Dynamic Chiropractic

Neck Pain and Whiplash-Associated Disorder

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Whiplash-associated disorder (WAD) is an extremely broad topic with wide and conflicting interpretations. In this article, I would like to talk about a few of the common variables that will impact how significantly injured your patients may be when they visit your office for care following an auto accident.

There is a tremendous amount of information available to help the chiropractic clinician in treating these types of injuries, including several books written by chiropractors and lectures given by chiropractors. I have always been a big fan of the textbook *Conservative Management of Cervical Spine Syndromes* by Donald Murphy, DC, which includes a couple of chapters on motor vehicle collisions that are quite helpful. These chapters were written by Lawrence Nordhoff Jr., DC, who has subsequently written a comprehensive text on WADs; the second edition is out now and is titled *Motor Vehicle Collision Injuries: Biomechanics, Diagnosis, and Management.* There is also an excellent text by Drs. Foreman and Croft, both chiropractors, which is now in its third edition. Finally, Daniel Murphy, DC, has long lectured on whiplash-associated disorders throughout the world.

In the end, DCs want to help patients in a way that will allow those patients the greatest chance for full recovery and a more normal life. It is particularly important to do a specific history and examination. Poor examinations can lead to inappropriate testing and excessive and costly treatment. This is also a major reason why there is a stigma associated with WAD cases. It is well-known that these patients, following trauma, are more susceptible to degenerative changes of the injured joints. DCs can help prevent, or at least minimize, long-term, chronic pain and disability subsequent to these injuries.

An article in *Spine* in September 2006, titled "Stabilizing Effect of Precontracted Neck Musculature and Whiplash," concluded that occupants aware of an impending impact with precontracted neck muscles reduced overall head, neck, and spinal motions and theoretically reduced whiplash injury.[1] In your history, it is helpful to find out whether the patient was caught by surprise by the accident.

According to an October 2006 *Spine* article titled "Fatty Infiltration in the Cervical Extensor Muscles and Persistent WAD: A Magnetic Residence Imaging Analysis," there was significantly greater fatty infiltration in the neck extensor muscles, especially in the deeper muscles of the upper cervical spine, in patients with persistent WAD, compared to healthy controls.[2] This corresponds with a J.A. Hides paper that shows lumbar multifidus atrophy and fatty infiltration when associated with a joint lesion in the lumbar spine.[3] The WAD patient needs us to restore normal joint function and rehabilitate their deep cervical stabilizer muscles. Adjustments can open the neurologic window for better, more appropriate rehab.

In chapter seven of *Conservative Management of Cervical Spine Syndromes,* Dr. Nordhoff has a table

that lists variables that lead to fewer neck injuries and variables that lead to more neck injuries. Some examples follow.

- Men are injured less in rear-end crashes than women. Men typically have thicker and stronger neck musculature, while women have smaller diameter necks and proportionately longer necks.
- A properly positioned head restraint reduces neck injuries. For example, if the head restraint is low, the neck will fulcrum over the head restraint, exaggerating the injury.
- If the seat back breaks, there will tend to be more of a low back injury and less of a neck injury. With seat-back breakage, there is less whip effect on the neck, but more stress to the low back.
- If your head is rotated - for example, if you are looking in the rearview mirror just before impact - this leads to more neck injuries. This is easy to figure out on your own by simply having your head in a neutral position and going into full extension, and then comparing this to when you turn your head as far as you can to the right and then try to go into extension. Obviously, you cannot go as far into extension with the head rotated to the right, resulting in more tissue damage.
- As far as the neck injuries are concerned, wearing a seat belt actually leads to more neck injuries. The seat belt cut down on fatal accidents, but specifically, the neck tends to be injured more due to the restraint, along with the subsequent whipping on the neck.
- Older and taller occupants tend to have more injuries. The elderly tend to have more degenerative changes, which predisposes them to a more significant injury. The taller occupants tend to fulcrum over the head restraint.
- Being in a larger vehicle helps reduce your neck injuries. The reason is fairly obvious: The larger vehicle gets pushed less dramatically than a smaller vehicle.
- Finally, a rigid bumper leads to more neck injuries. A bumper that collapses and absorbs some of the impact means fewer whiplashes to the occupant's spine.

These are just a few items to think about and some questions that should be on your patient intake form. Chiropractors are the best group to treat many of these types of injuries because of our understanding of soft-tissue injuries and our conservative management of these patients. These patients also will often require more than just chiropractic adjustments, as they may need some type of rehab, nutritional advice and soft-tissue work to help optimize healing.

References

1. Stemper BD, et al. *Spine,* Sept 15, 2006; Vol. 31, No. 20, pp. E733-E738.
2. Elliott J, et al. *Spine,* Oct 15, 2006; Vol. 31, No. 22, pp. E847-E855.
3. Hides J A. "Multifidus Muscle Recovery in Acute Low Back Pain Patients." PhD thesis. Department of Physiotherapy, University of Queensland, 1996.

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