Vagus nerve stimulation for drug-resistant epilepsy indications

- Vagus nerve stimulation: Potential for treating chronic wounds
- Neurostimulation treatments for epilepsy: Deep brain stimulation, responsive neurostimulation and vagus nerve stimulation
- Predictive factors for successful vagus nerve stimulation in patients with refractory epilepsy: real-life insights from a multicenter study
- Management of vagus nerve stimulation therapy in the peri-operative period: Guidelines from the Association of Anaesthetists: Guidelines from the Association of Anaesthetists
- Training and teaching of vagus nerve stimulation surgery: Worldwide survey and future perspectives
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- Neuromodulation in drug-resistant epilepsy: A review of current knowledge

Vagus nerve stimulation appears to be a safe adjunctive therapy for children and adults with medically and surgically intractable epilepsy [1) 2)].

Vagus nerve stimulation is a safe and effective treatment for patients with drug-resistant epilepsy caused by tuberous sclerosis complex. Although early outcomes were encouraging, a follow-up of at least one-year was required to predict long-term outcomes in patients receiving VNS treatment. Moreover, VNS may improve depressive mood in patients with drug-resistant epilepsy caused by tuberous sclerosis complex. Further investigations are needed to validate the present results [3)].

see also Vagus nerve stimulation for drug-resistant epilepsy in children.

VNS is indicated for symptomatic localization-related epilepsy with multiple and bilateral independent foci, symptomatic generalized epilepsy with diffuse epileptogenic abnormalities, refractory idiopathic generalized epilepsy, failed intracranial epilepsy surgery, and other several reasons of contraindications to epilepsy surgery. Programing of the parameters is a principal part in VNS. Output current and duty cycle should be adjusted to higher settings particularly when a patient does not respond to the initial setting, since the pivotal randomized trials performed in the United States demonstrated high stimulation made better responses in seizure frequency. These trials revealed that a ≥ 50% seizure reduction occurred in 36.8% of patients at 1 year, in 43.2% at 2 years, and in 42.7% at 3 years in 440 patients. Safety of VNS was also confirmed because side effects including hoarseness, throat discomfort, cough, paresthesia, and headache improved progressively during the period of 3 years. The largest retrospective study with 436 patients demonstrated the mean seizure reduction of 55.8% in nearly 5 years, and also found 75.5% at 10 years in 65 consecutive patients. The intermediate analysis report of the Japan VNS Registry showed that 60% of 164 cases got a ≥ 50% seizure reduction in 12 months. In addition to seizure reduction, VNS has positive effects in mood and improves energy level, memory difficulties, social aspects, and fear of seizures. VNS is an effective and safe option for patients who are not suitable candidates for intracranial epilepsy surgery [4)].

Vagus nerve stimulation (VNS) is becoming an increasingly popular therapy for patients with drug resistant epilepsy [5) 6) 7) 8) 9) 10) 11) 12)].

Vagus nerve stimulation for refractory status epilepticus treatment

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