

Acute Onset Bilateral Myopia Induced by Chlordiazepoxide

Adel Hamid¹, Mehrnoosh Maalagh¹, Meisam Ghanbari¹, Vahid Beigi^{1,*}

¹ Poostchi Ophthalmology Research Center, Department of Ophthalmology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.

Abstract

Oral drugs may have adverse effects that affect vision. There are some drugs that are confirmed to induce ciliary effusion such as topiramate and hydrochlorothiazide. Different mechanism for myopic shift have been explained. Most of these mechanisms are related to choroidal effusion and increasing the lens thickness. Here we present a case of sudden onset decreased vision after consumption of chlordiazepoxide for a while. to the best of our knowledge this is the first case of myopic shift after chlordiazepoxide consumption.

Keywords: Acute Onset Bilateral Myopia, Myopia, Chlordiazepoxide.

Background

There are several reports of myopic shift after blunt ocular trauma and drug consumption. Two drugs which are popular to cause ciliary effusion and angle closure glaucoma are topiramate and hydrochlorothiazide. Ciliary effusion leads to shallow anterior chamber, increasing lens thickness and shift of lens iris diaphragm forward. Rising of intraocular pressure and angle closure glaucoma are the consequences of the ciliary effusion and eventually myopic shift will occur. The myopic shift will resolve after drug cession within 10-14 days(1-3). We present a case of acute onset bilateral myopia after consumption of chlordiazepoxide.

Case presentation

A 45-year-old woman referred to ophthalmology clinic with chief complaint of sudden onset blurred vision for 2 weeks. Uncorrected distance visual acuity (UDVA) in both eyes were 20/40.

Corrected distance visual acuity (CDVA)

Corresponding Author: Vahid Beigi, Poostchi Ophthalmology Research Center, Department of Ophthalmology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: v.beigi66@gmail.com

in both eyes were 20/20. Both eyes had -3.5 diopter refractive error. As the patient declared, she had no significant refractive error before her referral and did not use glasses for far distance visual acuity.

External eye examination showed no significant abnormality. There was no disturbance in extraocular muscle motility. Relative afferent pupillary defect (RAPD) was not detected. Slit lamp examination had no remarkable findings. Cornea was clear, anterior chamber depth was normal, crystalline lens had no nuclear sclerosis in favor of cataract. Iris was normal and nothing was found to declare previous ocular trauma.

Macular Spectral domain optical coherence tomography (SD-OCT) and ocular sonography was performed to clarify if there was macular involvement or choroidal effusion, but nothing was found to explain the reason for the decreased visual acuity.

Patient had no history of hypertension and diabetes or other systemic diseases, and didn't use any medication. The patient's physician had prescribed chlordiazepoxide 1month prior to referral and the patient had taken 1 tablet every night.

The only possibility that could explain this

myopic shift was the history of recent chlordiazepoxide consumption. The drug was discontinued and after 10 days, vision and refractive error recovery occurred (-0.5 diopter sphere).

Discussion

Chlordiazepoxide is a member of the benzodiazepine class of drugs and is prescribed for treatment of anxiety disorders (1). To the best of our knowledge there is no report of myopic shift after chlordiazepoxide use.

Transient myopic shift has several etiologies such as: ciliary spasm, uveal effusion, supra ciliary edema. All these etiologies cause myopia by affecting lens thickness (2, 3).

Ciliary spasm may happen due to trauma or after anxiety (spasm of near reflex). Diagnosis of ciliary spasm is determined by cycloplegic drops that can reverse the myopia (4). Uveal effusion and supra ciliary edema are conditions that can be determined by ultrasound biomicroscopy (UBM)(5).

Blunt ocular trauma and sulfa related compounds such as topiramate and hydrochlorothiazide can cause ciliary effusion. Decrease in

References

1. López-Muñoz F, Álamo C, García-García P. The discovery of chlordiazepoxide and the clinical introduction of benzodiazepines: half a century of anxiolytic drugs. *J Anxiety Disord.* 2011;25:554-62.
2. Chalam KV, Tillis T, Syed F, Agarwal S, Brar VS. Acute bilateral simultaneous angle closure glaucoma after topiramate administration: a case report. *J Med Case Rep.* 2008;2:1.
3. Kim SI, Cha YJ, Park SE. A case report

the anterior chamber depth and an increase in the lens thickness lead to myopic shift. This transient myopic shift will resolve within an average duration of three months after blunt trauma. The myopic shift following use of sulfa drugs will resolve within 10-14 days after discontinuation of these drugs (3, 5).

In this case the transient myopic shift can be related to the same process as the mentioned drugs. Ciliary effusion in this case might be very subtle and therefore was not evident in imaging techniques.

To claim the ciliary effusion induced by chlordiazepoxide further investigations are needed.

Acknowledgement

We appreciate our coworker in the ophthalmology department of our clinic & also the patient that permitted us to use his data as a case report.

Conflict of Interest

None declared.

on the change of the refractive power after a blunt trauma. *Korean J Ophthalmol.* 2008;22:53-7.

4. Roh Y-R, Woo SJ, Park KH. Acute-onset bilateral myopia and ciliochoroidal effusion induced by hydrochlorothiazide. *Korean J Ophthalmol.* 2011;25:214-7.

5. Abtahi M-A, Abtahi S-H, Fazel F, Roomizadeh P, Etemadifar M, Jenab K, et al. Topiramate and the vision: a systematic review. *Clin Ophthalmol.* 2012;6:117-31.