Efficacy of vagus nerve stimulation in 61 consecutive patients with drug resistant epilepsy in North-East Italy.

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Objective: The aim of this study was to assess the efficacy and safety of vagus nerve stimulation (VNS) in a consecutive series of patients with refractory epilepsy not eligible for epilepsy surgery. This is a retrospective study of patients who underwent VNS implantation for drug resistant epilepsy between 1996 and 2015.

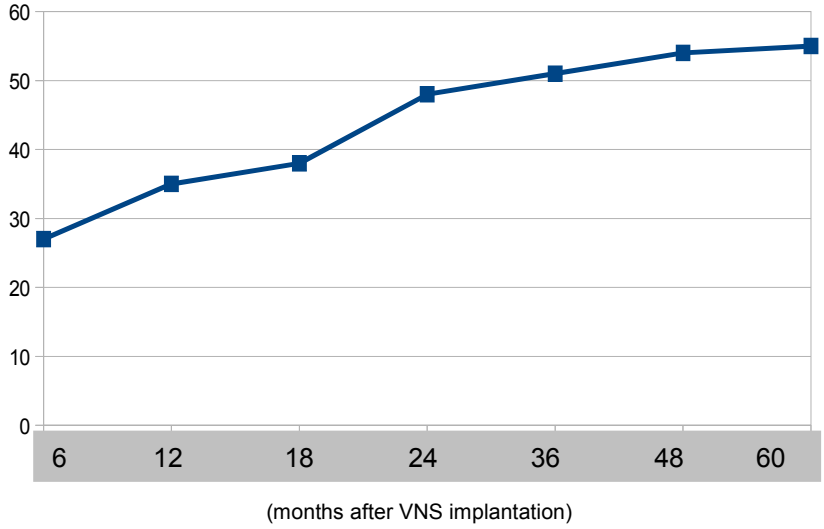
Materials and methods: 61 patients were recruited from epilepsy centers in the North-East of Italy, 37 male, 24 female. All patients were not elegible for surgery treatment. The age at time of implantation was from 8 to 59 years (mean age 31,5). All patients were classified according to the epileptic phenotype and the etiology. 48 patients had focal or multifocal epilepsy, of whom 14 with bitemporal epilepsy, 5 had Lennox-Gastaut syndrome, 2 had Dravet syndrome, 1 had Angelman syndrome. According to the last proposal of classification, the etiology was genetic in 3, structural in 35 patients, unknown in 23. All patients had a long duration of epilepsy before implantation (mean age 28.5 y). The average monthly seizure frequency before VNS implantation is $\geq$ to 4 in all patients, with almost daily seizures in 19 patients. The average numbers of AEDs assumed by the patients is 3,61. Duration of VNS treatment varied from 0 to 20 years (mean 4 y).

Results and discussion: Mean seizure frequency significantly improved (>50%) following implantation in 44% of patients (McHugh scale I and II), while 37% of patients improved ictal or postictal severity notwithstanding <50 seizure reduction in frequency (McHugh scale IIIa). The average numbers of AEDs assumed by the patients after VNS implantation is 3,14. Interestingly 56% of patients showed also improvement in quality of life. No side effects were reported by 55% of patients, while in the other patients transient local irritation, voice alterations, hoarseness and coughing tend to disappered with tim

Table 1. Demographic and clinical data for 61 patients

Variables	*Data*
Gender	24F / 37 M
Age	32y (8-62)
Age at seizure onset	8y±8 (1m-52y)
Number of AEDs tested	8.6 (6-13)
Prior neurosurgical intervention	4
Age at VNS implant	32y±12 (6-59)
Duration of epilepsy before VNS	27y±11 (6-58)
N° AED before VNS	3,6 (2-5)
N° AED after VNS	3.1 (2-6)
Duration of VNS therapy	3.2y (3m-15y)
VNS parameters	1,8 mA±0,5 (0,5-2,5)

Fig. 1 Mean seizure frequency reduction after VNS (%)



Conclusions: VNS is a safe and effective palliative treatment option for drug resistant epilepsy, with reduction in frequency or in ictal/postictal severity of seizures in 81% of our patients.

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