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CYCLOPENTOLATE AND GRAND MAL SEIZURE

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ABSTRACT

The author describes a case of grand mal seizures that occured on two occasions after ocular instillation of cyclopentolate 2 % for refraction in a 11-year old epileptic girl. The first and the second crisis developed respectively 45 and 30 minutes after instillation of the drug. Cyclopentolate should be contraindicated in known epileptic children.

RESUME

L'auteur rapporte le cas d'une fille de 11 ans, épileptique connue, qui a développé à deux reprises des crises convulsives de type grand mal chaque fois après instillation de cyclopentolate collyre 2 %. Les crises sont survenues respectivement 45 et 30 minutes après l'usage du produit. Ce produit devrait être contre-indiqué chez les enfants épileptiques.

KEY WORDS

Cyclopentolate, grand mal seizure.

MOTS CLES

Cyclopentolate, crise convulsive grand mal.

Cyclopentolate (Cyclogyl®) is an effective synthetic parasympatholytic agent of great value for inducing cycloplegia and excellent mydriasis. Its cycloplegic effect is superior to that of homatropine, having a more rapid onset and shorter duration. Ophthalmic indications of this drug include mainly cycloplegic refraction and secondaryly iridocyclitis and surgical operations needing preoperative and postoperative mydriasis (3,4).

Ocular instillation of cyclopentolate may cause considerable discomfort such as burning sensation, increase of the intraocular pressure, precipation of an attack of acute glaucoma in predisposed patients and transient neurotoxic effects in children. These reactions are more common with the 2% solution (3).

We report herein a case of grand mal seizures after ocular instillation of cyclopentolate 2% for refraction.

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CASE REPORT

In September 1998, a 11-year old girl was seen for reduced vision, headache and poor school marks. Four years earlier, she had been diagnosed as having idiopatic epilepsia and since then she developed more than eight crises of grand mal seizure. She was regularly seen by her neurologist and treated with oral carbamazepine. The last crisis occured in July 1997. On ophthalmic examination her visual acuity was 2/10 RE and 1/10 LE. Keratometry showed an astigmatism of +3,5 RE and + 4 LE in the vertical meridians. Pupillary reflex, ocular motility, slit-lamp biomicroscopy and direct ophthalmoscopy were normal in both eyes. Her mother was instructed to instill four drops of cyclopentolate 2% 15 minutes apart within an hour for cycloplegic refraction. After instillation of 3 drops of the drug in each eye, the patient suddenly developed a typical grand mal seizure crisis that resolved spontaneously. Because of this incident, the refraction was not measured and we decided to recall the patient ten days later. At this second attempt to cycloplegia she developed another grand mal seizure crisis after instillation of 2 drops of the drug in each eye. These accidents justified neurologic and pediatric examinations which were found to be normal.

We decided then to perform retinoscopy after instillation of atropine 0,5% (2 drops daily in each eye during 3 days). The use of atropine was well tolerated and the retinoscopy showed a bilateral with-the-rule myopic astigmatism.

COMMENT

Ocular instillation of cyclopentolate has been associated with several cases of central nervous system disturbances in children. These include marked ataxia, visual hallucinations, incoherent speech, restlessness, irrelevant talking, amnesia and faulty orientation as to time and place (1,2). These psychiatric reactions are thought to be due to the dimethylated group (- N-$[CH_3]_2$) contained in cyclopentolate and in some other hallucinogenic drugs (4).

Grand mal seizures have however been rarely reported after cyclopentolate use in children. Kennerdell et al (5) reported two cases, respectively in a 11-month old boy and a 11-year old epileptic boy. The causal relationship between cyclopentolate and seizures however is difficult to prove. Our patient developed grand mal seizures on two occasions, respectively 45 and 30 minutes after instillation of cyclopentolate 2% in each eye. In addition, at the time of this drug use, she was healthy apart the fact that she was known epileptic. Neurologic and pediatric examinations were normal. In our patient the relation of these crisis of grand mal seizures to cyclopentolate 2% toxicity is quite likely.

The mechanism by which this drug induces grand mal seizures is unknown. Our observation suggests that it is not due to the anticholinergic effect of the drug, but rather to a specific toxicity of Cyclopentolate.

In conclusion, this drug should be contraindicated in known epileptic children.

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