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Frequency Effects on Behavioral Analysis Upon Spinal Cord Stimulation

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Poster Presentation P17

FREQUENCY EFFECTS ON BEHAVIORAL ANALYSIS UPON SPINAL CORD STIMULATION

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With an aging population, chronic pain has quickly become a world-wide epidemic. When traditional treatments, such as opioid medications, are not effective, spinal cord stimulation (SCS) can achieve a reported 50% reduction in pain scores. Low-frequency 50Hz SCS treatment has been used in patients since 1967, but carries a 30% failure rate. With the introduction of higher frequency SCS, better efficacy is being observed. In this study, the spared nerve injury model for neuropathic pain, involving transection of the sciatic nerve, was implemented in male Sprague-Dawley rats. Groups of animals were implanted epidurally with a stimulation lead connected to an external spinal cord stimulator. SCS was continuously applied for 42 hours. The study included six treatment groups (n=10) with varying stimulation frequencies and currents as well as control groups to account for lead implant, injury model and naïve animals (n=7). Behavior of pain-like behavior (hypersensitivity) was assessed before surgery (baseline), before treatment (5 days post-surgery) and after 24 and 42 hours of treatment. This poster will address whether varying stimulation parameters may optimize the efficacy of SCS in relieving chronic pain.

