Background

Spinal Cord Stimulation (SCS) was shown to be an effective therapy for several chronic and neuropathic pain conditions, such as Failed Back Surgery Syndrome (FBSS). Only patients with a successful trial, usually defined as ≥50% pain relief, eventually receive a definitive implant. Nevertheless, in some patients these initial pain reductions achieved during the trial are not maintained over time. Multiple research articles have been published about the waning effect of SCS over time. A recent review conducted by Waszak et al has shown that effectiveness declines in 20-40% of SCS patients due to central nervous system tolerance. An often last resort was an eventual system explant. However Spinal Cord Stimulation (SCS) is nowadays available with several stimulation paradigms. These new paradigms, such as High Dose (HD-)SCS, have shown the possibility to salvage those patients who lost their initial pain relief. The aim of this study is to evaluate the effectiveness of HD-SCS after conversion from standard SCS.

Method

Seventy-eight patients with Failed Back Surgery Syndrome (FBSS) who are treated with standard SCS were enrolled in the study. Self-reporting questionnaires (including ODI, PSQI, etc and outcomes were assessed before conversion and at 1, 3 and 12 months of HD-SCS. Longitudinal mixed models were used to determine the effectiveness of HD-SCS.

Results

At baseline before the conversion to HD, the average NRS score for back pain was 6.7. The leg pain average NRS score was 6.3 at baseline. Significant time effects were found for low back pain responders and leg pain responders.

Conclusions

Converting patients with unsatisfactory responses from standard SCS to HD-SCS may be an effective strategy to obtain and maintain pain relief in a challenging subgroup of patients with FBSS refractory to standard SCS. Prediction models may guide clinicians in their decision making when considering conversion to HD-SCS in patients with FBSS experiencing inadequate response to standard SCS.