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Case Report

Topiramate-Induced Bilateral Acute Angle-Closure Glaucoma in an Adolescent with Migraine: A Case Report

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ABSTRACT

Topiramate is a sulfamate-substituted monosaccharide commonly used for epilepsy and migraine prophylaxis. Although generally well tolerated, it may rarely precipitate bilateral acute angle-closure glaucoma (AACG), a potentially vision-threatening ophthalmic emergency. I report a 16-year-old girl who developed bilateral painful visual loss within 48 hours of initiation of low-dose topiramate 25 mg daily for migraine prophylaxis. Prompt recognition, discontinuation of the offending drug, and early ophthalmologic management resulted in complete visual recovery within one week. This case highlights the importance of early recognition of topiramate-induced angle closure, particularly in adolescents receiving low doses of the drug.

Keywords: *Topiramate-Induced, Bilateral Acute Angle-Closure Glaucoma, Adolescent, Migraine*

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INTRODUCTION

Topiramate is widely prescribed for epilepsy, migraine prophylaxis, mood disorders, and weight reduction. Ocular adverse effects associated with topiramate include acute myopia, ciliochoroidal effusion, and secondary bilateral angle-closure glaucoma.[1] Topiramate-induced angle closure is uncommon but may rapidly progress to severe visual impairment if not recognized early.[2] The mechanism differs from primary pupillary block glaucoma and is related to ciliary body edema and anterior displacement of the lens–iris diaphragm.[3] Most reported cases occur within the first two weeks of therapy, often after low doses.[4] I report a case of reversible bilateral acute angle-closure glaucoma induced by topiramate in a 16-year-old girl treated for migraine.

CASE PRESENTATION

A 16-year-old girl presented with sudden onset blurring of vision followed by severe ocular pain and progressive loss of vision in both eyes. The symptoms developed two days after starting topiramate 25 mg nightly for migraine prophylaxis. There was no history of ocular trauma, prior glaucoma, diabetes mellitus, or use of other medications.

On presentation, she complained of marked visual impairment associated with redness of both eyes and headache. Ophthalmologic examination revealed bilateral conjunctival congestion and shallow anterior chambers. Visual acuity had deteriorated to finger counting in both eyes. Intraocular pressure (IOP) was 30 mmHg in the right eye and 33 mmHg in the left eye. Slit-lamp examination demonstrated shallow anterior chambers with evidence of ciliary body edema. Fundoscopy showed slight enlargement of physiological cupping of optic disc without evidence of optic atrophy or retinal pathology.

Based on the temporal relationship with topiramate exposure and characteristic ocular findings, a diagnosis of topiramate-induced bilateral acute angle-closure glaucoma was made.

Topiramate was immediately discontinued. The patient was treated with topical beta-blocker eye drops and oral acetazolamide under ophthalmologic supervision. Over the following several days, ocular pain and redness gradually subsided, and intraocular pressure normalized. Her visual acuity returned completely to normal within seven days of treatment.

DISCUSSION

Topiramate-induced angle-closure glaucoma is a rare idiosyncratic adverse reaction first described in 2001.[5] Unlike primary angle-closure glaucoma, the pathophysiology is non-pupillary block in nature. Topiramate causes ciliochoroidal effusion leading to forward displacement of the lens–iris diaphragm, shallowing of the anterior chamber, and secondary angle closure.[3]

The condition is usually bilateral and commonly presents with acute onset blurred vision, ocular pain, redness, headache, halos around lights, nausea, and sudden myopic shift.[6] Symptoms typically appear within hours to two weeks after initiation or dose escalation of topiramate.[4] Although most cases have been reported in adults, pediatric and adolescent casess have also been described.[7]

Diagnosis depends on a high index of suspicion and careful drug history. Ophthalmologic examination typically demonstrates elevated intraocular pressure, shallow anterior chambers, corneal edema, and ciliochoroidal effusion.[8] Ultrasonography may demonstrate supraciliary effusion in some cases.

Management primarily involves immediate discontinuation of topiramate and initiation of antiglaucoma therapy. Aqueous suppressants such as topical beta blockers and systemic carbonic anhydrase inhibitors are commonly used.[2] Cycloplegic agents and corticosteroids may also be beneficial in severe cases.[8] Miotic agents such as pilocarpine should generally be avoided because they may worsen anterior displacement of the lens–iris diaphragm.[9] Laser peripheral iridotomy is usually ineffective because the mechanism is not pupillary block.[3]

Early diagnosis is crucial because visual loss is usually reversible with prompt treatment. Delayed recognition may result

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in permanent optic nerve damage and irreversible visual impairment.[10]

CONCLUSION

Topiramate can rarely cause bilateral acute angle-closure glaucoma even at low doses and within a short duration of therapy. Clinicians prescribing topiramate for migraine prophylaxis should be aware of this potentially sight-threatening complication. Early recognition, immediate withdrawal of the drug, and prompt ophthalmologic intervention can lead to complete visual recovery.

PATIENT CONSENT

Written informed consent was obtained from the patient's guardian for publication of this case report and accompanying clinical details.

CONFLICT OF INTEREST

No conflict of interest.

FUNDING

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