



SPINE & PAIN INSTITUTE OF NEW ENGLAND

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Whiplash Injuries

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Acute acceleration-deceleration injury as in a motor vehicle accident may produce cervical pain and a host of other symptoms often grouped as Whiplash Associated Disorder (WAD). There is considerable controversy about underlying pathophysiology, with professional opinions ranging from a fictitious disorder to a neurological injury.

Symptoms of WAD include neck pain, headache, paresthesias, weakness, numbness, dizziness, visual disturbances, memory difficulty, concentration problems as well as significant psychological stress.

Signs are often limited to tenderness, decreased range of motion (ROM), numbness, and weakness. Imaging studies most often are negative. Based on an inception cohort derived from hospital-based studies, Barnsley et al (1) estimated that between 14% and 42% of patients with whiplash injury develop neck pain, and 10% may go on to develop chronic severe neck pain for an indefinite period of time.

Pathophysiology: Multiple nociceptors have been proposed and studied: facet joint, neck musculature,

ligament, intervertebral disc, nerve injury, temporomandibular joint, and brain injury. Facet joints are richly innervated and are exposed to significant stress during this type of injury. In a double blinded randomized controlled trial



with medial branch blocks employing two local anesthetics of different duration and saline control, Lord et al showed that overall prevalence of cervical facet joint pain in whiplash patients was 60%. In patients where headache was dominant, the pain generator was the C2-C3 joint in 50% of the cases (2). With the current state of knowledge, only the facet joints have been conclusively identified as a source of pain in up to 60% of the patients with WAD.

Diagnosis of whiplash remains a clinical one. There are no specific neuropsychological profiles, blood tests, imaging studies or electrophysiological tests, as it is primarily a diagnosis of exclusion. Pain relief with facet blocks may help support the diagnosis of whiplash.

CONTINUED ON BACK

Q&A

Q: *What is the Spine and Pain Institute of New England?*

A: We are a group of 3 pain specialists that have recently located our practice in Dedham, MA at 80 Bridge Street near the West Roxbury, VA.

Q: *What types of patients do you see at the pain center?*

A: We see any patients that suffer from chronic pain in consultation at our Dedham office. Please call 781-326-8888 to schedule an appointment or 781-326-6666 to fax a referral to our office. We currently have minimal wait times for our

referring doctors' patients, which is important when breaking the cycle of pain before it spirals out of control.

Q: *What is your philosophy for chronic pain management?*

A: Our group focuses on the early and efficacious treatment of chronic pain with special expertise in the area of spinal types of back and neck pain. We offer numerous, high quality treatments for these types of problems and consider ourselves to be the premier provider of chronic pain management in the New England area.



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Management of WAD may be divided into three broad categories: acute (< 2 weeks), sub-acute (2 weeks to 6 months), and chronic (>6 months). For Acute WAD, there is a trend suggesting that rest and immobility may be harmful and early activity may be better based on controlled studies. For Subacute WAD, there is some evidence that active involvement in treatment programs may lead to a better outcome than passive application of treatments in controlled studies. For Chronic WAD, a double-blinded randomized controlled trial of radiofrequency neurotomy of the facet joints effectively treated pain in 50% of patients whose pain was identified as primarily facet-based vs. a sham control. Durable pain relief of up to a year can be provided with the reinstatement of pain relief with a repeat procedure (3). Also, psychological distress is likely to resolve with the relief of pain. Active exercises and reinforcement of graded activity are considered beneficial for neck pain but controlled data are lacking. Botulinum Toxin A may have some role in the management of patients where there is an element of prominent muscle hypertonicity (4) but larger controlled studies are needed. Trigger point injections may have a helpful role, when done in conjunction with active treatments and emphasis on “return to usual” activities. There are no valid trials of other treatments such as manipulation, traction, and acupuncture but they may have a role.

Prognosis studies on whiplash show wide variability in the incidence of continued chronic pain and long-term disability. There is a strong correlation with severity of injury and high initial pain intensity with the development of whiplash. There is some evidence for female gender, older age, high psychological response, rear end collision and angular deformity to being associated with adverse prognosis.

Conclusion: WAD remains a clinical diagnosis. Although significant work has been done in the field, the pathophysiology remains obscure. Facet joints have been identified as the pain generator in up to 50% of the patients. There is some evidence for limiting rest and soft collar use in the acute stage. Active treatments with

patient involvement are preferred over passive application of therapies. Meticulously performed radio-frequency neurotomy can provide lasting, complete pain relief in a moderate proportion of carefully selected patients. The pain relief can last from months to a more than a year and reinstated by repeating the procedure.

References:

1. Barnsley L, Lord S, Bogduk N. Whiplash Injury. *Pain* 1994;58:283-307.
2. Spitzer WO, Skovron ML, Salmi LR, et al. Scientific Monograph of the Quebec Task Force on Whiplash-Associated Disorders: redefining “whiplash” and its management. *Spine* 1995;20: Suppl:1S-73S.
3. Lord SM, Barnsley L, Wallis BJ, Bogduk N. The prevalence of chronic cervical zygapophyseal joint pain after whiplash: a placebo controlled prevalence study. *Spine* 1996;21:1737-45.
4. Lord SM, Barnsley L, Wallis BJ, McDonald GJ, Bogduk N. Percutaneous radio-frequency neurotomy for chronic cervical zygapophyseal-joint pain. *N Engl J Med* 1996;335:1721-1726
5. Freund BJ, Schwartz M. Treatment of whiplash associated neck pain (corrected) with Botulinum Toxin-A: a pilot study. *J Rheumatol* 2000;27:481-484.

Upcoming Events

Join our doctors for a discussion featuring minimally invasive treatment alternatives to surgery and medication for chronic neck or back pain. Both events will be held at the Dedham Hilton, 25 Allied Drive, Dedham, MA. Please call 1-800-920-3320 to reserve a seat.

3/10/05, 6:30-9:30PM — Doctors, Medical/Office Staff

3/24/05, 6:00-8:00PM — Community Seminar (open to the public)