The Role of Osteopathic Manipulative Treatment in Post concussion Syndrome

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Introduction

- Post concussion syndrome (PCS) is a complex neurocognitive disorder that manifests in the brain following a traumatic brain injury and demonstrates various neuropsychiatric symptoms, including amnesia, headaches, concentration difficulty, abnormal behaviors and emotions, and overall, biomechanical and social decline.1,2
- Approximately 15% of the 1.4-3.4M concussions annually, due to sport-related TBIs and blast wave explosions, for example, exhibit prolonged complications, largely attributed to accumulating toxins in the nervous system, following the primary tissue injury phase of mechanical damage from acceleration/deceleration forces.4,5
- Recent and increasing evidence suggests osteopathic manipulative treatment (OMT) is beneficial in treating PCS, but no absolute osteopathic protocol has been validated to advance recovery speed. Brain rest, oral medication (e.g. non-steroidal anti-inflammatory drugs, antidepressants, etc.), cognitive behavioral therapy, and/or neurocognitive rehabilitation have been prescribed for psychological and physical improvement.5,6
- Current studies support OMT application in alleviating migraines and headaches, decreasing cranial and cervical muscular tension. One small case series demonstrated the benefit of OMT as an adjunct treatment to conventional pharmacologic therapies for managing post-traumatic headache from mild head injury in US military.6,9

Objective

This pilot study seeks to determine the clinical findings and therapeutic benefits of OMT by osteopathic medicine specialists in the management of PCS to develop this protocol.

Methods

- A 16-question survey was IRB-approved (HEM-12-20), administered, and analyzed online via SurveyMonkey® to all American Osteopathic Association Sports Medicine fellowship program faculty, in 2012.
- Questions addressed physician demographics, such as:
  - Gender
  - Graduation year
  - Osteopathic medical school
  - AOA or ACGME or dual accreditation fellowship training site
  - Practice setting
  - Years of clinical experience in sports medicine
  - Use of OMT in clinical practice
  - Training experience in Neuromusculoskeletal Medicine/Osteopathic Manipulative Medicine
- Other questions identified specific regions of somatic dysfunction and OMT techniques utilized for PCS:
  - Frequency of patients with PCS
  - Primary regions of somatic dysfunction involved
  - Other specific sites of somatic dysfunction or features on physical examination with osteopathic significance
  - Effectiveness of specific OMT techniques for treatment
  - Osteopathic pearls and/or essential OMT
  - Number of OMT sessions required for clinical improvement
  - Effectiveness of OMT for treatment
  - Additional insights on application of OMT

- Approximately 83% of physicians reported managing a PCS case at least on a monthly basis, involving a mean of 2.94 OMT sessions for clinical improvement.
- Cervical spine (58%) and head (56%), specifically occipitoatlantal (OA) and sphenobasilar, regions were reported as presenting with the highest frequency of somatic dysfunction.
- Myofascial Release (MFR) (56%), Muscle Energy (ME) (44%), and Osteopathic Cranial Manipulative Medicine (OCMM) (40%) were ranked as the most utilized, as well demonstrating complete resolution of symptoms, in PCS management.
- 83% percent of physicians recognized some or much improvement in PCS symptoms alleviation through OMT application.

Results

- 44 physicians, representing pre-doctoral training at 17 different osteopathic medical schools, completed the survey.
- Physicians reported managing a PCS case at least on a monthly basis, involving a mean of 2.94 OMT sessions for clinical improvement.
- Cervical spine (58%) and head (43%), specifically occipitoatlantal (OA) and sphenobasilar, regions were reported as presenting with the highest frequency of somatic dysfunction.

Discussion/Conclusion

- Osteopathic medicine specialists identified specific sites with a high frequency of somatic dysfunction and OMT techniques to develop a PCS protocol. These survey responses suggest OMT application in PCS management, supporting the objective.
- Consistent with these physicians’ recommendations, in current literature, cervicogenic headache treatment incorporating OMT has emphasized the occipitoatlantal joint, occipital condyles, and occipitomastoid joint: sphenobasilar syncondrosis: and craniosacral techniques.7,8 One recent brief report and two case reports involving TBIs were successfully treated with at least one OMT session.9,10
- Headache and, subsequently, PCS management through OMT emphasize the biomechanical model focused on musculoskeletal system biomechanical improvement, as well as the neurological model affecting muscular tension of suboccipital and posterior scalp regions through direct inhibition of the greater occipital nerve.11,12
- Limited participation, perspective of one specialty group, and opportunity to incorporate other models requires further studies to validate this proposed PCS management protocol following diagnosis: Thoracic inlet MFR, Cervical Spine Soft Tissue, Suboccipital Release, Cervical ME and/or HVLA, OA Decompression, Occipital Condylar Decompression, Vault, and CV4.

References