

## **CHRONIC CLUSTER HEADACHE IS BEST TREATED WITH SPG STIMULATION YES**

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Cluster headache (CH) is one of the most painful primary headache disorders. Chronic cluster headache (CCH) is characterized by attacks occurring at least one year without remission or with remissions lasting less than one month. The most effective treatments for CH attacks are injectable sumatriptan and oxygen inhalation. Preventive drug therapies for CH include several substances. Moreover, 10–20% of patients are not effectively treated by, or become resistant to these therapies

Neurostimulation-based therapies have been investigated for the treatment of refractory CCH patients, including hypothalamic deep brain stimulation and occipital nerve stimulation with good success rate but many complications

Various interventions have targeted the SPG, including alcohol injection, transnasal injection of lidocaine and other agents pulsed radiofrequency ablations and radiofrequency lesions with high success rate but with transient benefit. Success rate of these techniques has been high but transient.

The efficacy and safety of the acute electrical stimulation of the SPG has been investigated in a multicenter, multiple CH attack study using an implantable on-demand SPG neurostimulator. The study included only patients suffering from refractory CCH. Each CH attack was randomly treated with full, sub-perception, or sham stimulation. The main endpoints of the study were pain relief at 15 minutes following SPG stimulation and device- or procedure-related serious adverse events (SAEs).

Thirty-two patients were enrolled in the study and 28 completed the randomized experimental period. Pain relief was achieved in 67.1% of full stimulation-treated attacks compared to 7.4% of sham-treated and 7.3% of sub-perception treated attacks. A reduction of number of attacks was also observed in 12 out of 28 patients (43%) with an average reduction of 88%. In total 19 of 28 (68%) patients experienced a clinically significant improvement with acute response, reduction in frequency or both.

An important percentage of patients (81%) experienced transient, mild/moderate loss of sensation within distinct maxillary nerve regions, but 65% of these events resolved within three months.

We can conclude that on-demand SPG stimulation is an effective novel therapy for CCH sufferers, with dual beneficial effects, acute pain relief and observed attack prevention and has an acceptable safety profile. Its efficacy and tolerability is better than that of other procedures of stimulation used in the treatment of patients with refractory CCH