

Transient Anisocoria During Wheezy Infant Treatment due to Ipratropium-Bromide

Hışılı İnfant Tedavisinde İpratropium-Bromide Bağlı Geçici Anizokori

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Abstract

Anisocoria may be an early sign of a neurological emergency in infants. Physicians are concerned about possible intracranial neoplasm, aneurysm or subdural hematoma which often precipitates actions that lead to extensive neuroradiological investigations. Sometimes drug-related pupil dilatation is the cause of a dilated pupil without any history or evidence of neurological diseases. Herein, we present an infant who had chemical dilation of the pupil resulting from inappropriate ipratropium use.

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Key words: Anisocoria, ipratropium

Özet

Anizokori, infantlarda nörolojik acillerde erken bir bulgu olabilir. Hekimler olası intrakranial neoplazi, anevrizma veya subdural hematoma açısından sıklıkla yoğun nöroradyolojik araştırmalara yönelmektedir. Bazen ilaç ilişkili pupil dilatasyonu, nörolojik hastalık olmaksızın dilate pupile neden olabilir. Bu yazıda, uygunsuz ipratropium kullanımına bağlı kimyasal pupil dilatasyonu olan bir infant sunulmuştur.

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Anahtar kelimeler: Anizokori, ipratropiumi

Case Report

A 7-month-old boy attended the Pediatric Allergy and Immunology Clinic with recurrent bronchiolitis attacks. He had three wheezing episodes in his past medical history. He had been using both salbutamol and ipratropium bromide inhaler therapy by nebulizator and face-mask. On examination, the infant was found to be well with bilateral sibilant rhonchus and a unilateral right dilated pupil, which did not react to light (Figure 1). There was no sign or history of recent trauma. Cranial nerves neurological and systemic examinations were normal. He was sent for consultation with an ophthalmologist and ocular examination was found normal except that the right pupil was 7 mm, and the left was 3 mm in diameter. The pupil did not constrict when pilocarpine drops of 1% concentration were applied to the eye, indicating a pharmacological cause for the mydriasis (Figure 2).

By the next day, the symptom had completely resolved. On detailed history, it was learnt that mother had applied the drugs directly to his face without using a facemask.

Discussion

Anisocoria or unequal pupil size is an alarming physical sign, leading most of the time to an extensive and expensive neuroradiologic investigation to rule out life-threatening conditions such as cerebral tumor, expanding aneurysm or intracranial bleeding (1, 2). Some pharmacological agents can cause anisocoria. Koehler described pharmacological anisocoria due to the motion sickness medication Transderm V (3). The first report of ipratropium-bromide induced anisocoria was published in 1986 (4). Most reported cases occurred in pediatric patients, because in this population maintaining a proper face mask fit during respiratory treatments is

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Figure 1. Unilateral right dilated pupil in our case before pilocarpin use



Figure 2. Persistence of unilateral right dilated pupil in our case after pilocarpin use

particular difficult (5). Ipratropium bromide, which is used frequently as a bronchodilator in patients with bronchospasm, is a direct antagonist of muscarinic cholinergic receptors. Contamination of the eye from nebulized ipratropium bromide leads to asymmetric pupillary dilation by paralyzing the parasympathetic nerve endings. The anisocoria usually resolves within 48 hours of removal of the agent but sometimes may last up to 3 weeks after the agent is stopped (6). Other manifestations of ipratropium exposure include bilateral mydriasis, cycloplegia, blurred vision, dry eyes, and acute glaucoma (7). Failure of the dilated pupil to constrict after installation of 1% of pilocarpin hydrochloride confirms the diagnosis.

Inhaled agents such as salbutamol, ipratropium bromide, and budesonide are the main therapeutics for wheezy infants, and asthma. Several studies have suggested that there is no increased risk for eyes in infants and children. However, while inhaling the agent there might be a leakage around the facemask affecting the

eye directly as a topical agent (8-10). In our patient, ipratropium bromide was administered directly to the face without using a facemask. Patients should be advised that temporary blurring of vision, precipitation or worsening of narrow-angle glaucoma, mydriasis, increased intraocular pressure, acute eye pain or discomfort, visual halos or colored images in association with red eyes from conjunctival and corneal congestion may result if ipratropium bromide comes into direct contact with the eyes. Patients should be instructed to avoid using ipratropium bromide in or around their eyes.

Anisocoria can be a worrying sign, requiring extensive investigation. Ipratropium bromide should be considered in the first step of differential diagnosis of patients with anisocoria to avoid unnecessary anxiety and investigation. Because of the increasing use of inhaled anticholinergics for the treatment of small airflow obstruction, pediatricians should be careful regarding pharmacological side effects.

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