

Combined Occipital and Supraorbital Nerve Stimulation for Chronic Migraine

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Introduction

Occipital nerve stimulation (ONS) has been studied in a few clinical trials for the treatment of chronic migraine (CM) with failure to prove sufficient efficacy. To date, peripheral nerve stimulation for the treatment of primary headache is limited to off-label use only. The authors report their institutional experience in CM therapy with combined ONS and supraorbital nerve stimulation (SONS).

Methods

Fourteen patients treated with dual ONS and SONS for CM were studied with follow-up ranging from 3 to 60 months. Seventy-one percent achieved successful stimulation as defined by a 50% or greater decrease in pain severity.

Results

The mean reduction in headache-related visual analog scale (VAS) score was 3.92 ± 2.4. Half of the patients also had resolution of migraine-associated neurological symptoms and returned to normal functional capacity. The main adverse events included lead migration (42.8%), supraorbital lead allodynia (21.4%), and infection (14.2%) with a resulting high reoperation rate (35.7%). The authors' stimulation efficacy was superior to the combined 33% positive response rates (= 50% pain reduction) in the published studies of ONS for CM.

Conclusions

Dual ONS and SONS therapy for chronic migraine in our institution showed improved pain reduction and quality of life in patients compared with ONS or SONS alone stimulation. This is likely due to the fact that topographical paresthesia induced by combined ONS and SONS covers the area of migraine pain better than ONS alone. Well constructed randomized controlled clinical trials in the future is warranted for wider acceptance of PNS for primary headache.

Learning Objectives

By the conclusion of this session, participants should be able to 1) understand why peripheral nerve stimulation is not yet an approved treatment for indication of primary headache such as migraine. 2) understand why proposed combined peripheral nerve stimulation at occipital nerve and supraorbital nerve sites can potentially increase the pain reduction rate. 3) describe what are some potential difficulties in constructing effective clinical trials with the peripheral nerve stimulation for treatment of headache.

References