Acute Myopia Induced by Topiramate Plus Phentermine for the Treatment of Obesity

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Abstract

Topiramate (TPM) is currently used for the treatment of epilepsy, migraine prophylaxis, bipolar diseases, and post-traumatic stress disorders [1,2]. The best known and most common ophthalmic complication of TPM is the acute onset of ciliochoroidal effusion syndrome [1]. Recently, Topiramate (TPM) plus phentermine in conjunction with lifestyle modification may provide a well-tolerated and effective option for the sustained treatment of obesity complicated by cardiometabolic disease without significant adverse effects compared to the control groups [3,4]. We are reporting the case of an overweight young girl with acute progressive myopia due to topiramate, which was being used to treat her obesity.

Introduction

Topiramate (TPM) is currently used for the treatment of epilepsy, migraine prophylaxis, bipolar diseases, and post-traumatic stress disorders [1,2]. The best known and most common ophthalmic complication of TPM is the acute onset of ciliochoroidal effusion syndrome [1]. Recently, Topiramate (TPM) plus phentermine in conjunction with lifestyle modification may provide a well-tolerated and effective option for the sustained treatment of obesity complicated by cardiometabolic disease without significant adverse effects compared to the control groups [3,4]. We are reporting the case of an overweight young girl with acute progressive myopia due to topiramate, which was being used to treat her obesity.

Case Report

A 14-year-old girl complaining of acute bilateral blurred vision since the previous day was admitted to the emergency department. Her visual acuity had previously not necessitated corrective eyewear. She was overweight; her height was 159cm and her weight was 60kg (body mass index = 23.7). She had visited a local family medicine clinic for obesity management three days ago and had been prescribed topiramate 25mg, phentermine 15mg and fluoxetine 10mg once a day to reduce her body weight. She had been taking the drugs for two days before the onset of overweight; her height was 159cm and her weight was 60kg (body mass index = 23.7). She had visited a local family medicine clinic for obesity management three days ago and had been prescribed topiramate 25mg, phentermine 15mg and fluoxetine 10mg once a day to reduce her body weight. She had been taking the drugs for two days before the onset of acute blurred vision. She did not show any noticeable findings on the initial physical examination, nor did she have any history relevant to her symptoms. Her blurred vision was therefore thought to be drug-induced.

On ophthalmic examination, both pupils were normal and bilaterally reactive to light. Extraocular muscle movement was fully intact. Uncorrected visual acuity was 0.02, oculus dexter (OD)/0.04, oculus sinister (OS). Automated refraction revealed bilateral myopia with spherical equivalents of -10.5-diopters (D), OD/ -10.0 D, OS. Slit-lamp examination revealed no conjunctival injection, a clear cornea, and shallow and clear anterior chambers (anterior chamber depth: 2.19mm, OD/2.30mm, OS). Intraocular pressures were bilaterally measured at normal values (13mmHg, OU) (Table 1). The color vision test was also normal. Fundoscopic examination showed macular striae radiating from the fovea and a cellophane-like reflex (Figure 1). Optical Coherence Tomography (OCT) revealed undulating profiles with congruent retinal and choroidal layers plicae (Figure 2). Macular striae on fundoscopic examination and undulating profiles on OCT images were interpreted as a result of an effusion syndrome confined to the macular choriocapillaris. She was diagnosed with topiramate-induced myopia. The topiramate was discontinued immediately and cycloplegics (atropine) were administered during 3days. The patient followed up with her ophthalmologist. Ten days later her visual acuity returned to normal and she had no lasting visual complaints. All ocular changes had disappeared (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Uncorrected VA</th>
<th>Refraction</th>
<th>Anterior chamber depth (mm)</th>
<th>IOP (mmHg)</th>
<th>Macular edema</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 ago</td>
<td>OD 1.0</td>
<td>-10.50D (1.0)</td>
<td>2.19</td>
<td>13</td>
<td>Slightly</td>
</tr>
<tr>
<td>(at clinic)</td>
<td>OS 1.0</td>
<td>-10.00D(1.0)</td>
<td>2.30</td>
<td>13</td>
<td>Slightly</td>
</tr>
<tr>
<td>presentation</td>
<td>OD 0.02</td>
<td>-1.05D(0.8)</td>
<td>3.56</td>
<td>12</td>
<td>Deep</td>
</tr>
<tr>
<td>OS 0.04</td>
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<td>3.61</td>
<td>12</td>
<td></td>
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</tr>
<tr>
<td>1day later</td>
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<td>3.66</td>
<td>13</td>
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</tr>
<tr>
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<td>12</td>
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<tr>
<td>3days later</td>
<td>OD 0.7</td>
<td>+0.25D(0.8)</td>
<td>3.70</td>
<td>14</td>
<td>Absent</td>
</tr>
<tr>
<td>OS 0.7</td>
<td>+0.25D(0.8)</td>
<td>3.70</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10days later</td>
<td>OD 1.0</td>
<td>-0.25D(1.0)</td>
<td>Deep</td>
<td>14</td>
<td>Absent</td>
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<tr>
<td>OS 0.9</td>
<td>-0.25D(1.0)</td>
<td>Deep</td>
<td>14</td>
<td></td>
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</tbody>
</table>

*: The result was cycloplegic refraction

Table 1: Clinical and Ocular examination parameters at presentation and 10 days after cessation of topiramate.
Other topiramate ocular side effects were reported in the previous case reports. TPM-induced ocular inflammatory reactions [11], retinal side effects [12], visual field defects were reported [13]. Similar to this case, several case report reveal topiramate-induced maculopathy [14-16]. Untreated maculopathy may cause severe and irreversible disorder if topiramate is not promptly discontinued.

In conclusion, general physicians will have to be aware of these potential complications. Furthermore, it is essential for patients to be educated and warned when prescribed topiramate for the treatment of obesity.

References
7. MEDICATION GUIDE TOPAMAX® (TOE-PA-MAX) (topiramate) Tablets and Sprinkle Capsules.