

IS ELECTRICAL STIMULATION AN IMPORTANT ADVANCE IN THE TREATMENT OF HEADACHE DISORDERS? – NO

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Neurostimulation is one of the disputed therapeutic options for headache treatment. Neurostimulation may be applied central by (deep brain, transcranial magnetic or transcranial direct current stimulation) or peripheral by (occipital nerve, sphenopalatine ganglion, vagus nerve, auriculotemporal nerve or supraorbital nerve stimulation).

The main criticisms of this procedure relate to its high invasivity, its many side-effects and the numerous pitfalls. The majority of neurostimulation techniques (deep brain, high cervical spinal cord, greater occipital nerve, supraorbital/intraorbital nerve, vagal nerve and sphenopalatine ganglion stimulation) are invasive. The neurostimulation procedure is accompanied by side-effects. Observations during occipital nerve stimulation in drug-resistant chronic cluster headache included infection and electrode migration, and in chronic migraine lead migration included site pain, infection and abnormal sensory symptoms. Posterior hypothalamic deep brain stimulation in drug-resistant chronic cluster headache led to fatal cerebral haemorrhage as the most severe side-effect. Oculomotor disturbances, transient loss of consciousness with hemiparesis, tremor, syncope, dizziness, cervical dystonia and headache also occurred. Among the problems associated with neurostimulation are the lack of a feasible sham paradigm, and high rates of device-related and implantation procedure-related complications and the relative lack of experience attained with this technique to date. Invasive neuromodulatory approaches (e.g. occipital nerve, deep brain, sphenopalatine ganglion and vagal nerve stimulation) have low efficacy in chronic and episodic migraine, chronic cluster headache and other trigemino-autonomic cephalalgias.

The neuromodulatory approaches potentially involve life-threatening side-effects, with many pitfalls, high invasivity and low efficacy, factors which significantly limit their clinical utility.