Bilateral angle-closure glaucoma secondary to selective serotonin reuptake inhibitor

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Background: Depression is a common illness with significant morbidity and mortality with antidepressants frequently being prescribed by general practitioners. Tricyclic antidepressants are well known to precipitate angle-closure glaucoma via their anticholinergic effects but more recently there have been reports of selective serotonin reuptake inhibitors also giving rise to episodes of angle-closure glaucoma.
Case presentation: We describe the case of a 73-year-old woman who developed an attack of bilateral angle-closure glaucoma shortly after taking her first dose of paroxetine. Presentation was delayed because the patient was unaware of the potential for paroxetine to have ophthalmic side effects. **Conclusions:** Hopefully, with an increased awareness of this problem, patients will present earlier with a consequent decrease in ocular morbidity.

Depression is a common illness with significant morbidity and mortality, and antidepressants are frequently prescribed by general practitioners (GPs). The prevalence of 12-month and lifetime major depressive disorder have been estimated as 5.3 and 13.2%, respectively [1]. British GPs wrote 13 million prescriptions for antidepressants in the year ending August 1994, a significant proportion of which were for selective serotonin reuptake inhibitors (SSRIs) [2]. Tricyclic antidepressants (TCAs) are known to precipitate an attack of angle-closure glaucoma (ACG) in susceptible patients via their anticholinergic effects [3], but more recently, there have been reports of the newer SSRIs also giving rise to episodes of ACG [4–8]. We report the case of a 73-year-old woman who developed an attack of bilateral ACG shortly after taking her first dose of paroxetine. Presentation was delayed because the patient was unaware of the potential for paroxetine to have ophthalmic side effects. Hopefully, with an increased awareness of this problem, patients will present earlier with a consequent decrease in ocular morbidity.

Case report

A 73-year-old woman suffering with anxiety and depression was started on paroxetine by her GP. 3 hours after taking her first dose she developed severe headache, blurred vision, nausea and vomiting. The headache and vomiting slowly resolved over the next day but the blurred vision persisted. She contacted her GP 3 days later who referred her to the ophthalmology department. She wore glasses for hypermetropia (refractive error of 4.5 diopter sphere bilaterally).

On examination, visual acuities were hand movements bilaterally. There was marked conjunctival injection with diffuse corneal edema, shallow anterior chambers, fixed mid-dilated pupils and moderate nuclear sclerotic cataracts bilaterally. Intraocular pressures were 72 mmHg right and left (normal range 10–21 mmHg). These findings were felt to be consistent with bilateral ACG precipitated by paroxetine.

Treatment was initiated with 500 mg intravenous acetazolamide followed by guttae pilocarpine 4% to both eyes every 5 min for 15 min. An hour later, the pressures had reduced to 54 mmHg right and 56 mmHg left. Guttae cosopt twice a day and guttae betnesol four times a day were commenced and 200 ml mannitol 20% was given intravenously. 2 hours following this, the pressures had fallen to 30 mmHg right and 28 mmHg left. Bilateral yttrium aluminum garnet (YAG) laser iridotomies were then performed the same day and the pressures dropped to 18 and 14 mmHg left.

The guttae betnesol was slowly tapered to stop over 3 weeks. 4 weeks following initial presentation Snellen visual acuities were 6/60 right and 6/24 left and intraocular pressures were controlled at 12 mmHg right and 18 mmHg left. Gonioscopy revealed narrow but open angles bilaterally. Optic discs appeared pale but with intact neuroretinal rims.

Discussion

ACG is a severe, sight-threatening condition that can cause significant visual morbidity in the elderly. Prompt management is essential to prevent irreversible visual loss. The incidence is approximately 1/1000 and occurs more

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Highlights

- Drugs with adrenergic and anticholinergic properties may precipitate angle-closure glaucoma.
- These drugs include tricylcic antidepressants, ipratropium and serotonin-selective reuptake inhibitors.
- Patients commenced on these drugs should be warned of the risk of ophthalmic symptoms (painful red eye, blurring of vision, headache) especially those at risk (elderly, female, hypermetropic).

commonly in females than males in the age range 55–70 years. Susceptible patients are those with shallow anterior chambers who often have a hypermetropic refractive error. Hypermetropic individuals wear convex spectacle lenses and these can be identified as they act as a magnifier when held over small print.

The initiating event in acute ACG is incomplete mydriasis (pupil dilation) resulting in pupil block and the prevention of aqueous drainage through the trabecular meshwork. This partial mydriasis is normally caused by poor ambient lighting conditions, but drugs with adrenergic and anticholinergic properties have also been identified as causative agents. These drugs include the TCAs [3] and ipratropium [9]. More recently, the SSRIs such as paroxetine [4–7] and fluoxetine [8] have been implicated via their anticholinergic properties. The SSRIs have a lower incidence of anticholinergic effects than TCAs but some still remain [10].

Other authors suggest a serotoninergic mechanism [4,7]. Serotonin receptors have been described in the rabbit iris and ciliary body and stimulation with serotonin induces mydriasis and raises intraocular pressure in animal studies. In humans, the potent SSRI, indalpine, has been found to cause mydriasis. In cases where a serotoninergic mechanism is suggested, the patients did not develop ACG until approximately 2 weeks after commencing paroxetine. Latency in these cases correlates with the mechanism of action of SSRIs, which give rise to a gradual increase in postsynaptic levels of serotonin [10].

Our case, however, resulted in an episode of ACG 3 hours after the first dose of paroxetine, which would suggest an anticholinergic mechanism of action. This correlates with the pharamacokinetics of paroxetine with maximal blood levels being reached 2–8 h after oral administration [11].

Expert commentary & outlook

This case is important because our patient was unaware that ACG is a potential side effect of paroxetine, which resulted in a delayed attendance at the ophthalmology department of 3 days. We would therefore recommend that patients who are commenced on SSRIs be warned of the risk of ophthalmic symptoms (painful red eye, blurring of vision, headache) especially those that are at risk (i.e., elderly, female, hypermetropic). This will hopefully result in reduced ocular morbidity in those patients that are unfortunate enough to develop this complication.

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