

Long Term Follow-up in Functional Outcomes of Combined Supraorbital Nerve Stimulation and Occipital Nerve Stimulation for Chronic Headache Patients

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Introduction

Dual supraorbital and occipital nerve stimulation (SONS and ONS) have shown promising efficacy in treating primary headaches. However, its functional outcome is not well studied. We report functional outcome of combined SONS and ONS for migraine using verified metrics.

Methods

Consecutive patients who have both supraorbital and occipital nerve stimulators and also underwent Migraine Disability Assessment (MIDAS) and Beck Depression Index (BDI) both pre- and postoperatively were studied. Outcome variables included net improvement of ranked MIDAS and BDI scores. Predictor variables included patients with =50% improvement of pain, disability status, number of years from diagnosis to implantation, and narcotic use. Multivariate analysis of variance (MANOVA) was performed to assess the correlation between the outcome and predictor variables.

Results

Sixteen patients (12 female; age avg. 51.8 y.o.) were studied. Followup ranged from 5-80months (avg.44.5±21.4 months). Eight had a positive response (=50% improvement in headache) at most recent follow-up. =50 % improvement in headache was the only predictor of outcome variables combined (total MIDAS, MIDAS-B and BDI)(p=0.021). Of note, this improvement in functional outcome was only significant during the perioperative period and not throughout the length of follow up. No other predictive factors were significantly correlated with the functional outcomes. Among the predictor variables, a strong correlation was found for disability status being inversely related to reporting =50% improvement in headache (r=-0.582).

Conclusions

In patients who had positive response to SONS and ONS, functional status as reflected by MIDAS and BDI had overall improvement in perioperative period. Unfortunately, this effect waned over the long-term follow-up.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of assessing functional outcome of peripheral nerve stimulation for headache, 2) Discuss, in small groups why dual stimulation at supraorbital and occipital nerve site could be more effective than occipital nerve stimulation alone, 3) Identify an effective metrics of assessing functional efficacy of neuromodulation therapy in migraine and how we can successfully collect these data.

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