

Treatment of migraine related vertigo with Lamotrigine an observational study

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Abstract

Migraine is a common cause of vertigo. The vertigo symptoms often occur independently of the headaches and have very variable duration and phenomenology. Treatment usually consists in giving prophylactic anti-migraineous medication. The anti-epileptic drug Lamotrigine (LTG) has been reported to be effective in treating migraine auras, isolated auras and to some extent migraine headaches. In this retrospective observational study, 19 patients, 6 male and 13 female, aged 52.3 years (range 28-84) treated with LTG and suffering from migraine and migraine related vertigo were evaluated. After a titration phase of 4 weeks patients took 100 mg of Lamotrigine per day in a single dose and were followed up for 3-4 months. The average vertigo frequency per month was significantly reduced from 18.1 to 5.4, the average headache frequency per month was reduced from 8.7 to 4.4 without reaching statistical significance. Lamotrigine at a daily dose of 100 mg seems to be effective in the treatment of migraine related vertigo. The effect on vertigo was more marked than on headaches.

Keywords:

migraine, vertigo, Lamotrigine

Introduction

The relationship of vertigo and migraine goes far beyond the classical description of basilar migraine (1) and is probably still an underrecognized cause for vertigo (2). Migraine related vertigo affects 24-36 % of migraineurs (3) and up to 38 % of dizzy patients were reported to have migraine (4). Migraine associated vertigo is a common cause of vertigo (5). In only a minority of patients the onset of the headaches and the vestibular symptoms in the lifetime of migraine patients are simultaneous and the majority of vestibular attacks do not occur just before or during the headaches. The diagnosis relies on the combination of history and physical examination and exclusion of other diseases (6, 7).

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If the attacks are frequent or difficult to control with acute drugs, the treatment approach usually includes prophylactic antimigraineous medication (7, 8). So far no controlled trials are available in this indication. The clinical impression is that drugs alleviating headaches are also beneficial for vertigo (9) in particular for beta-blockers (10, 11).

The interest in the mechanisms of migraineous vertigo has also been promoted by the discovery that episodic ataxia and familial hemiplegic migraine are due to defects of CACNA1A gene coding for a calcium ion channel (12).

LTG is an antiepileptic drug acting as a blocker on voltage gated sodium channels (13).

Recently Lamotrigine (LTG) has been reported in pilot studies to be efficient in the treatment of migraine auras (14), another study noticed a bigger effect on migraine with aura than without (15), whereas a study mixing migraine with and without aura reported no effect on migraine headache (16).

In this retrospective observational study patients who had been put on LTG as prophylactic treatment for migraine and suffering from migraine related vertigo were evaluated.

Material and methods

Patients treated for migraine headache and migraine related vertigo with LTG were identified from the department's vertigo database. 19 patients, 13 female aged 51.2 years (range 28-81) and 6 male aged 54.5 years (range 28-84) were included. Inclusion criteria were the existence of migraine according to the (International Headache Society) IHS criteria and the presence of episodes of vertigo responding to the criteria of definite or probable migrainous vertigo (17). All patients had a full neurological and neuro-otological examination and an eye movement evaluation in the dark using a video based system including search for spontaneous and positional nystagmus, pendular rotation, smooth pursuit and saccades. Additionally caloric testing, brain imaging and vascular tests were performed when considered necessary in the differential diagnostic work up. Exclusion criteria were serious or unstable medical conditions and coexisting depression.

With a standardized interview patients were asked for the frequency and duration of their episodes of headache and vertigo during the two months before and after taking LTG for 3-4 months. Student's t test was used for statistical comparisons.

Patients took 25 mg/die of LTG for 2 weeks then 50 mg for two weeks to reach the target dose of 100 mg after 4 weeks, all taken in single dose in the morning.

Results

Three (15.8%) patients reported vertigo as a classical aura symptom, 31.6% could have vertigo during and 84.2% independently or during their headache episodes. 9 (47.4%) patients only experienced vertigo independently of the headaches.

The quality of the vertigo was variable. 36.8% had spinning vertigo, the most common symptom was episodes of non spinning dizziness with instability while walking (68.4%) followed by positional vertigo (57.9%). Nausea accompanying the vertigo was only reported by 3 (15.8%) and occasional vertigo associated falls by 2 (10.5%) patients. The duration of the vertigo episodes had a wide range from minutes to days.

On LTG the frequency of headache attacks was reduced but did not reach statistical significance. The frequency and the duration of the vertigo attacks were reduced but only the frequency reduction reached statistical significance (see table 1).

	Before LTG	On LTG	t-test
Headache freq./month	8.7 ± 9.1	4.4 ± 5.7	n.s.
Vertigo freq./month	18.2 ± 11.6	5.4 ± 7.8	P < 0.001
Vertigo episode mean duration (h)	5.6 ± 10.1	2.1 ± 4.8	n.s.

Table 1.

On treatment with LTG a reduction of attack frequency for headaches of more than 50% was reported by 9 (47%), 2 patients improved by 50% or less, 7 were unchanged and one became worse. The vertigo frequency was reduced by more than 50% in 18 of 19 patients and remained unchanged in one. Complete relief of symptoms was reported by 26.3% of patients for vertigo and by 10.5% for headaches.

None of the patients reported any significant side effects.

Discussion

Migraine related vertigo is a common cause of episodic dizziness, vertigo and dysequilibrium (2). The mechanism is still debated, probably central and peripheral factors come into play and might be related to newly recognized ion channel disorders (8, 12). There is no specific diagnostic test for migraine related vertigo. The occurrence of vertiginous spells in a migraine patient should raise the possibility of migraine related vertigo. The vertiginous spells can be very variable in duration (seconds to days) and intensity from mild to inability to walk. The temporal relationship to the headaches in most patients will not be according to the

criteria defined as a migraine aura. Appropriate vestibular and neurological testing has to be done to rule out other peripheral or central causes (7).

Prophylactic anti-migraineous treatment for headaches such as beta-blockers and ergot preparations have been reported to be also efficient in preventing migraine related vertigo (10, 11). These drugs have limitations to their use particularly in asthmatic and cardiovascular diseases.

LTG is an antiepileptic drug acting as a blocker on voltage gated sodium channels (13). The drug has a good tolerability, particularly in the doses used here, and good safety profile as long as titration is done slowly to prevent skin rashes (18). It has recently been reported to be effective in reducing migraine auras (14,15) whereas the value for preventing migraine headaches is still debated (16).

In this observational open study LTG was observed to be effective in reducing the frequency of migraine related vertigo, and also, although not significantly, the duration of vertigo attacks. The effect on headache did not reach significance. The effect on vertigo episodes was quite marked as in 89.5 % of the patients attack frequency improved by 50 % or more and in 26.3 % the vertigo stopped completely while on 100 mg of LTG. Patients with very frequent vertigo attacks (several per week to daily) usually noticed a mild effect on 50 mg and than another improvement on 100 mg. Some patients also reported a reduction in intensity of the remaining vertigo episodes, a systematic recording of vertigo intensity had not been performed and would be an aspect to consider in a future study.

The bigger effect of LTG on the neurological migraine equivalent vertigo than on the migraine headache goes along with the findings in other studies that the effect of LTG is more marked on auras than on headaches (14,15).

LTG might be an interesting option to treat migraine related vertigo, particularly if the frequency of vertigo is higher than that for headache attacks. This constellation can often be observed, particularly in elderly patients (19). Because of its favorable side effect profile it should be considered if accompanying pulmonary or cardiovascular problems limit the use of betablockers or Ca channel blockers and if the problem of drowsiness is to be avoided often associated with antidepressants or benzodiazepines.

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Note du comité de rédaction

Notre expert de la «peer review» est d'avis qu'une étude double aveugle serait plus appropriée pour démontrer l'efficacité de la Lamotrigine. Il estime aussi que dans une étude rétrospective un plus grand nombre de patients serait souhaitable. En effet la publication dans *Cephalgia* 1997 Apr. 17 (2), 109-112, citée dans la bibliographie, ne prouve pas l'efficacité de la Lamotrigine pour la prophylaxie de la migraine. Cependant dans un article de *Curr. Pain Headache Rep.* 2004 Jun, 8(3), 244-250 intitulé *Anticonvulsants in migraine*, Young W. B. et al, affirment que Lamotrigine est valable dans le contrôle de l'aura mais inefficace dans les céphalées.