EVIDENCE-BASED PRACTICES IN TREATING CERVICAL SPINE PAIN

Thomas M. Dodge, PhD, ATC, CSCS
Springfield College
Springfield, MA
Outline

- Relevance
- Functional Anatomy
- Treatment options
  - Electrotherapies
  - Manual Therapies
  - Therapeutic Exercise
- Conclusions
Relevance

- Cervical pain affects approximately 15% of the population (Cote et al., 2004)
- Debilitating nature of cervical pain
- Cervical pain has a multitude of causes
- Difficult to treat
- Upper segments
  - 45° superior to the transverse plane

- Lower segments
  - More vertical position
Musculature (Ylinen, 2007)

- Isometric function
  - Posture
  - Stabilization
- Dynamic function
  - Position head for better sensory input
    - Proprioception
    - Sight, hearing, olfaction, etc.
- Relationship to shoulders
  - Elevation
  - Inspiration
Common Injuries

- Myofascial Trigger Points
- Cervical Strains
- Joint Restrictions/Facet Joint Pathology
- Cervical Instabilities
- Disc Pathologies
- Radicular Pain
- Cervicogenic Headaches
Postural Issues
Electrotherapy
Efficacy of IFC

- Fuentes et al. (2010)
  - IFC provides modest relief for musculoskeletal pain as part of a multimodal treatment approach
    - Acute or Chronic
    - 3 Month Follow Up
  - No specific neck studies included in meta-analysis
Electrotherapy

- TENS coupled with Ischemic compression leads to greater initial reduction in pain (Hou et al., 2002)

- TENS intervention lead to improvements in strength, pain, and disability status at both 6 weeks and 6 month follow-up (Chiu et al., 2005)
Electrotherapy Bottom Line

- Cochrane Review (Kroeling et al., 2009)
  - Low level of evidence supporting IFC as a treatment for c-spine pain

- Bottom Line:
  - Its probably worth trying, but not in isolation
Traction/Mobilization Techniques
Traction/Mobilization

- Contraindications
  - Vertebral Fracture
  - Vertebral Dislocation
  - Hypermobility
  - Disease/Infection
  - Vertebral Artery Dysfunction
  - Severe Disc Herniation
  - Arthritis?
Traction
Cervical Traction Clinical Prediction Rule (Raney et al, 2009)

- Peripheralization with mobility testing
  - C4-C7
- (+) Shoulder Abduction Test
- Age ≥ 55
- (+) Upper Limb Tension Test
- (+) Cervical Distraction Test
Mobility Testing
Shoulder Abduction Test
Cervical Distraction Test
Upper Limb Tension Test
Cervical Traction Clinical Prediction Rule (Raney et al, 2009)

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- 79.2% Success rate with 3 factors
- 94.8% Success rate with 4 factors
Manual Cervical Traction
Traction/Trigger Point Pressure
Cervical Traction

- Patients with radicular symptoms of less than 12 weeks reported a reduction in pain and perceived disability with mechanical traction (Moeti & Marchetti, 2001).

- Centralization can be accomplished through a combination of traction and retraction exercises (Werneke & Hart, 2003).
Cervical Traction

- More recent research (Chiu et al. 2011, Young et al., 2009) suggests that traction is not a necessary addition to the treatment protocol when treating chronic and/or radicular pain with manual therapy and therapeutic exercise.

- Bottom line: Utilize the CPR for optimal results
Thoracic Thrust Mobilization
Thoracic Thrust Mobilization CPR (Cleland et al, 2007)

- Symptoms < 30 days
- No symptoms distal to the shoulder
- Looking up does not aggravate symptoms
- FABQPA score <12
- Diminished upper spine kyphosis
- Cervical extension ROM < 30°

- 3 or more = 86% success rate
Thoracic Mobilization Evaluation
Thoracic Mobilization Evaluation
Thoracic Mobilization
Thoracic Mobilization
Thoracic Spine Thrust Mobilization

- Thoracic spine thrust mobilization results in significantly greater short-term reductions in pain and disability than does thoracic nonthrust mobilization in people with neck pain (Cleland et al., 2007)
Thoracic Thrust Mobilization CPR 2010 update (Cleland et al.)

- Validity of original CPR not supported
- Long and short term improvements in pain and neck disability
  - TTM supported as a viable treatment for all patients with mechanical neck pain
Therapeutic Exercise
Chin Tuck Maneuver
Chin Tuck With Bladder
Chin Tuck Progression

- Start on the table in anatomical position

1. Progressive Tension
   - 22, 24, 26, 28, 30

2. Elbow flexion and extension

3. GH Internal/external rotation

4. GH abduction and flexion/extension

5. Scapular protraction, depression, elevation

6. Diagonal patterns (PNF)
Chin Tuck Progression
Moving Off The Table
Progression Off The Table
Therapeutic Exercise

- Resistance exercise, when training volume is appropriate, can significantly reduce neck pain and disability (Ylinen et al. 2003).

- Dynamic and isometric training of the neck musculature significantly increases pressure pain threshold (PPT) in neck muscles (Ylinen et al. 2005).
Patients must possess sufficient strength to cope with tasks that require higher loading levels during recreational and work activities. (Ylinen, 2007)

Long –term moderate to high intensity training of the neck musculature is appropriate for reduction and prevention of chronic neck pain (Ylinen, 2007)
Conclusions

- Electrotherapy is a viable treatment option
- Mobilization and traction techniques are useful when indicated
- Posture and the Kinetic Chain
  - Thoracic mobility
- Rehabilitation
  - Deep Neck Flexors
  - Progressive Loading
- Treatment of cervical spine should always follow a multimodal approach (Miller et al., 2010)
References

TDodge@spfldcol.edu