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Topiramate-induced reversible auditory hallucination

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Topiramate (TPM) is an antiepileptic drug also used in migraine prophylaxis (Silberstein *et al*. 2007). Neuropsychiatric symptoms may emerge during the use of TPM (Fröscher *et al*. 2005). There are few reports showing a link between psychotic adverse events and use of TPM (Khan *et al*. 1999). Only one patient with schizoaffective disorder has been reported in the literature, who complained of dose-related, auditory hallucinations with TPM use (Matthews and Miller 2001). We report a patient with migraine who presented with reversible, dose-related, auditory hallucinations during TPM treatment.

Case report

Our patient, a 27-year-old woman, had a history of headaches for the last seven years. The characteristics of the headaches described fulfilled the criteria for migraines without aura. She described headache episodes as occurring four to five times per month, particularly associated with her menstrual period. She had no family or personal history of psychiatric disorders. She was started on TPM for migraine prophylaxis at 25 mg/day, and the dose was gradually increased at weekly intervals of 25 mg increments up to 100 mg/day by the end of the first month of the treatment. When the dose of TPM reached100 mg/day, the patient reported frightening auditory hallucinations which as described as like *"the roar of the crowds in big shopping malls*". Laboratory findings for hematology and biochemistry tests, electroencephalograph, brainstem auditory-evoked potentials, audiometry, and cranial magnetic resonance imaging were normal. The psychiatric examination was within normal limits. The auditory hallucinations disappeared after gradually decreasing the dose of TPM to 50 mg/day, by 25 mg decrements, at weekly intervals. Therefore, the auditory hallucinations were thought to be related to the dose of TPM. The migraine attacks decreased with TPM, so she continued with TPM treatment at 50 mg/day, prophylactically and has experience no further auditory hallucinations for approximately two years.

Discussion

The frequency of psychotic attacks caused by TPM is low, and the most frequently observed psychotic symptoms are paranoid delusions, visual and auditory hallucinations (Khan *et al*. 1999). The mechanism of the psychotic symptoms induced by TPM is not clearly understood; however, it has been suggested that its antiglutaminergic effect in the nucleus accumbens and the prefrontal cortex could lead to psychosis (Hofer *et al*. 2003). In the literature, only relatively high doses of TMP (200-400 mg/day) have been shown to cause psychotic symptoms in epileptic patients (Khan *et al*. 1999). Our patient differs from those in previous reports by developing only auditory hallucinations and at a much lower dose (100 mg/day) than the others. There was no case in the literature of auditory hallucinations during TPM treatment for migraine prophylaxis. In this case, the dose was increased 25 mg every week, with 100 mg of TPM triggering the auditory hallucinations. The dose was then gradually decreased and the hallucinations disappeared at the dose of 50 mg/day. Follow-up visits revealed that the frequency of the migraine attacks had decreased. Therefore, TPM was continued at the same dose for migraine prophylaxis. In the past two years, the patient has reported no new neuropsychiatric symptoms.

While TPM is an effective medication for migraine prophylaxis, patients need to be monitored closely for the appearance of adverse events associated with the TPM. It may be possible to resolve the adverse symptoms by reducing the dose. Nevertheless, the reduced dose of TMP may continue to provide an effective treatment.

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References

Fröscher W, Schier KR, Hoffmann M, *et al*. Topiramate: a prospective study on the relationship between concentration, dosage and adverse events in epileptic patients on combination therapy. *Epileptic Disord* 2005; 7: 237-48.

Hofer A, Fleischhacker WW, Hummer M. Worsening of psychosis after replacement psychiatric adverse events in patients with epilepsy. *Epilepsia* 2003; 44: 659-63.

Matthews SC, Miller BP. Auditory hallucinations associated with topiramate. *J Clin Psychiatry* 2001; 62: 653.

Khan A, Faught E, Gilliam F, Kuzniecky R. Acute psychotic symptoms induced by topiramate. *Seizure* 1999; 8: 235-7.

Silberstein SD, Lipton RB, Dodick DW, *et al*. Topiramate Chronic Migraine Study Group. Efficacy and safety of topiramate for the treatment of chronic migraine: a randomized, double-blind, placebo-controlled trial. *Headache* 2007; 47: 170-80.

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