

## Spinal Triage System Culls Candidates for Surgery

BY PATRICE WENDLING  
Chicago Bureau

CHICAGO — A new triage system that puts critical information about patients with spinal symptoms before the eyes of a neurosurgeon early in the triage process dramatically improved patient access to neurosurgeons and spine specialists, William D. Tobler, M.D., reported in a poster presentation at the annual meeting of the North American Spine Society.

"It's helped us sift out the patients who really don't need to be seen by a surgeon," Dr. Tobler, a neurosurgeon at the Mayfield Clinic in Cincinnati, told CLINICAL NEUROLOGY NEWS. "There are patients who have a whiplash injury that are told by their chiropractor to see a neurosurgeon. But when we review the x-rays, it's obvious [these patients] need to be seen by a rehabilitation therapist. It takes 45 minutes to see a patient and if you see six or eight [patients] a week who are clearly nonsurgical, you've occupied a significant part of that surgeon's time."

The overall surgery rate for all new patients seen by a neurosurgeon has doubled from 22% to 44% since the Mayfield Clinic implemented the new triage system.

Under the "Priority Consult" triage system, intake specialists take scripted medical histories from new patients with spinal symptoms over the telephone and enter the information in a secure database. The patients are told to take any relevant imaging studies to the clinic in advance of any appointment.

Among clinic patients, 90% already have MRI or CT scans available and frequently use couriers, although electronic transmission is gaining ground.

A neurosurgeon then reviews the patient's history and imaging studies, if available, and determines whether the patient should undergo additional tests, receive treatment from a nonsurgical spine physician, or have an in-office con-

sultation with a surgeon. Once the neurosurgeon has noted electronically which step should be taken next, the staff makes the appropriate arrangements for the patient, whether it be tests, treatment, or surgical consultation.

From January 2002 to July 2003, 8,783 new patient histories were entered into the database at the Mayfield Clinic. After the triage system was implemented, 3,213 patients (37%) were seen initially by a spine surgeon, of whom 1,354 (42%) required surgery.

Of 5,570 patients (63%) referred for treatment or nonsurgical evaluation, 4,233 (76%) were discharged without needing a surgical consultation.

Surgeons reviewed medical histories and imaging studies within 72 hours of an appointment request or of receiving the studies, compared with 30 days previously.

The average wait time for an initial appointment with a neurosurgeon decreased from about 6-8 weeks to 20 days, Dr. Tobler said. Because of the streamlined process, the average time it took to review a new spine patient's information also dropped from the previous average of 30-45 minutes to just about 5 minutes.

Of the 5,570 patients initially referred for nonsurgical consultation, 1,337 (24%) were eventually referred back to the surgeon for a surgical consult. Of these, 638 (47%) had surgery.

Not only does the system free up neurosurgeons, but it also takes pressure off primary care physicians, said Dr. Tobler, who is a shareholder in the Mayfield Clinic.

"The process begins to bottleneck for everyone. The primary care physicians start having to deal with patients who are unhappy because they can't be seen for weeks by the doctor they were referred to. This [triage system] gives the referring physicians some satisfaction because the problems are being taken care of," he said.

Dr. Tobler said the triage system is applicable to smaller practices and is now in use even in three-person practices. ■

**Since the Mayfield Clinic implemented the new triage system, the overall surgery rate for new patients seeing a neurosurgeon doubled to 44%.**

## Minimally Invasive Surgery an Option For Patients With Trigeminal Neuralgia

BY NORRA MACREADY  
Los Angeles Bureau

SAN FRANCISCO — For people who are too old or ill to withstand the rigors of microvascular decompression, the gamma knife is a "reasonable treatment option" for recalcitrant trigeminal neuralgia, Jason Sheehan, M.D., said at the annual meeting of the Congress of Neurological Surgeons.

Microvascular decompression is the procedure with the best track record for relieving pain due to trigeminal neuralgia (TN). However, the surgery risks rare but serious complications, including brain stem infarction, cerebellar edema and hematoma, and hydrocephalus. Further, recovery often requires a stay in intensive care.

Of 136 patients, median age 68 years, who underwent radiosurgery with the gamma knife at

the University of Virginia, Charlottesville, 70% reported a significant diminution of pain up to 3 years later, said Dr. Sheehan of the university. Patients included 122 with typical trigeminal neuralgia, 3 whose TN took an atypical form, 4 with facial pain associated with multiple sclerosis, and 7 whose TN was associated with a cavernous sinus tumor. A median 72 months elapsed from diagnosis to the gamma knife procedure.

One year after surgery, 90% of the patients reported significant pain relief, and 47% had no pain. At 2 years, those numbers had dropped to 77% and 45%, respectively, and at 3 years, to 70% and 34%, respectively. These findings are comparable with those of studies by different investigators, who reported pain-free outcomes of 40%-50% and an overall 70% incidence of pain relief within the first few years after surgery, Dr. Sheehan said. ■

## Brain May Modulate Chronic Low Back Pain

BY PATRICE WENDLING  
Chicago Bureau

CHICAGO — Spine specialists have traditionally focused on specific degenerative pathology in the spine as the main determinant of back pain, but science now suggests that the central nervous system ultimately modulates chronic low back pain.

Acceptance of the new evidence will require a fundamental shift in thinking and could lessen the role of surgery and increase the role of exercise in the management of low back pain at a time when critics are assailing the overuse of spinal fusion surgery in the United States.

The central nervous system may be the site of both pain processing and augmentation, James Rainville, M.D., said at the annual meeting of the North American Spine Society.

Wide dynamic range neurons have been identified in the spine as responsible for "windup," or the accentuation of painful stimuli, said Dr. Rainville, chief of rehabilitation at New England Baptist Hospital, Boston.

These neurons, when overly excited, also respond to inappropriate stimulation, such as on the contralateral limb from the primary site of nociception, said Dr. Rainville, who is also on the faculty at Harvard Medical School.

A recent study found evidence of central nervous system augmentation of pain processing in patients with chronic low back pain (Arthritis Rheum. 2004;50:613-23).

Experimental pain testing at the thumb revealed hyperalgesia in patients with idiopathic chronic low back pain as well as in patients with fibromyalgia, when compared with controls.

Moreover, functional magnetic resonance imaging detected five common regions of neuronal activation in pain-related cortical areas in the low back pain and fibromyalgia groups. The areas are responsible for the transmission of neurologic information into the conscious experience of pain and included the contralateral primary and secondary somatosensory cortices, inferior parietal lobule, cerebellum, and ipsilateral secondary somatosensory cortex. The same stimulus resulted in only a single activation in controls in the contralateral secondary somatosensory cortex.

Finally, these studies' findings are strengthened by research that suggests that thoughts can change brain activity induced by peripheral stimulation (J. Neurosci. 2004;24:7199-203).

"Could our thoughts, ideas, and feelings that we have all be acting through central mechanisms to change our central sensitization to pain? If that's the case, then we're in trouble if we're trying to treat it in the periphery always," observed Dr. Rainville.

This has important implications for understanding the successes and failures of spinal surgery. Spine surgeons came under fire recently in an editorial (N. Engl. J. Med. 2004;350:722-6) that charged fusion surgery was being overused in the United States. NASS fired back with an editorial of its own (Spine J. 2004;4[suppl. 5]:S129-38) and a high-profile panel discussion at the annual meeting.

Still, several studies presented at the same meeting validated a different approach. The rehabilitation model suggests that pain can be stopped by desensitizing the pain-producing tissue and improving central processing.

Exercise can improve muscle strength and flexibility, reduce disability, and even reduce pain intensity by 10%-50%. Exercise also can alter a patient's pain attitudes and beliefs.

A recent study by Dr. Rainville and colleagues showed that exercise reduced both the pain anticipated before and the pain induced with exercise.

Significant improvements were observed for global back pain, leg pain, disability, and performance on each physical testing in 70 patients with chronic low back pain who completed an intensive 2-hour exercise program delivered up to three times per week for 6 weeks.

Performances on all physical testing correlated with anticipated and induced pain for all tests at baseline, but only for measures of flexibility at discharge. The correlation between disability and pain attitudes and beliefs was extremely high, at 0.79.

"Something about the pain process has been changed," Dr. Rainville said. "What, I don't know. Where, I don't know. But it's a fascinating observation. In addition, people improved their strength. They have less pain with lifting a lot more."

"Something has been learned differently within the central nervous system, because we didn't change their anatomy in any positive way."

Finally, exercise may help wean patients with chronic low back pain from narcotics. After 6 weeks of exercise therapy, one-half of patients in the study who regularly used narcotics were able to stop taking them. ■