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Lindsay Law Murphy
Public Affairs Manager
North American Spine Society
(202) 494-6580 llaw@spine.org

Spinal cord injuries are complicated by ossification of the posterior longitudinal ligament

San Francisco, CA – Results of a multicenter study demonstrated an alarmingly high prevalence of ossification of the posterior longitudinal ligament (OPLL) in spinal cord injuries (SCI) without bone injury. The findings were presented today at the North American Spine Society’s 24th Annual Meeting in San Francisco.

“Most of the cervical spinal cord injuries associated with OPLL were incomplete, without bone injury and were caused primarily by low-energy trauma,” said Hirotaka Chikuda, MD, PhD, department of orthopedic surgery, faculty of medicine, University of Tokyo, Japan. “The majority of these patients were elderly and unaware of their OPLL. In addition, this study, to our knowledge, is the first to compare surgical treatment with conservative treatment in cervical spinal cord injury complicated by OPLL.

“These findings should contribute to future implementation of an action plan aimed at prevention and better treatment of cervical SCI complicated by OPLL,” Chikuda said.

Pre-existing pathologies that cause spinal stenosis can complicate the neurological outcomes of cervical spinal cord injuries. OPLL frequently causes canal stenosis in Japanese patients and has been linked to severe neurological deficits after cervical trauma.

“Despite its devastating consequences, the clinical picture of cervical spinal cord injury complicated by OPLL remains unclear,” Chikuda said. In a retrospective, multicenter study, the researchers studied the clinical characteristics of cervical spine cord injury associated with OPLL.

The study included 453 patients (367 men and 86 women) with acute traumatic cervical SCI admitted within 48 hours of injury to one of 34 institutions across Japan. Mean age was 59 years.

To measure outcomes, Chikuda and colleagues defined neurological improvement as one grade conversion in Frankel grade. In the study, 146 patients had a Frankel grade A injury, 105 had a grade B injury, and 202 had a grade C injury.

The researchers found OPLL in 106 patients, the majority of whom did not have a bone injury (94 of 106). The prevalence of OPLL in this subgroup was 34%.

“Our study revealed alarmingly high prevalence of OPLL among cervical spinal cord injury, especially in those without bone injury,” Chikuda said.

Low-energy trauma, especially falls, often cause the spinal cord injury with OPLL. Falls from standing height were the culprit in 45 patients, falls from stairs caused the injury in 16 patients, motor vehicle accidents were responsible in 16 patients, and falls from a height caused the injury in eight patients.

“Individuals with OPLL are extremely prone to spinal cord injury,” Chikuda said. “We found that even subtle trauma, such as a fall from standing height or falls on one’s rear, can result in severe paraplegia in individuals with OPLL.”

When compared to conservative treatment, surgery yielded good results for patients who reported a pre-existing gait disturbance and those with severe canal compromise.

“Basically, these patients with pre-existing gait disturbance showed poor neurological recovery when treated nonoperatively,” Chikuda said. “Less than half (44%) of the patients showed improvement in Frankel grade at last follow-up. Interestingly, patients with pre-existing gait disturbance responded significantly better than those without gait disturbance. The great majority of these patients (82%) who underwent surgical decompression achieved neurological improvement.”

Twenty-three patients knew about their OPLL before sustaining their SCI. “Our data suggest a patient’s awareness of OPLL plays an important role in preventing cervical spinal cord injury,” Chikuda said.

Chikuda and associates plan to conduct further research that will focus on the relationship between clinical outcomes and imaging studies.

About NASS

The North American Spine Society (NASS) is a multidisciplinary medical organization dedicated to fostering the highest quality, evidence-based, and ethical spine care by promoting education, research, and advocacy. NASS is comprised of more than 5,500 members from several disciplines including orthopedic surgery, neurosurgery, physiatry, neurology, radiology, anesthesiology, research, physical therapy and other spine care professionals. For more information, visit www.spine.org.

About NASS’ 24th Annual Meeting

NASS’ 24th Annual Meeting is being held in San Francisco, November 10-14, 2009, at the Moscone Center South. For more information, or to view press releases related to the meeting, please visit [NASS’ Annual Meeting Web site](#).