

Sustained efficacy of occipital nerve stimulation in drug-resistant chronic cluster headache after up to 5 years treatment

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Background. Drug-resistant chronic cluster headache (drCCH) is a devastating condition for which various invasive procedures have been tempted without any satisfactory effect. Our prospective pilot study of great occipital nerve stimulation (ONS) in 8 drCCH patients showed encouraging results at 15 months (1).

Methods. We recruited 15 patients with drCCH according to the previously published criteria of intractability (2). They were implanted with suboccipital stimulators on the side of their headache. Long-term follow-up was achieved by questionnaires administered during a headache consultation and/or by telephone interviews.

Results. One patient had an immediate post operative infection of the material. Mean time with ONS was 28.8 months (range 3-60 months). Nine of the 14 remaining patients were totally pain-free (64%), 2 patients had an improvement in frequency exceeding 90% and one patient a 89% amelioration. Two patients did not respond or described mild improvement. Intensity of residual attacks was not improved by ONS. Four patients (29%) were able to reduce their prophylaxis. Common technical problems were battery depletion (N=8/14, 57%) and material infection (N=3/15, 20%). Recurrent battery replacement (until 2/ year in one patient) is now avoided by the availability of rechargeable batteries. Clinical peculiarities associated with ONS were occurrence of infrequent contralateral attacks (N=5/14, 36%), and/or isolated ipsilateral autonomic attacks (N=5/14, 36%). Rapid attack recurrence after stimulator switch off was reported by 7/12 improved patients (58%). Two patients found ONS-related paresthesias unbearable; one had his stimulator removed, the other switched it off though he was objectively ameliorated. Subjectively, nine patients are very satisfied by ONS and one patient moderately satisfied.

Conclusions. Our long-term follow-up confirms the efficacy of ONS in drCCH, which remains a safe and well-tolerated technique. The occurrence of contralateral attacks and isolated autonomic attacks in nearly 50% of ONS responders may have therapeutic and pathophysiological implications.

(1) Magis D, Allena M, Bolla M et al.: Occipital nerve stimulation for drug-resistant chronic cluster headache: a prospective pilot study. *Lancet Neurol* 2007, 6(4):314-321.

(2) Goadsby PJ, Schoenen J, Ferrari MD et al.: Towards a definition of intractable headache for use in clinical practice and trials. *Cephalalgia* 2006, 26(9):1168-1170.