

ELECTRICAL STIMULATION IS AN IMPORTANT ADVANCE IN THE TREATMENT OF HEADACHE DISORDERS: YES

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The medical treatment of patients with chronic primary headache syndromes is challenging. Despite a broad armamentarium of both abortive and prophylactic drugs, especially in patients with chronic headaches, first- and second-line pharmacological therapies often fail and patients are regarded as drug refractory.

The use of neuromodulation for the treatment of headache is not new; in fact, it uses dates back to Roman times by Galen. Neuromodulation has been used in the last century in the treatment of different Central Nervous System diseases. In the modern time, the use of electrical stimulation in the treatment of refractory headache disorders start in the last 15 years with the use of occipital nerve stimulation in the occipital neuralgia and the posterior hypothalamic stimulation in cluster patients. After the first publication, several series have been published evaluating the efficacy of deep brain hypothalamic stimulation in the management of refractory cluster patients- today DBS is considered a technique with rational mechanism of action, and good short and long-term efficacy results, but as very invasive procedure it has also potentially lethal effects.

Occipital Nerve stimulation has been used in the treatment of chronic migraine with good results in open studies and no so impressive data in clinical trials. In trigeminal autonomic headaches, the results have been better and it could be one of the first line therapies in refractory cluster patients. One of the problems is that the rate of complications related with the device is not low.

Another target for electrical stimulation has been the sphenopalatine ganglion: a new kind of implantable microstimulator powered and controlled transcutaneously by electromagnetic waves has been developed; the results in the first trial have been good with acute and potentially preventive effect and low rate of device related complications. A trial in migraine is ongoing.

Besides the use of invasive methods in refractory patients, other non-invasive neuromodulation techniques have been used in the last years. Transcutaneous vagus nerve stimulation has been tried in several headache syndromes: migraine episodic and chronic and cluster headache with positive results and very good tolerability.

Supraorbital nerve stimulation, transcutaneous electric nerve stimulation, transcutaneous direct current stimulation and Transcranial magnetic stimulation have been used in different headache syndromes with some success.

Electrical stimulation could play an important role in the treatment of refractory (invasive methods) and usual (non-invasive) headache patients