

Undetected Neck Injury In The Brain Injured Patient

When head injury occurs in an accident we can become so focused on the brain that a secondary injury to the cervical (neck) spine can go undetected. With time, the resulting damage caused to the person's posture, balance, and neuromusculoskeletal function can lead to chronic neck and back pain. In addition, headaches may develop that have a cervical (neck) origin. Investigations performed with CAT scans (Computerized Axial Tomography), MRI's (Magnetic Resonance Imaging) and other high tech tools have very limited capability to measure the biomechanical injury of the neck. Physicians run the risk of concluding that nothing is wrong because of the absence of objective findings from these tests. Chiropractic technology developed by the National Upper Cervical Chiropractic Association (NUCCA) now allows doctors of Chiropractic to accurately measure biomechanical injury and guide the doctor with its treatment. This biomechanical injury, called an "Atlas Subluxation Complex Syndrome" (ASCS), with time produces symptoms that add to the suffering already experienced with the brain injury.

The ASCS refers to the complex postural response the body develops when the Atlas vertebra (top bone of the neck) shifts beyond its normal, aligned position with the skull. Medical researchers have suspected for some time that the cervical spine is involved with posture.

P. Michaelson reported that disturbances of postural control in chronic neck pain are dependent on the aetiology (cause) (1). Not only is pain a concern when the neck is unhealthy, but other symptoms can occur too. J. Treleaven explored the cause of dizziness with whiplash-associated disorder and postulated that cervical mechanoreceptor dysfunction is a likely cause of dizziness. (2) We find that the same symptom can be produced by brain injury and neck injury. This further complicates diagnosing the patient's true condition. M. Eckstein reminds emergency room doctors not to neglect the neck and cautions doctors to always protect the cervical spine and to not remove the hard collar and spine board until adequate radiographs have been obtained and the patient is lucid enough to complain of any neck pain. (3)

The technology required to examine the biomechanical injury of the Atlas vertebra region is not available in emergency rooms or other medical facilities because it was discovered and developed within the Chiropractic profession. Few medical professionals understand or are even aware of the diagnostic and treatment capabilities of NUCCA trained doctors. This lack of awareness places the patients at risk because detection and correction of the ASCS can be delayed for months or years. Medicine has known that even more serious injuries to the neck can go undiscovered. Sneed and Stover wrote in a study that four children with brain injury were later found to have coexisting spinal cord injury (SCI) and, among a host of serious symptoms including bradycardia with hypotension (low blood pressure), they also demonstrated a "history of neck pain".(4)

Neck injury has also been discovered in sports when trauma to the head has occurred. A.T. Tysvaer examined groups of soccer players who were either active or retired and found that "Head injuries have been shown to account for between 4 and 22% of soccer injuries". (5) What is most surprising is that his investigation and radiological examination of the cervical spine revealed a significantly higher incidence and degree of degenerative changes

than in a matched control group.

Medical research now is starting to support the Chiropractic model that there is a relationship between posture and the neuromusculoskeletal health of the neck. M. Schieppati argued that neck muscle fatigue affects mechanisms of postural control by producing abnormal sensory input to the CNS (Brain and Spinal Cord) and a lasting sense of instability. (6) Chiropractic technology takes this understanding and applies advanced technology to identify, measure, and correct biomechanical injury of the upper cervical, or Atlas, region. By aligning the Atlas vertebra with the skull we see positive soft tissue response and healing. J.G. Pickar explains partly how the nervous system is affected by Chiropractic care when he reports that "Substantial evidence demonstrates that spinal manipulation evokes paraspinal muscle reflexes and alters motoneuron excitability". (7)

I have witnessed time and again patients who have received injury and suffered for years, yet had not been biomechanically examined or treated. This is most unfortunate and disturbing. The misaligned Atlas vertebra should be treated as soon as possible after injury. Just think what would happen if a broken and displaced leg were allowed to heal in the wrong position. The damaging effects on the gait and posture would show years later causing a host of symptoms. Fortunately information is now available on the internet to educate physicians and the public (8). I strongly feel that increased awareness of Chiropractic upper cervical will improve our health care system. This will help reduce the chronic suffering victims of head and neck injury now experience.

- 1) Michaelson P., Michaelson M., Jaric S., Latash M.L., Sjolander B., Djupsjobacka M., "Vertical posture and head stability in patients with chronic neck pain." (Journal of Rehabilitative Medicine. 2003 Sep;35(5): 229-35.)
- 2) Treleaven J., Jull G., Sterling M., "Dizziness and unsteadiness following injury: characteristic features and relationship with cervical joint position error." (Journal of Rehabilitative Medicine. 2003 Jan;35(1):36-43.)
- 3) Eckstein M., "The prehospital and emergency department management of penetrating head injuries". (Neurosurg Clin N Am. 1995 Octo:6(4):741-51.)
- 4) Sneed R.C., Stover S.L., "Undiagnosed spinal cord injuries in brain-injured children" (Am J Dis Child. 1988 Sep:142(9):965-7)
- 5) Tysvaer AT, "Head and neck injuries in soccer. Impact of minor trauma." (Sports Med. 1992 Sep:14(3):200-13)
- 6) Schieppati M, Nardone A, Schmid M, "Neck muscle fatigue effects postural control in man" (Neuroscience. 2003:121(2):277-85.)
- 7) Pickar JG, "Neurophysiological effects of spinal manipulation" (Spine J. 2002 Sep-Oct: 2(5):357-71)
- 8) www.nucca-edmonton.com and www.nucca.org

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