## Electrical stimulation will not replace medications for the treatment of Cluster Headache

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By Electrical Stimulation or Neurostimulation or Neuromodulation for the treatment of Cluster Headache we mean the following procedures: 1. Hypothalamic deep brain stimulation (DBS); 2. Occipital nerve stimulation (ONS); 3. Sphenopalatine ganglion stimulation (SPGS); 4. vagal nerve stimulation (VNS) and 5) spinal cord stimulation (SCS).

Regarding the following features:

- 1. Procedures characteristics: 1. Surgical procedures; 2. Invasive procedures;
- 2. The time elapse to start the effect with a highly variability;
- 3. A fast relapse after an interruption on stimulation;
- 4. Potential complications: Infectious, hemorrhagic, functional, mechanical and/or technical;
- 5. Effectiveness: A reduced number of randomized and controlled studies and degree of effectiveness: with a large variability in different series;
- 6. The cost/effectiveness profile unfavorable;
- 7. Its clinical applicability: 1. Reduced amount of patients: 2. Restricted use to: a. Chronic CH patients and b. Pharmacologic refractory CH patients.

I should say that Electrical Stimulation will <u>not</u> replace medications for the treatment of Cluster Headache, at least in the near future and, without better evidence on efficacy, safety and cost effectiveness of the procedures nevertheless its great utility for Chronic Refractory Cluster Headache patients.