OCCIPITAL NERVE STIMULATION FOR THE TREATMENT OF CHRONIC HEADACHES

M.-C. B. Wilson
University of South Florida, College of Medicine, Tampa, Florida
mcwilson@health.usf.edu

The treatment of chronic headaches can be extremely challenging. In fact, as of now, in the United States, the FDA has not approved any drugs for the preventive treatment of chronic headaches defined as ≥ 15 days of headache per month. Often, a multifaceted approach offers the best results. Pharmacological and non-pharmacological strategies are utilized as well as procedural interventions in patients refractory to medications. Peripheral nerves and sympathetic ganglia blockade, botulinum neurotoxin injections, percutaneous closure of patent foramen ovale, and neurostimulation of peripheral nerves and the hypothalamus have shown benefit in a variety of headache syndromes.

Occipital nerve neurostimulation has demonstrated efficacy in occipital neuralgia, chronic headache, chronic migraine, heamicrania continua and other trigeminal autonomic cephalgias. There are multiple case reports, and several case series addressing the efficacy of neurostimulation, rigorous trials are underway. A prospective randomized double-blind study (PRISM) did not produced significant benefits in relation to sham stimulation on the primary endpoint, change in migraine days. However, a subgroup analysis identified several candidate predictors of a favorable response. Not surprisingly the predictors included: Lack of overuse of headache medications, or opiods and a positive response to a trial of percutaneous stimulation. Equipped with knowledge from previous trials, studies with different methodology are ongoing. The procedure can be done under local anesthesia and entails subcutaneus neurostimulation leads inserted to cross the Greater, Lesser and Least Occipital Nerves via a midline (Parasagittal approach) or lateral incision (medial to Mastoid process). Stimulation parameters including frequency (Hz), pulse width (msec), voltage are established tailored to the individual patient. Upon successful trial, the permanent implant is placed. Lead migration, typically within the first year, was the most common complication in all series, leading to revisions. New reports suggest better outcome with paddle leads. Infection risk is low (7 cases reported in 150 implants). In summary, growing evidence indicates that occipital nerve stimulation should be considered in at least a subgroup of refractory headache patients afflicted with chronic, disabling pain.