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Pilot evaluation of scrambler therapy for the treatment of chronic neuropathic pain

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Objectives: Neuropathic pain is common after neural injury but often difficult to effectively treat. Scrambler therapy is a novel therapeutic modality which treats pain via noninvasive cutaneous electric stimulation by providing “non-pain” information. This study was performed to investigate the effect of Scrambler therapy for the treatment of chronic neuropathic pain.

Methods: Eligible patients had neuropathic pain symptoms of ≥ 3 -month duration with pain rated as 4 or more on a visual analogue scale (VAS) during the prior week. Patients were treated with Scrambler therapy to the affected area(s) for up to ten daily 30-min sessions. Symptoms were monitored using a VAS ranging from 0 to 10, before and after each treatment session. Primary outcome measure was change in VAS scores at one week; secondary outcome measure was change in VAS scores at two weeks.

Results: Six patients were enrolled. Four patients had spinal cord injury, 1 patient had intracerebral hemorrhage and 1 patient suffered brachial plexus injury. Treatment session 1 to 6, the difference in VAS between before and after therapy was significant ($p < 0.05$, paired t test), but treatment session 7 to 10, the difference in VAS between before and after therapy was not significant ($p > 0.05$, paired t test). At one week, the mean VAS score was reduced from 6.0 to 4.1 (32%) ($p = 0.037$, paired t test). At two weeks, the mean VAS score was reduced from 6.0 to 4.8 (20%) but not significant ($p = 0.058$, paired t test). No undesirable side effects were observed during this study.

Conclusion: Preliminary data support that Scrambler therapy may reduce chronic neuropathic pain immediately during short-term (about 1 week), but did not reduce pain immediately after 1 week of therapy. Pain reduction effect of Scrambler therapy did not persist beyond 1 or 2 weeks. Further randomized sham controlled research is warranted.

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