

## New Study Offers Explanation for Whiplash Pain

I was reading a chiropractic trade paper and came across a literature review done by Dr. Dan Murphy. In this review, he looks at a study published in the journal *Brain Injury* (July 2010 24(7-8):988-994) titled *“A Case Controlled study of Cerebellar Tonsillar Ectopia (Chiari) and Head/neck Trauma (whiplash)”*. The review offered insight into a potential predisposing factor for post traumatic chronic neck pain and headache that most practitioners would otherwise overlook or think of as being inconsequential. In this newsletter I will summarize his review of the study.

To start with, you should know that Cerebellar Tonsillar Ectopia is also known as a Chiari malformation. It is characterized by migration of the cerebellar tonsils (a part of the brain) through the foramen magnum (a hole in the base of the cranium). There are several grades of Chiari malformation and this study looked at Chiari Type 1. Chiari malformations can be acquired and are not necessarily present at birth. The study was done to assess the frequency of this malformation following whiplash versus a control group of non-traumatic patients. The study looked at 1200 neck pain subjects, half of which were involved in trauma. In each sub-group, half were MRI scanned in a sitting position and half were scanned in a recumbent (lying) position.

The data gathered demonstrated Chiari Type 1 malformations in the non-trauma population in 5.7% of the lying subjects and 5.3% of the upright scanned subjects. This is compared to the trauma group that demonstrated a 9.8% and 23.3% for lying and sitting positions respectively. The authors conclude that their research suggests that there is a potential neuropathologic explanation for the chronic pain following whiplash.

Chiari Type 1 malformation can be associated with symptoms such as headache, neck pain, weakness in the upper and even lower extremities although they are usually asymptomatic. *“Previously quiescent Chiari Type 1 malformations can become symptomatic as a result of exposure to traumatic injury”*. The results demonstrate that neck pain patients following a motor vehicle collision, have a *“substantially higher frequency”* of this condition (4x greater when evaluated in a sitting posture). The authors specifically note that *“Upright MRI imaging appears to increase the sensitivity to cerebellar tonsillar ectopia over recumbent MRI imaging by 2.5 times”*.

The authors suggest that the increased incidence of the Chiari Type 1 was possibly the result of the whiplash trauma. They explain this by stating that *“There is clinical evidence that dural leaks are associated with whiplash trauma and chronic symptoms”*. This has been supported by earlier studies reporting substantial and rapid increases in cerebral spinal fluid (CSF) pressures during simulated whiplash trauma. The resulting Chiari Type 1 Malformations are hypothesized to occur secondary to CSF volume changes from the traumatically induced leaks.

So what does all this mean? Doctors and attorneys should consider all potential explanations for post traumatic pain and headache. Doctors should entertain this potential etiology and consider MRI studies of the brain and upper cervical spine, particularly in the upright position (if available in your area).

For additional information, please email me at [Dr.Shaw@ShawChiropractic.com](mailto:Dr.Shaw@ShawChiropractic.com)

---

Hartford • New Britain • East Hartford

Personal Injury • Workers Compensation • Expert Opinions • Biomechanical Analysis • Second Opinions

800-232-6824