

Electrical stimulation will replace the medication for the treatment of cluster headache (CH). YES

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Patients with cluster headaches have few therapeutic options and some of them are not effective or are contraindicated. In fact 10–20% develop drug-resistant attacks.

Central (Deep Brain Stimulation-DBS) and peripheral neuromodulation (Occipital Nerve Stimulation-ONS, Stimulation of the Sphenopalatine Ganglion-SPGS, Vagus Nerve Stimulation-nVNS) techniques have been used widely in refractory and regular CH patients.

DBS placement for CH have been reported in very refractory chronic patients, with about 60% of patients responding positively with a decrease in the attack frequency of more than 50%. ONS, in open label data, has been used in medically intractable CCH patients, showing a favorable outcome with a reduction of more than 50% of attacks in around 70% of patients.

SPGS, in a multicenter, randomized study has demonstrated a good efficacy for the acute treatment of chronic CH. Pain relief was achieved in 67.1% of full stimulation treated attacks compared to 7.4% of sham-treated attacks ($P < 0.0001$). A preventive response was observed also in some patients. A total of 68% patients experienced a clinically significant improvement..

These data were confirmed in the long-term studies and clinical practice. A novel portable and non-invasive device to self-administer transcutaneous stimulus in the VN has been developed.

This device was tried in a randomized study that compared the adjunctive use of nVNS with subject's standard of care (SoC) versus SoC with significant attacks reduction in subjects treated with nVNS. In summary, neuromodulation treatment could be very useful in patients with contraindication, lack of tolerability or refractoriness to the medical treatment.