

Mini review

A Therapeutic Connection between Migraine and Epilepsy: Case Report and Literature Mini-review

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Abstract

The connection between the episodic conditions, migraine and epilepsy, is widely acknowledged but the mechanism involved is subject to debates. Similarly, the role of maintenance opioid in preventing migraine and related entities is well known but few reports exist on the prophylactic use of opioids in preventing both migraine and epilepsy (migralepsy) proven refractory to the use of conventional anticonvulsants. Here, I provide details of a patient with refractory migralepsy who responded favorably to daily scheduled opioid, with eventual complete remission of headaches and seizures at a high dose of oxycodone.

Betty (not her real name) was first seen in 2007, at the age of 61. She complained of headaches with features of migraine, backache and nocturnal numbness of upper extremities suggestive of carpal tunnel syndrome. The right sided headaches had started in 1999 and were associated with photophobia and nausea. Initially she was put on gabapentin, followed by valproate, without significant relief with either medication at significant doses. However, she responded to topiramate with significant relief in the severity of the headache although they continued to recur from time to time according to a headache diary she kept throughout her attendance to my office. Neurological examination and CT of brain were normal. Subsequently, the headaches improved on hydrocodone and triptans, in addition to topiramate. Eventually, however, she was put daily scheduled opioid treatment for migraine using oxycodone. The dose was increase progressively for a complete relief from the headaches. She required increasing the dose gradually to 30 milligrams, 2 tablets three times daily. Surprisingly, it was at this high dose that not only the headaches stopped occurring but so did the occasional seizures of which she began suffering in recent times. The seizures she had experienced before usually occurred at the end of a prolonged migraine headache. I saw Betty accidentally in a social gathering wherein she recounted the return of her headaches and seizures because of her inability to find a physician willing to prescribe her the oxycodone. This case study, therefore, is similar to the five other cases of migralepsy reported in a recent article; achieving complete relief from both headache and epilepsy using the above-mentioned regimen.

Review of the Literature

The most striking clinical observation denoting a relationship between headache and epilepsy is a recent article by Shevel [1]. According to this report, a substantial reduction of seizures occurred in three patients with migraine following bilateral surgical closure of external carotid arteries performed for ameliorating the migraines. According to the author, the operation resulted in a significant reduction of the number of seizures in every case. In a similar vein, restoring the blood flow in the external carotid

artery following widening of a significantly narrowed internal carotid artery, resulting in the resumption of normal blood flow in the ipsilateral external carotid artery, was followed by a significant reduction of headaches on that side [2].

The most pertinent statistical data concerning the frequency of the need for opioids in successfully preventing migraine and migraine-related epilepsy (migralepsy) was published by Wilner and colleagues in 2016 [3-5]. Having identified epilepsy and migraine as comorbid conditions, the authors' finding among 10,271 patients

with epilepsy, compared to that in 20,542 controls, indicated the need for prescription opioid in 26% of an insured population with epilepsy, versus 18% in a matched control population ($p < 0.001$). Migraine occurred in 8 % of the population with epilepsy and 2% of the controls ($p < 0.001$). The question asked by the authors was the driving force behind the need for prescribing opioids in those patients with epilepsy. The answer to that question was to be found in table 1 of the article in question, i.e. increased prevalence of migraine and cervicgia (a surrogate for migraine) in patients with epilepsy (28% vs 10% among controls). A similar phenomenon had been observed by Verrotti and colleagues in another cohort of patients studied in Italy [6-8]. Thus, the common denominator in both of these large scale studies was the refractoriness of seizures to treatment by conventional antiepilepsy drugs alone, so long as the migraines were not fully controlled by a preventive medication [9]. The role of maintenance opioid in achieving that goal had been summarized earlier by Derakhshan [10].

Dedication and Acknowledgement

I dedicate this article to the tender memories of my beloved sister (Farkhondeh) and mother (Rogha) Derakhshan.

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