RAPID FIRES POSTER PRESENTATION
RAPID FIRE SESSION 01
24-05-2025 10:45 - 11:15

RF005
QUANTITATIVE DIGITAL ASSESSMENT OF PAIN COVERAGE AFTER RESCUE CONVERSION PROCEDURE IN PATIENTS WITH SPINAL CORD STIMULATION: USE OF A PAIN MAPPING SOFTWARE

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Introduction: Rescue replacement procedures could be offered to patients using Spinal Cord Stimulation (SCS) devices who had experienced loss of efficacy (LoE) over time. Such "therapy conversion" techniques enable to keep the existing SCS leads in place and connect them to a novel SCS device via an adapter. In order to document more precisely how the access to new programming options were able to improve the topography of SCS coverage, we assessed a cohort of patients who used a morphometry-based patented mapping software[1-2] to measure pain areas before and after the conversion procedure. SCS conversion procedures have shown that patients in a situation of therapy failure could be salvaged and regain significant clinical improvements thanks to the advanced programming capabilities that the new neurostimulator provides.[4]

Materials / Methods: This is a real-world, multicenter retrospective study (Clinicaltrials.gov: NCT01550575) of patients previously implanted with a commercially-available SCS system who went on to convert to a new device (Boston Scientific) via a compatible device adaptor. In addition to VAS and other clinical assessments, all patients had drawn the location of their pain areas and documented their pain intensity and typology using a mapping software capable of calculating in real time objective metrics and indicators (pain surface, coverage selectivity and specificity).[5]

Results: To date, twenty patients have been included in this ongoing study. A mean baseline overall pain (VAS) score of 81.9±11.0 mm was reported prior to receiving SCS therapy. At the time of LoE and prior to the conversion procedure, the overall VAS with the previous SCS system was 66.4±14.8 mm. After the implantation of a new IPG, the overall pain intensity decreased significantly to 34.8±27.5 mm at the last follow-up assessment ($p<0.0001$). Full analysis of the pain coverage metrics as calculated by the mapping software that was used will be presented. Objective SCS performance indicators were measured before and after therapy conversion, including pain surface, selectivity and specificity indicators.

Discussion: This new pain mapping software is a promising digital tool that helps characterize in an objective manner the performance of various SCS programming options[3,5,6]. Combining clinical assessments with pain mapping indicators provides additional opportunities for generating robust clinical evidence in the field of neuromodulation for chronic pain patients.

Conclusions: The digital software provided objective metrics that helped characterize how programming affects the dermatomal distribution of SCS coverage. Significant changes in pain coverage performance indicators were noted. These results complemented the clinical outcomes as assessed via patient-reported questionnaires.

RAPID FIRES POSTER PRESENTATION
RAPID FIRE SESSION 02
24-05-2025 10:45 - 11:15

RF006
EPIONE: EFFICACY OF PAIN INTERVENTION USING DBS NEUROMODULATION FOR CENTRAL POST STROKE PAIN

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Introduction: In the UK, the publication of the UK National Institute for Health and Care Excellence (NICE) guideline NG193 in 2021 has highlighted the need for novel interventions for chronic pain given the limits of pharmacotherapy. It is imperative in developing neuromodulation therapies that robust, good quality evidence is obtained to support neuromodulation for pain. EPIONE is a novel randomized controlled trial design to study neuromodulation for central post stroke pain (CPSP), based on the FAIT trial (FemoroAcetabular Impingement Trial, surgery vs physiotherapy, Palmer AJR, et al., BMJ 2019).

Materials / Methods: EPIONE is a pragmatic patient- and assessor-blinded randomized controlled crossover trial. This trial of 30 patients is adequately powered to detect a clinically meaningful change in the primary objective: greater than 0.31 change in McGill Pain Questionnaire – present pain intensity score in the 2 groups of treatment stimulation vs non treatment stimulation given in a random order over 2 months. Each participant gets the chance to benefit from surgery during a 6-month optimization phase, where the best possible outcomes for each patient are sought.

Results: We discuss the ethical basis for randomized controlled surgical trials and how we implement these considerations to run a trial of deep brain stimulation (DBS) that provides good quality evidence for the role of DBS in CPSP. We discuss the methods we have employed to provide an ethical 'placebo', blinding (accepting the limitations in surgical practice) and robust statistical analysis of pain outcomes.

Discussion: EPIONE provides a template for other neuromodulation trials especially for pain, respecting core ethical principles.

Conclusions: Randomized Controlled Trials are possible with appropriate adaptations to the gold standard - placebo controlled, double blind, randomized controlled trials.