Vagus nerve stimulation for depression

Over the last 15 years, vagus nerve stimulation (VNS) has been used as an augmentative therapeutic intervention in patients with treatment resistant depression (TRD), whether with a lifetime diagnosis of major depressive disorder or bipolar disorder. From being a potentially effective treatment in the acute phase of TRD, recently published treatment guidelines seemed to converge on the indication that VNS's greatest benefit may be seen mostly beyond the short term. However, with the exception of a recent multicenter American report, very few studies have assessed the long-term efficacy of VNS in TRD patients. Herein, we present the cases of two Italian patients with TRD, with 10-year VNS follow-up evaluation. Both patients were found to benefit from augmentative VNS, and the latency of their stimulation response, tolerability, associated pharmacological treatment, number and duration of recurrences, and overall level of functioning are described and discussed. Further reports with larger samples are needed to support the long-term efficacy and tolerability of VNS in TRD patients, particularly beyond 5 years of follow-up [1].

Stimulation of the left vagus nerve is a novel antidepressive therapy that relies upon the vagal projections to the brain stem to modulate brain circuits involved in mood regulation. There is cumulative evidence from prospective and long-term studies that has demonstrated tolerability and effectiveness of vagus nerve stimulation (VNS) in major depressive episodes (MDE). VNS in MDE has the following advantages: symptomatic response (defined as at least a 50% improvement in MDE severity) occurs in at least 15-17% of patients after 10 weeks of VNS treatment and in at least 22-37% of patients after 12 months of VNS treatment, remissions are observed in at least 15-17% of patients after 12 months of treatment, there is a sustained response in 13-27% of patients during 12 months of VNS, and successful maintenance of the initial improvement is observed in a high percentage of patients (73-77% of patients who had meaningful or greater benefit after 3 months of treatment maintained at least meaningful benefit after 12 months of treatment). VNS is a well-tolerated treatment as indicated by the high continuation rates of VNS therapy in the D01 and D02 studies after 12 months of therapy (90-98%) and the low rate of adverse event-related study discontinuations through 12 months or more in these studies (3%). Adverse effects are characterized by the absence of systemic effects associated with drug therapy and are primarily limited to those related to stimulation of the vagus nerve; many of the common adverse effects only occurred when VNS was on with the ability to stop acute stimulation-related adverse effects immediately through the use of magnet deactivation of the VNS device. More importantly, there were no adverse cognitive and psychomotor effects observed with antidepressant drugs and electroconvulsive therapy, no overdose toxicity observed with antidepressant drugs, favorable findings in animal reproductive studies, and an ability to add VNS therapy to antidepressant drug therapy without producing drug-drug interactions. Finally, VNS has high treatment compliance because VNS therapy is programmed to work automatically without the need for action on the patient's part (no pills to swallow) [2].

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2)
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