

## Spinal Cord Stimulation Shows Success in Cancer Pain

SAN FRANCISCO—Spinal cord stimulation (SCS) has shown efficacy in the treatment of cancer pain, but it is important to prepare the patient, family and oncologist to have realistic expectations, said Sunil J. Panchal, MD, president of the COPE Foundation in Tampa, Fla. The technique should not be used to treat patients with an active tumor, and for some patients, the treatment may need to be converted to an intrathecal infusion system or an ablative therapy.

“Provide [the patient with] specific printed information in terms of what to do and where to go,” he recommended in a presentation at the 2006 annual fall meeting of the American Society of Regional Anesthesia and Pain Medicine. “Advise patients to pursue CT [computed tomography] first.”

The importance of pain management following surgery in cancer patients was demonstrated in a follow-up study of thoracotomy patients, in whom the incidence of persistent pain was 80% at three months and 61% at 12 months (*Acta Anaesthestol Scand* 1999;43:563-567). In a study of 511 patients undergoing mastectomy, 43% experienced chronic postsurgical pain (*Clin J Pain* 2004;20:70-75).

SCS has shown excellent results in some trials, Dr. Panchal said. For example, a recent clinical case report described two patients with chemotherapy-induced neuropathy whose pain scores improved and who were able to reduce their use of medication after SCS (*J Pain Symptom Manage* 2004;27:72-78).

“It is very easy to get adequate coverage from a paresthesia perspective and to treat neuropathic symptoms. But there is no good literature in this area—almost everything comes down to consensus or expert opinion,” Dr. Panchal said.

### CASE STUDIES

Referring to his own practice, Dr. Panchal described the case of a 52-year-old man with a right-sided Pancoast tumor that was in remission. The patient developed brachial plexitis after undergoing radiation therapy. He did not obtain adequate pain relief from multimodal pharmacotherapy and experienced side effects from this treatment. The patient reported good short-term relief after a stellate ganglion block was performed by another physician.

“With spinal cord stimulation, he was able to significantly reduce his opioid consumption while maintaining his gabapentin regimen. After two years, he has continued good control and coverage. We didn’t see any migration of the SCS system.”

Dr. Panchal also described a 56-year-old woman with pain after thoracotomy who experienced significant sedation with low-dose opioids and was looking for a nonpharmacologic alternative. Since undergoing SCS, she has had good pain relief for a year and a half and has stopped using opioids, with no recurrence of tumor, he said.

In another case, a 58-year-old woman who underwent thoracotomy two years earlier obtained good relief with dual-lead SCS, but the SCS system migrated six weeks after implantation. With revision, she has had continued relief for a year and a half and has reduced her opioid consumption by about one-third, Dr. Panchal said.

“Typically, with thoracotomy patients, we will place one lead just off midline and the second lead a little further later, almost into the gutter,” Dr. Panchal said. “My ability to get adequate coverage of paresthesia all the way around the chest wall has improved recently with the advent of stimulator leads with tighter spacing and the increased sophistication of the programming systems.”



## MRI WARNING

If magnetic resonance imaging (MRI) is considered for a patient with an implanted device, estimation of the risks and benefits is essential, Dr. Panchal said. Medtronic makes specific safety recommendations, for example, that patients with SCSs should not undergo MRI using a full body transmit radio-frequency (RF) coil, a receive-only head coil or a head transmit coil that extends over the chest area.

Several factors can increase the risks for heating and patient injury, including the following: a high MRI specific absorption rate, the use of low-impedance leads or extensions, a transmit/receive coil that is near or extends over the implanted lead system, implanted lead systems with small-surface-area electrodes, and short distances between lead electrodes and heat-sensitive tissue.

MRI was safely performed in a study of 38 patients with implanted neurostimulators (*Neurosurgery* 1999;44:118-125). The study authors concluded, "There is no danger with any type of electrode during MRI examinations if the electrodes lie outside the region of interest," but they noted that the findings are restricted to the two types of devices tested in this study. In contrast, a recent case report described a patient with Parkinson's disease in whom permanent neurologic injury developed secondary to an RF lesion produced by heating of a deep-brain-stimulation electrode during MRI of the lumbar spine (*Neurosurgery* 2005;57:E1063).

Another case report concerned a patient with complex regional pain syndrome in whom a conversion disorder—partial paralysis—developed after implantation of an SCS system (*Anesth Analg* 2003;96:201-206).

Robert Plunkett, MD, associate professor of neurosurgery at the University at Buffalo School of Medicine and

Biomedical Sciences in New York, agreed that SCS has a limited role in the treatment of cancer pain, and that basically it is used to treat patients with pain after thoracotomy or neuropathic pain related to chemotherapy or radiation therapy.

"In these cases, you need to do a trial of spinal cord stimulation to understand if that patient is going to be a responder before you put in a permanent system," Dr. Plunkett said. "In those groups, probably 60% to 70% will be responders and 30% will be nonresponders. If they don't respond, you move on to a different technique, such as intrathecal narcotics or other intrathecal agents."

—Linda Pembrook

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—Sunil J. Panchal, MD

