

Acute hypothalamic stimulation in cluster headache

Leone et al. found that acute hypothalamic stimulation is not effective in resolving ongoing cluster headache (CH) attacks. The discrepancy between this finding and the effectiveness of long-term hypothalamic stimulation in preventing CH attacks suggests that long-term effectiveness is the result of complex mechanisms.

see page 1844

Neurostimulation therapy for cluster headache

Commentary by Peter J. Goadsby, MD, DSc

Cluster headache (CH) is a relatively rare, very clearly neurologic disorder that is part of the spectrum of trigeminal autonomic cephalalgias (TACs).¹ The 1-year prevalence is about 1 in 1,000 persons, with about 10% of patients having chronic cluster headache. A proportion of patients with CH are refractory to medical therapy,² and have classically had surgical interventions to block, cut, or burn the trigeminal nerve. Functional neuroimaging studies identified activation in the region of the posterior hypothalamus in CH,³ which led to the first use of neurostimulation therapy in medically intractable chronic CH.⁴

Long-term follow-up of implanted patients suggests that the outcomes are excellent, with 13 of 16 patients persistently pain free at a mean follow-up of nearly 2 years.⁵ These patients have used continuous stimula-

tion. Could patients also derive benefit from intermittent stimulation? In 16 patients with implanted stimulating devices in the region of the posterior hypothalamus, 23% had a $\geq 50\%$ reduction in headache severity when the devices were simply activated for acute pain. The authors sensibly conclude that intermittent acute is less effective than continuous stimulation.⁶

Neurostimulation therapy in cluster headache seemed futuristic 5 years ago. However, there is a growing consensus that medically intractable chronic cluster headache now has an option to very simply transform the disorder. Whether the less invasive approach of occipital nerve stimulation will have a similar benefit is unclear and studies are ongoing. What is clear is for a subset of patients with this important neurologic disorder, destructive invasive surgery with its associated morbidity and mortality

may no longer be necessary. If this indeed proves to be the case, our patients will benefit. Controlled trials of neurostimulation therapy are the appropriate next step.

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see page 1844

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