ASRA PAIN MEDICINE
22nd Annual Pain Medicine Meeting
November 10-11, 2023 | New Orleans, Louisiana
#ASRAFall23

Abstract: 4552

Scientific Abstracts > Chronic Pain

SIGNIFICANT PAIN RELIEF USING AN SCS SYSTEM DELIVERING NOVEL, FAST-ACTING SUB-PERCEPTION THERAPY

Richard Ferro, Yu Pei, Edward Goldberg
Boston Scientific Neuromodulation

Introduction

The use of sub-perception Spinal Cord Stimulation (SCS) via various modalities in treating chronic pain is now commonly used (1-3). Studies have shown that sub-perception SCS can effectively treat chronic pain using a range of stimulation parameters that require substantially reduced energy demands compared to older sub-perception paradigms and optimization of neural dose (adjustment of amplitude and pulse-width) in order to achieve effective and equivalent pain relief across frequencies (4,5). Fast-Acting Sub-Perception Therapy (FAST) is a novel SCS programming paradigm developed in part from the knowledge garnered from earlier sub-perception SCS studies. This approach also utilizes supra-perception paresthesia as a marker for precise targeting of sub-perception stimulation (6).

Materials and Methods

This is a single-center, observational case-series of patients evaluated during the trial phase and/or at last follow-up (post-permanent implantation) implanted with SCS systems (Boston Scientific) using 16-contact leads (Infinion, Boston Scientific) for chronic pain according to retrospective chart review. All patients were programmed using novel FAST (i.e., biphasic-symmetric waveform at 90 Hz; pulse-width: 160- 260 μs) either with or without use of a customized field shape algorithm (Contour, Boston Scientific). Overall pain scores (NRS) at trial end and last follow-up were collected and assessed. Institutional Review Board (IRB)-approved waivers of consent were obtained.

Results/Case Report

To date, 128 patients have been analyzed with average age of 64.1-years and baseline NRS score of 8.5. Of these, 116 (91%)were FAST responders (defined as ≥50% pain relief) at end of trial and noted a mean 6.5-point overall NRS pain score improvement (8.5 ⇒ 2.0, $p<0.0001$) versus Baseline. Among those patients who received permanent implant (n = 101), 59%had a pain score of 2 or less (n = 60/101) at last follow up (mean = 107 days). Additional data is undergoing collection and results will be presented.

Discussion

Here, we report our experience using FAST-SCS with or without the use of a custom field shape

programming algorithm during the trial period and after permanent implantation in a single-center, observational case-series. Results from this single-center, real-world, observational case series demonstrate that significant chronic pain relief may be achieved using fast-acting sub-perception therapy (FAST) alone or in combination with customized field programming following permanent implant.

References

1. Manchikanti L, Pampati V, Vangala BP, Soin A, Sanapati MR, Thota S, Hirsch JA. Spinal Cord Stimulation Trends of Utilization and Expenditures in Fee-For-Service (FFS) Medicare Population from 2009 to 2018. Pain Physician. 2021 Aug;24(5):293-308.
2. Smith CA, Roman J, Mammis A. The Role of Spinal Cord Stimulation in Reducing Opioid Use in the Setting of Chronic Neuropathic Pain: A Systematic Review. Clin J Pain. 2022 Feb 7;38(4):285-291.
3. Proposed 2022 CDC Clinical Practice Guideline for Prescribing Opioids. 87 FR 7838. (Proposed by the Centers for Disease Control and Prevention on February 10, 2022). https://www.federalregister.gov/documents/2022/02/10/2022-02802/proposed-2022-cdc-clinical-practice-guideline-for-prescribing-opioids Accessed October 25, 2022.
4. Thomson SJ, Tavakkolizadeh M, Love-Jones S, Patel NK, Gu JW, Bains A, Doan Q, Moffitt M. Effects of Rate on Analgesia in Kilohertz Frequency Spinal Cord Stimulation: Results of the PROCO Randomized Controlled Trial. Neuromodulation. 2018 Jan;21(1):67-76.
5. Paz-Solís J, Thomson S, Jain R, Chen L, Huertas I, Doan Q. Exploration of High- and Low-Frequency Options for Subperception Spinal Cord Stimulation Using Neural Dosing Parameter Relationships: The HALO Study. Neuromodulation. 2022Jan;25(1):94-102.
6. Metzger CS, Hammond MB, Paz-Solis JF, Newton WJ, Thomson SJ, Pei Y, Jain R, Moffitt M, Annecchino L, Doan Q. A novel fast-acting sub-perception spinal cord stimulation therapy enables rapid onset of analgesia in patients with chronic pain. Expert Rev Med Devices.2021 Mar 3:1-8.

Disclosures

Yes

Tables / Images