exercises
  – Multi-directional isotonic resistance in supine
• “High tech” exercise:
  – MedX system – variable resistance system
  – 20 reps max; work thru pain

Evans et al, Spine, 2002

Evans et al, Spine, 2002

Ericsson vs. Manipulation + Exercise

• MedX vs. Manipulation + Exercise

Ylinen et al, JAMA, 2003

Active Neck Muscle Training in the Treatment of Chronic Neck Pain in Women
A Randomized Controlled Trial

• 180 women aged 25-53, randomized
  – Group 1: Strength Training (n = 60)
  – Group 2: Endurance Training (n = 60)
  – Group 3: Control (n = 60)
• Duration of Symptoms: > 6 months
• Treatment: TIW exercise at home; multimodal PT
• Outcome Measures: (taken at 2, 6 & 12 months)
  – VAS & Neck Disability Index (NDI)
  – Modified neck & shoulder pain & disability index
  – Self-rated improvement (6 point ordinal scale); 12 month only
  – Depression inventory
  – Isometric neck strength & range of motion

Participant Activities

Both training groups had 9 practice sessions

• Strength Training:
  – Theraband resisted neck flexor exercises (1 x 15)
  – Forward, oblique (L & R), backward
  – 80% of max isometric strength
  – Shoulder/UE adjusted dumbbell exercises (1 x 15)
  – Trunk & leg training
  – Stretching x 20 min
  – 30 min aerobic training TIW

Ylinen et al, JAMA, 2003

• Endurance Training:
  – Supine head lifts (3 x 20)
  – Shoulder/UE dumbbell exercises 2 Kg (3 x 20)
  – Trunk leg training
  – Stretching x 20 min
  – 30 min aerobic training TIW

• Control Group
  – Stretching x 20 min
  – 30’ aerobic training TIW

Results

• Drop out rate: 1.7%
• All outcome measures were significantly lower in the 2 training groups vs. controls
• No statistically significant difference b/t the two training groups.
Considerable or complete pain relief

- Only 3% had an increase in pain

Three Facilitation Techniques
- Pressure Biofeedback Pillow
  - Inflated to support, but not enhance cervical lordosis
- Verbal Instruction
  - Subject instructed to tuck chin
  - Elongate back of the neck
- Isometrically Resisted Facet Upslide
  - 3 Grade III oscillations
  - Instruction to stop motion; held for 4 s; repeated 10x

Pain Control: Acute Whiplash

Acute Whiplash: Presentation
- High pain and disability scores
- Recent symptom onset (<2 weeks)
- Traumatic onset

Acute Whiplash: Treatment
- AROM exercise
- Mobilization
- Avoid immobilization

Effective management of acute whiplash injuries requires a pragmatic approach:
An RCT with stratified treatments

G Jull, M Sterling, J Kenardy, M Cohen*
L Connelly, E Beller

The University of Queensland
* The University of New South Wales
Hypothesis

Stratified pragmatic management of acute whiplash injury which is directed by the presenting pain, musculoskeletal and psychological features in a multi-professional context is more effective and cost-effective than usual care in reducing the incidence of transition to chronicity.

Stratification factors for randomisation

| F0 = NDI score | less than 30 |
| F1 = NDI score | 30 and greater |
| F2 = IES score | greater than 26 |

F3 = Sensory disturbance:
- Cervical cold pain thresholds > 15°C;
- PPT TA (Males: <410, Females: < 304 kpa)
- Sympathetic Nervous System, Q1 (quotient of integrals) > 70

The costs

Cost-effectiveness will be measured

Cost of medical care, opportunity cost of lost labour and other activities over the 12 month period

The rate of transition to chronicity can be reduced by 50% through recognition and early management of the presenting pathophysiological and psychological features of the acute whiplash injury

Purpose of guidelines
behavior change

Two reasons why people change

• Something very good will happen if they do something
• Something very bad will happen if they fail to do something

solutions

utilization review

meaningful patient outcome

treatment choices
matching

surveillance

real-time reporting

compare performance

so that

in the words of Steve Rose
practice looks more like research

research looks more like practice

Minimum Data Set

- On protocol versus off protocol
- Constant surveillance with immediate feedback to the therapist
  - Including benchmarks based on expectations and performance overall
- Combine outcomes and rehab process with costs from health plan
Web-based Data Entry

Evidence In Motion

LOW BACK PAIN FORM

ENTRANT ONLY Therapist Name: ______________________

Patient Name: ______________________ Gender: Male ☐ Female ☐

Date: ________

HISTORY (Entrant Only)

Location: ________________

LBP: ________________ LBP and leg symptoms developed in lower body:

FABQ

Post-Exposure Decision

No ☐ Yes ☐

≤ 14 Days

≤ 30 Days

PHYSICAL EXAM (Entrant Only)

Any NLE: ______

Pain on Movement Test

Mobility Testing

FLEX

Extension

Muscle Weakness

Electrical Stimulation

30 Degree

50 Degree

Sought medical care for this same episode in the past?

Future Episodes: ______

Evidence In Motion

Evidence In Motion
Automatically Generated Reports

Modified Oswestry Disability Score
(Range 0-100; higher scores = greater disability)

Initial Visit 2-Wks Final Visit

Oswestry Score (%)

Student
All Students
All Clinicians

Program Comparisons

Baseline 2 Week Final Visit

Oswestry Scores (%)

Regis
All Other Programs

Questions???