

Case Study on Analogy of Newton's three laws of motion to Topiramate induced myopia.



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INTRODUCTION

Myopia (nearsightedness) is a refractive error, a condition in which the cornea and lens of the non-accommodating eye have too much plus power for the length of eye. As a result, images of distant objects are focused in front of the retina and thus appear blurred. Transient drug-induced myopia is a myopia induced by a drug as a transient side effect. Several case reports of transient drug-induced myopia have been reported. Drugs known to produce this effect include sulfa drugs and other medications. The possible mechanism is thought to be an allergic reaction to the drug. Both ciliary muscle contraction and ciliary body edema may play role in the pathomechanism.²

CASE DETAILS

- ➡ A 21 year old female came at Rotary eye institute, Navsari complained of sudden painless dimness of vision with no c/o nausea and headache. Occasionally c/o watering in both the eyes since one day.
- ➡ Patient gave the history of migrainediagnosed since 1week and was under prescription since then. Patient was using Tab.Topiramate as an anti migraine drug. Further examination included-

SUBJECTIVE REFRACTION INITIAL DAY (7/5/19)

OBJECTIVE REFRACTION (DRY): WD-50CM						
EYE	SPH	CYL	AXIS			
RIGHT	-3.0	----	----			
LEFT	-3.0	----	----			
EYE	IOP	UCVA(DIST)	SPH	CYL	AXIS	VA
RIGHT	12	6/18p	-1.75	----	----	6/6
LEFT	12	6/18p	-1.75	----	----	6/6
NV						
RIGHT	ADD+ -----	SPH N6	READS AT 40 CMS			
LEFT	ADD+ -----	SPH N6	READS AT 40 CMS			
RETINOSCOPY(WET): (slight variable glow) WD-50cm						
EYE	SPH	CYL	AXIS			
RIGHT	-0.75	----	----			
LEFT	-0.75	----	----			

SLE: OU – Anterior chamber within normal limits.

FUNDUS: OU – retina on, CD 0.3(OU)

ADVISED: The patient was asked to consult the physician to stop/change the current drug for migraine. And was asked to recheck on the next day.

FOLLOW UP DAY (8/5/19)

DV	IOP	UCVA	SPH	CYL	AXIS	VA
RIGHT	14	6/6	PLANO	----	----	6/6
LEFT	14	6/6	PLANO	----	----	6/6
NV						
RIGHT	ADD+ -----	SPH N6	READS AT 40 CMS			
LEFT	ADD+ -----	SPH N6	READS AT 40 CMS			

SLE: OU – Sclera/conjunctiva – normal , Lens/corneal/Ant chamber - clear

FUNDUS: OU – Retina on, CD 0.3(OU)

GONIOSCOPY: OU - All structures were found to be normal.

MANAGEMENT

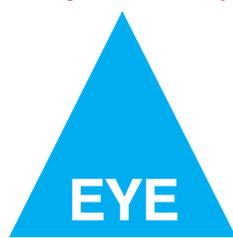
Ceasing the use of Topiramate and use of any other class of anti migraine drug. Monitoring of IOP every three months.

DIFFERENTIAL DIAGNOSIS

- ➡ Pseudomyopia
- ➡ Accommodative infacility
- ➡ Drug induced myopia

DISCUSSION

Topiramate (Anti-epileptic drug)



Structural changes (Shallow AC) Myopia (may or may not associated with Glaucoma)

Topiramate is a structurally novel antiepileptic drug. It is rapidly absorbed and has a relatively long half-life (20-30 hours). Differential diagnosis is made with a number of

conditions, either ocular in origin or associated with an underlying systemic cause.² Discontinuation of medications leads to complete resolution of the anatomic shift.³

REFERENCES

- 1) Rotary eye institute, Navsari, Gujarat.
- 2) Transient Drug-Induced Myopia, Kaimbo DKW*
- 3) Topiramate-Induced Acute Myopia and Retinal Striae, ARCH OPHTHALMOL/VOL 119, MAY 2001

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