Case Report

Topiramate-Induced Bilateral Angle-Closure Glaucoma

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Abstract

A 40 year old male admitted for diabetic control and co-morbid alcohol dependence was initiated on topiramate. On the second week of starting topiramate, he developed sudden dimness of vision of both eyes, with eye pain, headache and vomiting. The ophthalmologic examination revealed the diagnosis as acute angle-closure glaucoma. There have been very few reports of angle-closure glaucoma with topiramate. The early detection and treatment along with discontinuation of topiramate resulted in complete improvement within a week. The case with relevant review of literature is reported here (German J Psychiatry 2013; 16(3): 122-123).

Keywords: alcohol dependence, topiramate, angle-closure glaucoma, migraine

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Introduction

Topiramate, an antiepileptic was originally considered as an oral hypoglycemic agent. In recent years, the drug has been gaining importance in treatment of neurological and psychiatric conditions. The drug was initially being tested for use in bipolar disorder, but the evidence for its efficacy in bipolar is very modest. There is evidence from studies that topiramate may reduce craving in alcohol dependence and is claimed to be better tolerated with lesser side effect profile (Johnson et al., 2007). The tolerability profile with its lack of significant metabolic side effects makes it a favorable drug for patients with co-morbid lifestyle illnesses (Grover et al., 2007). Here we present a case of topiramate induced acute bilateral angle-closure glaucoma, which had complete recovery following withdrawal of the drug followed by appropriate treatment.

Case History

A 40 year old male, a government employee who was a known diabetic for the past five years was admitted for control of diabetic status. Since the patient was had been taking alcohol, on the days prior to admission, he was referred for evaluation and detoxification. History revealed that he was using alcohol for the past 20 years. In the last few years, his alcohol use had spiraled out of control. He was taking alcohol on a daily basis in the last two years and in the last few months he had increased the quantity of use and was unable to stop use even for a day. His wife reported that he was becoming angry and abusive at home on a daily basis and that had strained their marriage. He also had problems at work due to absenteeism and lack of professionalism. Though he was advised strict abstinence with diet control and exercise by his physician, he continued to drink heavily, eat injudiciously and had no motivation to exercise. He had on presentation features of moderate withdrawal and was started on chlordiazepoxide 25 mg in 3 divided doses, thiamine and supportive measures. His diabetic status was compromised and he had hypertriglyceridemia, liver function

abnormalities and had been also on treatment for benign prostatic hyperplasia. He was started on insulin, glipizide, pioglitazone, fenofibrate, and metadoxine. His prescription of alfuzosin for his prostatic problem was continued. Post initial withdrawal phase, he was started on topiramate on 50 mg in two divided doses. In the second week of initiating topiramate therapy, he complained of bilateral dimness of vision, along with headache and vomiting. On initial examination his best corrected visual acuity was 3/60 both eyes. His anterior segment examination demonstrated bilateral lid edema, conjunctival chemosis, corneal edema, sluggish pupillary reaction, markedly shallow anterior chamber and closed angles on gonioscopy.

Ocular tonometry revealed that the intra-ocular pressure (IOP) was elevated to 40 mmHg in the right eye and 35 mmHg in the left eye. Fundus examination showed a hazy optic nerve with a normal cup: disc ratio of 0.2 in both eyes. A peripheral iridotomy was performed on both eyes due to suspected pupillary block. B-Scan ultrasound revealed 3600 peripheral choroidal effusion. Based on these, a diagnosis of bilateral angle-closure glaucoma was made. Suspecting topiramate as the offending agent causing angle-closure glaucoma, topiramate was immediately discontinued. Topical timolol (0.5%), dorzolomide, brimonedine tartrate and dexamethasone sodium phosphate eyedrops were started along with acetazolomide and mannitol injections. On follow-up next day, the patient was comfortable, with no headache and vomiting. Anterior chamber remained shallow but corneal edema had subsided with IOP receding to 20 mm Hg. The same drugs were continued and methylprednisolone injections were stated to hasten recovery. On the 5th day anterior chamber became deep, IOP was 8 mmHg, and visual acuity improved to 6/18. At this time, the glaucoma treatment was rapidly tapered off and stopped. He continued to be on all drugs started except topiramate through the period of stay and he was never re-challenged on topiramate.

Discussion

Topiramate is a sulfamate-substituted monosaccharide, used initially as oral hypoglycemic agent has now been found to have antiepileptic properties. This action may due to due to its blockade of sodium channels, its ability to raise the level of GABA (gamma amino butyric acid), and its antagonism of glutamate receptor of AMPA (α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid) subtype. Topiramate also has a weak carbonic anhydrase inhibition (Arnone, 2005). Though topiramate has been approved for seizure disorders, there has been increasing interest in its associated weight reducing properties ((Sachi & Vijaya, 2006) which can be made use of especially in patients on atypical antipsychotics like olanzapine (Kirov & Tredget, 2005). It has been tried in most of psychiatric conditions with moderate efficacy and considerably less side effects. There have been reports of ocular complications with topiramate use and permanent loss of visual acuity was seen in 7 cases (Rhee et al., 2006).

There have been reports of angle-closure and myopic shifts with topiramate. Studies show that in most cases glaucoma occurs within 2 weeks of initiation of topiramate or within hours of doubling dose of the drug. The mechanism of angle-closure glaucoma is not well understood. It is thought to be idiosyncratic reaction leading to cilio-choroidal effusion and forward displacement of lens iris diaphragm and can occur in otherwise normal eye. Hence in our opinion patient on topiramate therapy should be warned about the possibility of developing this potentially sight threatening complication and withdrawal of the drug early may be necessary.

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