Rush offering new motion sensor technology found in smart phones for chronic pain relief

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Experts from the Rush Pain Center at Rush University Medical Center are the first in Chicago to offer patients a neurostimulation system that uses new, motion sensor technology found in smart phones and Wii video gaming systems to help patients manage chronic leg and back pain.

The AdaptiveStim with RestoreSensor is an implantable device similar to a pacemaker that interrupts pain signals from reaching the brain. It is the only chronic pain treatment system that can automatically recognize and remember the correlation between the change in body position and the level of stimulation needed. The system can also record and store the frequency of posture changes and automatically adjust stimulation in order to provide effective pain relief.

"This device is unique because its motion-detecting technology enables it to automatically adjust the intensity of stimulation based on the patient's body position," said Dr. Sandeep Amin, pain specialist and assistant professor of anesthesiology at Rush. "The device memorizes and records the level of stimulation a patient uses while in a particular position; the next time the patient is in that position, the device adjusts the stimulation to the appropriate level."

Neurostimulators are a mainstay of chronic pain management, but the drawback of these neurostimulators is that they require patients to manually adjust the level of stimulation, using a handheld programmer, every time they change body position. Without adjusting for these changes, patients may continue to experience pain.

"It's like flipping a switch," said Amin. "Patients appreciate the convenience of not having to make frequent adjustments in order to remain pain-free."

The tiny, pacemaker-like device is implanted in a patient's back though a small incision. During the procedure, thin, thread wires containing electrodes that emit charges to change a painful stimulus to a tingling sensation are secured along the outside of the spine.

Patients can typically be back on their feet in about two days and back to normal activities in six to eight weeks. The implanted battery has to be changed - a 45-minute procedure - once every four to seven years.

"This new device also has the ability to provide feedback to help us understand how a patient's individual stimulation requirements change over time," said Amin.

An estimated 116 million American adults are affected by chronic pain, a debilitating and often disabling condition that can have significant impact on day-to-day functioning.

The AdaptiveStim with RestoreSensor device is made by Medtronic.

Provided by Rush University Medical Center