Assessment of Post-Concussion Syndrome
Clinical Approach from a Manual Therapist

Outline

- Briefly discuss how to best use the SCAT 3 symptom score as an outcome measure and guide to treatment
- Manual assessment techniques for cervical symptoms related to post-concussion syndrome
- Simple and effective treatment techniques to incorporate into daily practice

Using the SCAT 3 symptom score

- 22 symptoms
- 0-6 rating scale
- 132 maximum severity
Why use the SCAT 3 as an outcome measure?

- Easy to administer
- Shown to be valid and reliable
- Sensitive to change
- Addresses neck pain and neck associated symptoms

How best to use and interpret the SCAT 3 symptom score

- 6.8 point change on severity score is indicative of reliable change
- Look for clustering of symptoms

Post Concussion Symptoms

Cervical cluster

Vestibular cluster

Autonomic cluster

Visual cluster
Cervical cluster

- Neck pain
- Headache
- Pressure in head
- Dizziness
- Balance problems
- Nausea/ vomiting
- Don't feel right
- Blurred vision

Vestibular cluster

- Dizziness
- Balance problems
- Blurred vision
- Nausea/ vomiting
- Sensitivity to noise
- Don't feel right

Visual cluster

- Sensitivity to light
- Blurred vision
- Difficulty concentrating (or reading)
- Feeling like "in a fog"
- Don't feel right
**Autonomic cluster**

- Fatigue or low energy
- Drowsiness
- Trouble falling asleep
- Feeling slowed down
- Feeling like "in a fog"
- Difficulty concentrating, difficulty remembering
- Confusion
- More emotional, irritability, sadness, nervous or anxious

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**Sample patient**

**Cervical cluster**

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**Identified potential cervical cluster...what do we do now?**

- Assess the cervical spine, some key tips, tricks and tests:
  - Active Range of Motion
  - Sharp-Purser test
  - Flexion-rotation test
- Simple and effective Treatments:
  - Semi-specific traction
  - Sub-occipital release
  - C1-C2 SNAG (Self-sustained Natural Apophyseal Glide)
Active ROM

Upper Cervical dysfunction (C0-C2)
- Flex
- LSF
- Ext

Lower Cervical dysfunction (C2-C7)
- Flex
- LSF
- Ext

Sharp-Purser test
(subluxation)
- A subluxation-reduction test
- Patient actively flexes fully through cranio-vertebral region, and partially through lower cervical
- Look for onset of patient's symptoms e.g. Lump in throat
- Look for prominence of C2

Sharp-Purser test
(reduction)
- Therapist palpates C2 spinous process with one hand
- Place other hand on patient's forehead
- Therapist shears head back on neck
- Assessing for laxity and a DECREASE in patient's symptoms
Flexion-Rotation test
Start position

- Patient supine
- Therapist at head of bed
- Therapist passively flexes C-spine into full flexion
- Be sure to fully flex the CV region

Finish position

- Therapist passively rotates the head into full left and right rotation
- Therapist maintains full C-spine flexion throughout the test
- Normal ROM is 45 degrees to each side

Positive test

- Restricted rotation to the side of involvement
- Clinically, a difference of 10-15 degrees between sides and a correlation with the patient's symptoms indicates a positive test
- A positive test indicates a restriction/ dysfunction between C1-C2
Some treatment ideas

- Gentle semi-specific traction
- Diaphragmatic breathing
- Sub-occipital release
- C1-C2 SNAG Self-sustained Natural Apophyseal Glide (Headache SNAG)

Gentle C-spine traction

- Therapist sits at head of bed with patient lying supine
- Hand placement: dependent on level
  - Superior nuchal line, mastoid process (C0-C1)
  - Arch of the atlas (C1-C2)
  - C2 transverse process (C2-C3)

Gentle C-spine traction semi specific (C0)

- Therapist sits at head of bed with patient lying supine
- Hand placement: Superior nuchal line, mastoid process
- Semi specific to C0-C1
Gentle C-spine traction semi specific (C1)

- Therapist sits at head of bed with patient lying supine
- Hand placement: Arch of the atlas (C1)
- Semi specific to C1-C2

Gentle C-spine traction semi specific (C2)

- Therapist sits at head of bed with patient lying supine
- Hand placement: Over lamina and transverse process of C2
- Semi specific to C2-C3

Diaphragmatic breathing

- Patient focuses on relaxed breathing
- Keep chest quiet
- Breath into stomach
- Don't worry about the pace
Sub-Occipital release

- Therapist's hands cupped under patient's head on the sub-occipital muscles
- With fingers flat, therapist uses the lumbricals to gently oscillate the head into slight cranio-vertebral flexion

C1-C2 SNAG Setup

- Place towel or strap behind head
- Gently snug up each side just under the ear lobes
- Both sides should be parallel to the ground

C1-C2 SNAG Start

- Depending on comfort switch hands to grasp opposite side
- Drop the hand to the chest on the side you are rotating towards maintaining tension
C1-C2 SNAG

Finish

- Use the raised hand to guide the head into rotation using gentle tension
- Keep the relative position of the hand to the face constant
- Hold the position for 3 seconds and return
- Movement is ONLY in the pain-free range of motion

Dosage of C1-C2 SNAG

- Dependent on irritability
- 2-5 repetitions
- 2-3 sets per day

Other manual therapy and treatment options

- Mobilization
- Manipulation
- Acupuncture: dry needling, traditional, scalp acupuncture
- Myofascial release techniques
- Neuromuscular retraining
- Mindfulness meditation
References

1. SCAT 3: http://bjsm.bmj.com/content/47/5/259.full.pdf


References cont.

