Glaucoma: Adverse event on use of topiramate in alcohol de-addiction

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ABSTRACT

To report oral topiramate-induced glaucoma and to assess its severity and preventability. A 40-year-old man presented with watering, redness, pain, and diminution of vision of both eyes, one week after initiation of oral topiramate 100 mg/day for alcohol de-addiction. On examination, both eyes showed conjunctival chemosis, corneal edema, shallow anterior chamber, and intraocular pressure 48 and 46 mm Hg. The symptoms and clinical findings resolved completely upon discontinuation of topiramate and administration of antiglaucoma drugs. Topiramate-induced angle-closure glaucoma and other ocular side effects are reversible if the diagnosis is made early and the drug is discontinued in time. Hence, clinician awareness is an important aspect of preventability of this adverse event.

Key words: Glaucoma, side-effects, topiramate

INTRODUCTION

Topiramate introduced as an anti-epileptic drug is increasingly being used in the treatment of numerous psychiatric conditions. Acute myopia and acute angle-closure glaucoma are serious but rare side-effects of the drug.[1] Cases have been reported to occur within two weeks of starting topiramate in the normal therapeutic range for indications such as epilepsy and migraine.[2-6] No known literature recognizes this in context of its use in psychiatric conditions. If unrecognized, cases of permanent vision loss may occur.[7]

We present a case of bilateral acute angle-closure glaucoma occurring within one week of initiating therapy with topiramate for alcohol de-addiction, which to the best of the authors' knowledge is the first case to be brought to the notice of psychiatrists and when recognized shows the importance of early detection and treatment.

CASE REPORT

A case of a 40-year-old man brought by wife for de-addiction treatment for history of alcohol consumption since 20 years has been presented. Patient had no signs or symptoms to suggest any other medical comorbidity. De-addiction program was initiated and patient was put on oral chlordiazepoxide 50 mg/day and topiramate 100 mg/day during hospital stay. Patient was better at discharge but presented to Psychiatric Outpatient department one week later, reportedly compliant on treatment and abstaining from alcohol, with complaints of watering, redness, and foreign body sensation in both eyes since one week with diminution of vision and increased eye pain since one day. On examination, he was conscious, oriented, and in distress. Vitals stable with no abnormality on systemic examination. Ophthalmological examination of both eyes revealed the following: Conjunctival chemosis, corneal edema, shallow anterior chamber, pupil 4 mm dilated, not reacting to light, lens clear, visual acuity 6/24 and 6/18, intraocular pressure (IOP) 48 and 46 mm Hg with hazy disc on fundoscopy and gonioscopy showing closed angles.

Diagnosed bilateral drug (topiramate) induced secondary angle closure glaucoma. Topiramate was stopped and the
following drugs were added:
T. Acetazolamide 250 mg 1-1-1-1
T. Chlordiazepoxide 25 mg 0-0-1
T. Benalgis 75 mg 1-0-1
Timolol eye drops 2.5% 1-0-1
Prednisolone eye drops 1-1-1

On stopping topiramate and taking antiglaucoma measures, patient’s symptoms decreased and repeat examination showed the following findings on day 2: lid edema decreased, conjunctival chemosis decreased, cornea clear, visual acuity 6/12 and 6/12 with best corrected visual acuity 6/6 in both eyes, and IOP 17 and 20 mm Hg. Patient was discharged on request and follow-up after 1 week confirmed the patient’s recovery.

DISCUSSION

Topiramate is a sulfamate-substituted monosaccharide which acts predominantly by blocking voltage-gated sodium channels. Topiramate initially introduced as an antiepileptic drug has shown efficacy in many psychiatric conditions such as bipolar disorder, eating disorders, Tourette’s disorder, and alcohol dependence. Oral topiramate reduces the consequences of drinking and has been shown to improve the quality of life in alcohol-dependent individuals.

Serious side effects with topiramate are rare, but distressing ocular adverse events such as bilateral angle-closure glaucoma, myopia, and suprachoroidal effusions have been recorded. The mechanism of action of topiramate causing bilateral angle-closure glaucoma has been attributed to ciliochoroidal effusion which causes forward rotation of the lens–iris diaphragm leading to secondary angle-closure.

In a study by Fraunfelder et al., ocular side effects of topiramate were reported in 115 patients. Acute-onset glaucoma was documented in 86 patients, predominantly in females (80%). It occurs with doses ranging from 50 mg to more than 100 mg.

This patient was initiated on 50 mg/day topiramate and built up to 100 mg/day during the hospital stay. Patient whose ocular history was otherwise unremarkable, presented one week later with symptoms characteristic of angle-closure glaucoma, with examination confirming the diagnosis. Also, as mentioned earlier, studies have recorded that this adverse event is likely within first two weeks of initiation of topiramate therapy. Computed tomography scan of brain showed no relevant findings that could account for the sudden loss of vision. Our patient improved dramatically by the second day following withdrawal of topiramate and addition of antiglaucoma medication. On follow-up, the patient had no fresh complaints and was maintaining well.

Naranjo’s and WHO’s assessment scales were used to assess the certainty of suspected adverse drug event. Both the scales showed that it is probable/likely that topiramate (drug) induced glaucoma (adverse event) in this patient. Modified Hartwig and Siegel Adverse Drug Reaction (ADR) Severity Assessment Scale showed moderate level 3 severity. Using Modified Schumock and Thornton’s criteria for preventability of an ADR, topiramate-induced bilateral angle-closure glaucoma was found to be definitely preventable on the basis of there being a known treatment for the adverse event. This implies that early identification along with early institution of treatment may prevent the initial symptoms from developing into a full-fledged adverse event, thus reducing the patient’s distress, hospital stay, and economic burden.

Topiramate-induced angle-closure glaucoma is an idiosyncratic reaction and can occur in otherwise normal eyes with normal anterior chamber angles. It is not known to be dose-dependent, with one study reporting it at a dosage of 25 mg/day. Patients commencing topiramate should therefore be advised to immediately report any symptoms of eye pain or blurred vision, especially in the first few weeks of treatment.

This case report records the serious adverse event possible on oral topiramate therapy for the indication of alcohol de-addiction. To the best of the author’s knowledge, this is the first reported case of adverse event of topiramate used for a psychiatric condition. No similar adverse events for the drug have been identified in the Indian population.

This report brings to light the severity of the adverse event caused by topiramate and consequently the burden on the patient and family. Review of the existing literature also makes one aware of the lack of identification of a high-risk group in whom such a severe adverse event may occur and hence it falls on the clinician to make the patient and family aware of the possible side effects and immediate hospitalization in case of warning signs and symptoms. The dictum is as it has always been “Prevention is better than cure.”

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