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### **Minimally Invasive Spine Surgery and Spinal Cord Stimulation Show Promise in Alleviating Back Pain**

**February 4, 2010, San Antonio, TX**—Results from the first prospective study of minimally invasive facet arthrodesis and long-term data on [spinal cord stimulation](#) demonstrate the viability of these options to achieve pain relief in patients with various back pain conditions. The studies were presented today at the American Academy of Pain Medicine's 26<sup>th</sup> Annual Meeting in San Antonio, TX.

In the first study, Daniel Bennett, MD, DABPM, from Integrative Treatment Centers in Denver, Colorado performed the minimally invasive facet arthrodesis procedure on 102 spinal joints in patients with recurrent facet-mediated (joint) low back pain. The patients had previously responded to thermal radiofrequency (a procedure using heat which cuts off the supply of nerves near the site of the back pain) but their symptoms recurred after an average of 10 months. The goal of studying facet arthrodesis was to see if this treatment method could reduce pain, increase function, and reduce the use of medicines for a longer—hopefully permanent—duration.

During the surgery, a small incision was made and pins were placed by the joints of the area that is causing the patient's back pain, allowing a small drill to enter the joint. A Morse-tapered allograft (bone graft) was then placed into the joint. This technique minimizes disruption of muscles or ligaments, which is often the cause of pain for many patients post-surgery. The graft grew directly into the joint, creating a fusion and thereby relieving pain.

Following the procedure, subjects were placed in a rigid lumbar brace for 16 weeks. At the one year follow-up, pain was reduced from 79 to 23 on a Visual Analog Scale (VAS) and function was improved from 33.46 to 8.32 on an Oswestry Disability Index (ODI). Both VAS and ODI are commonly used measurement tools to assess pain. In addition, 92 percent of the patients reported discontinuing use of narcotic medications. Only four patients' grafts dislodged, but only one of these patients reported continued pain.

"This is an impressive technique which had a profound positive effect on the patients in this pilot study," said Dr. Bennett. "It has the potential to be a long-term solution to intractable back pain due to joint disease."

Dr. Bennett and his colleagues are now developing a multi-center protocol to compare the results to patients who are treated with conventional pain therapy (including thermal radiofrequency) to the new minimally invasive facet arthrodesis.

Another study looked at the addition of spinal cord stimulation (SCS) to conventional medical management (CMM). Following a lumbosacral spinal surgery to alleviate pain, some patients continue to experience persistent or recurrent chronic pain—also called Failed Back Surgery Syndrome (FBSS). They report persistent pain, disability, reduced health-related quality of life, and incur high Medicare costs.

To evaluate the addition of SCS to known surgical CMM, a trial of the effectiveness of SCS was conducted. One hundred patients suffering from FBSS from twelve centers in different parts of the world were randomized into two equal groups. One group received SCS, while the other received CMM.

At the end of six months, 48 percent of the SCS group experienced greater than 50 percent pain relief as compared to 9 percent in the CMM group ( $p < 0.001$ ).

Thirty-eight percent of the SCS group also achieved greater than 30 percent back pain relief in comparison to 14 percent in the CMM group.

Additionally, at the six month point, participants who were not satisfied with the group to which they were randomized were allowed to cross over. Thirty patients of the CMM group crossed over to the SCS group while only 4 patients from the SCS group crossed to the CMM group.

At the end of the two years of follow-up, after excluding patients who were no longer participating in the trial, 42 of the original 50 participants in the SCS group continued on with stimulation while only 11 original patients remained in the CMM group. The superior benefits of SCS were maintained: leg pain relief improved ( $p < 0.0001$ ), the ODI improved ( $p < 0.0002$ ), and quality of life improved ( $p < 0.0001$ ).

As a sub-analysis, 34 percent of the SCS group and 59 percent of the CMM group experienced worsening of back pain. The back and leg pain tended to increase in both groups over the course of the day as identified by analysis of the pain diary in which patients marked the back and leg pain at 9AM, 3PM, and 9PM each day during the course of this study. However, no pattern of daily pain variation could be identified.

“FBSS patients receiving SCS experienced clinically meaningful improvement in their leg pain compared to CMM alone,” said Krisha Kumar, MD, department of neurosurgery, Regina General Hospital, Regina, Canada. “SCS could be a promising alternative, or addition, to conventional therapy.”

Dr. Kumar is now working on a protocol for a multi-center, multi-national trial to further study the effects of SCS and CMM versus CMM alone.

**About AAPMedicine**

For more than 25 years, the American Academy of Pain Medicine (AAPM) has been the medical specialty society representing more than 2,200 physicians practicing in the field of comprehensive pain medicine. The Academy is involved in education, training, advocacy and research in the specialty of pain medicine. Information is available on the practice of pain medicine at [www.painmed.org](http://www.painmed.org).

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