



## RARE SIDE EFFECT OF TOPIRAMATE - A CASE REPORT

**\*G SRINIVASAGOPALAN GOPALSAMY<sup>1</sup>, MURALI MOHAN<sup>2</sup>, SUDHAKAR SANKAR<sup>3</sup>.**

<sup>1</sup>Associate Professor, Department of Psychiatry, Meenakshi Medical College Hospital & Research Institute, Enathur, Kanchipuram, Tamil Nadu, India.

<sup>2</sup>Senior Resident, Department of Psychiatry, Madha Medical College and Hospital, Moonram Kattalai, Thandalam, Tamil Nadu, India.

<sup>3</sup>Asst. Professor, Chengalpattu Government Medical College Hospital, Chengalpattu, Kanchipuram, Tamilnadu, India.

\*Corresponding author email: drsrinivasagopalan1950@gmail.com

Received: 17<sup>th</sup> Apr 2015, Accepted: 09<sup>th</sup> May 2015.

### ABSTRACT

Topiramate (sulfamate-substituted monosaccharide) is a broad spectrum newer anti-convulsant. It is also used in prophylaxis of migraine, cluster headache, bipolar affective disorder, post traumatic stress disorder, post herpetic neuralgia, relapse prevention in alcohol dependence syndrome, add on treatment for antipsychotic induced weight gain. Acute Myopia and angle closure glaucoma are some of the rare side effects of topiramate. This case highlights the development of myopia in a middle aged patient with alcohol dependence syndrome while he was on topiramate therapy.

**KEYWORDS:** Topiramate, alcohol dependence syndrome, angle closure glaucoma, myopia.

### INTRODUCTION

Topiramate is a sulfamate substituted monosaccharide, a broad spectrum anticonvulsant acting on voltage dependent sodium channels, enhancement of gamma amino butyric acid (GABA), decrease in glutamate and inhibition of carbonic anhydrase. We (the psychiatrists) use topiramate to treat migraine, cluster headache, bipolar affective disorder, post traumatic stress disorder, post herpetic neuralgia, relapse prevention in alcohol dependence syndrome, add on treatment for antipsychotic induced weight gain<sup>[1]</sup>. Some of the rare side effects of topiramate are acute myopia and angle closure glaucoma. There have been rare reports of acute myopia with or without secondary angle closure glaucoma in adults and children receiving topiramate<sup>[2], [3]</sup>. We report a case of topiramate induced transient myopia in a patient who had been started on topiramate for relapse prevention in alcohol dependence syndrome.

### CASE REPORT

A 35 year old married male, lower middle socio economic status from rural background, working in a private company presented

to the outpatient services of our department of psychiatry with 10 years history of alcohol use amounting to dependence and two weeks history of blurred vision and headache. Patient was diagnosed as a case of alcohol dependence syndrome – uncomplicated withdrawal state (F10.30) as per International Classification of Diseases (ICD) -10 criteria. He was admitted for detoxification and on eliciting history; it was found that he had been commenced on oral topiramate 50 mg/day 3 weeks previously by a private psychiatrist for his alcohol use. The patient had no history of hypertension, diabetes or glaucoma, he had never worn glasses and there was no history of injury to eyes or head and no history of withdrawal seizures. He was referred to department of ophthalmology for blurred vision. Ophthalmic opinion on the day of admission suggested refractive errors bilaterally with left eye myopia of -2.5 diopters and right eye myopia of -3.5 diopters with shallow anterior chamber and normal pupils and lens on slit lamp examination and normal intra ocular pressure on tonometry. After this ophthalmologic report, topiramate was stopped immediately by us thinking that

it could have induced myopia. Other routine investigations were normal and detoxification with oral lorazepam and thiamine supplementation continued along with motivation enhancement sessions by psychologist. Patient reported gradual clinical improvement in his vision. Repeat ophthalmologic consultation on the 7<sup>th</sup> day of admission showed significant improvement in visual acuity and refraction with left eye - myopia of 0.75 diopters and right eye - myopia of 0.75 diopters. Because of our early intervention, angle closure glaucoma was averted in our case.

## DISCUSSION

The most frequently reported side effects for Topiramate are dizziness, mental slowing, somnolence, ataxia, impaired concentration and confusion<sup>[4]</sup>. Most of these are transient and observed during the initial weeks of therapy and can be reduced by slow titration of the dose. Anorexia and mild weight loss has been observed during the therapy. Metabolic acidosis, and nephrolithiasis are the other reported side effects. WHO Causality assessment<sup>[5]</sup> suggests abnormal vision, acute secondary angle closure glaucoma, acute myopia and suprachoroidal effusions are complications of Topiramate therapy. This case highlights and aims to raise awareness that topiramate can cause acute myopia and angle closure glaucoma. Both are reversible with immediate discontinuation of the drug<sup>[6]</sup>. Various authors have also reported these serious complications due to topiramate<sup>[6-8, 2 & 3]</sup>. The mechanism for topiramate induced angle closure glaucoma is by ciliochoroidal effusion with forward displacement of the lens – iris diaphragm and anterior chamber shallowing, resulting in acute myopia and angle closure glaucoma<sup>[6]</sup>. Topiramate has been reported to cause choroidal effusions, thereby anteriorly rotating the ciliary body and causing an angle closure glaucoma<sup>[9]</sup>. Topiramate's weak carbonic anhydrase inhibitor activity and prostaglandin mediated effects have also been postulated as possible mechanisms<sup>[10]</sup>. Acute myopia up to -9.0 diopters can occur in a matter of hours after starting topiramate, but might take weeks to fully resolve. Another study says onset of glaucoma usually starts between 1 and 49 days after starting topiramate therapy with 85% of case occurring within the first 2 weeks<sup>[11]</sup>.

Whenever a case of myopia with angle closure glaucoma and a shallow anterior chamber is encountered, ciliochoroidal effusion syndrome induced by drugs should be considered in the differential diagnosis. Drug induced myopia has also been associated with promethazine, spironolactone, tetracycline, corticosteroids etc.<sup>[7]</sup>. Pupils should not be dilated to prevent further angle closure and possible rise in pressure. Paediatric and developmentally delayed patients who have been started on topiramate should be closely monitored during the first 2 weeks of treatment.

## CONCLUSION

This case highlights the development of myopia in a middle aged patient with alcohol dependence syndrome while he was on topiramate therapy. It is important for the clinician to educate the patients about this serious adverse effect while prescribing topiramate and advise them to report immediately in the event of visual disturbance.

## CONFLICT OF INTEREST

Nil

## REFERENCES

- 1) Shivakumar V, Jayaram, N, Rao N P, and Venkatasubramanian G, 'Successful Use of add - on Topiramate for antipsychotic - induced weight gain', *Indian J Psychol Med*, 2012, 34; 85-6.
- 2) Gubbay S S. The occurrence of drug induced myopia as a transient side effect of topiramate. *Epilepsia*.1998;39:451.
- 3) Rhee D J et al. Bilateral angle closure glaucoma and ciliary body swelling from Topiramate. *Arch. Ophthalmol*. 2001, 119:1721-3.
- 4) Mikaeloff Y, A. de Saint-Martin, J. Mancini, S. Peudnier, J. M. Pedespan, L. Vallee, J. Motte, M. Bourgeois, A. et al 'Topiramate: Efficacy and Tolerability in Children According to Epilepsy Syndromes', *Epilepsy Res*, 2003, 53: 225-32.
- 5) Zaki S A. Adverse Drug Reaction and Causality Assessment Scales, *Lung India*, 2011, 28: 152-3.
- 6) Craig J E, Ong T J, Louis D L, and Wells J M, 'Mechanism of Topiramate-Induced Acute-Onset Myopia and Angle Closure Glaucoma', *Am J Ophthalmol*, 2004,137: 193-5.

- 7) Chen T C, Chao C W, and Sorkin J A, 'Topiramate Induced Myopic Shift and Angle Closure Glaucoma', *Br J Ophthalmol*, 2003, 87: 648-9.
- 8) Sen H A, O'Halloran H S, and Lee W B, 'Case Reports and Small Case Series: Topiramate-Induced Acute Myopia and Retinal Striae', *Arch Ophthalmol*, 2001, 119: 775-7.
- 9) Banta J T, Hoffman K, Budenz D L, et al. Presumed topiramate induced bilateral acute angle closure glaucoma. *American Journal of Ophthalmology*. 2009, 147: 447-452.
- 10) Desai C M, Ramchandani S J, Bhopale S G, and Ramchandani S S, 'Acute Myopia and Angle Closure Caused by Topiramate, a Drug Used for Prophylaxis of Migraine', *Indian J Ophthalmol*, 2006, 54: 195-7.
- 11) Fraunfelder F W et al Topiramate associated acute, bilateral secondary angle – closure glaucoma. *Ophthalmology* 2004, 111;109-11.