

NerveTrend® to predict Hypoglossal Nerve Function Post Implant Surgery for OSA

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Introduction

Hypoglossal nerve dissection to separate nerves of the protrusion muscles of the tongue from the ones to the retrusion muscles is one of the most important portions of implantation of a hypoglossal stimulator for sleep apnea. This places the hypoglossal nerve at risk. NerveTrend®, a feature of the NIM Vital nerve integrity monitor from Medtronic, is proposed to intermittently track nerve health by measuring the amplitude and latency after stimulation and comparing this with a pre-dissection baseline to monitor and predict nerve function post-operatively

Methods:

This is a retrospective chart review of all patients undergoing hypoglossal nerve stimulator implantation for obstructive sleep apnea from January to November 2022 who had NerveTrend® data available for review.

Latency was deemed normal if there is no increase by 10% or more from baseline and Amplitude is deemed normal if there is no decrease by 50%.

Post nerve dissection trends were divided into: Normal latency and amplitude, abnormal latency normal amplitude and normal latency and abnormal amplitude and both latency and amplitude abnormal. Clinical evidence of hypoglossal dysfunction of 1 week post-operative follow up was noted.



NerveTrend® showing Normal Latency and amplitude



NerveTrend® showing Abnormal Latency and Normal Amplitude



NerveTrend® showing Normal Latency and Abnormal Amplitude

Results:

There were 16 patients identified that met criteria for inclusion (14 Male, 2 female) all undergoing hypoglossal nerve implant placement for obstructive sleep apnea.

Eight patients (50%) had normal latency and amplitude, 6 (37.5%) had increased latency but normal amplitude, 2 (12.5%) had normal latency but decreased amplitude less than 50% of baseline and none (0%) had both latency and amplitude abnormal.

None of the patients developed clinical evidence of hypoglossal weakness on follow up.

Conclusions

NerveTrend® appears promising as a tool to monitor and prognosticate hypoglossal nerve function during and after hypoglossal nerve implant surgery for obstructive sleep apnea.