Cystoid macular edema associated with chemotherapy

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A 45-year-old woman with recurrent breast cancer, who was otherwise healthy, presented to the ophthalmology clinic with a one-month history of decreased vision in both eyes. On examination, her visual acuity was 0.05 and her intraocular pressure was 14 mm Hg in both eyes. Slit-lamp examination showed asymmetric optic discs and cystoid macular edema (Figure 1A and B). Fluorescein angiography showed only trace leakage from the retinal capillaries (Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.131080/-DC1). The differential diagnosis for cystoid macular edema without substantial leakage includes nicotinic acid–associated maculopathy, X-linked juvenile retinoschisis, various forms of retinitis pigmentosa and taxane-associated maculopathy (e.g., paclitaxel and docetaxel).

A review of the patient’s medications showed that she had received weekly treatment with nanoparticle albumin-bound paclitaxel (130 mg/m²) several months prior to this visit. She was not taking nicotinic acid, and there were no symptoms or a family history suggestive of retinitis pigmentosa. The findings in this case were consistent with taxane-associated maculopathy. After consultation with her oncologist, the patient discontinued treatment with nanoparticle albumin-bound paclitaxel, and, on follow-up examination, her vision had improved to 0.32 and 0.625 in the right and left eye, respectively. Consistent with this improvement, clinical examination confirmed a mild decrease in the cystoid macular edema, although imaging was not performed. Unfortunately, the patient died of complications associated with breast cancer after the follow-up visit.

Nanoparticle albumin-bound paclitaxel is a microtubule-stabilizing agent used to treat advanced breast, pancreatic, lung and ovarian cancers. This formulation and other taxanes, including paclitaxel and docetaxel, are linked to a serious toxic effect: reversible cystoid macular edema. Changes in vision have been reported in 13% of patients taking nanoparticle albumin-bound paclitaxel; visual disturbances were severe in only 1% of patients. Most toxic effects related to nanoparticle albumin-bound paclitaxel have involved the anterior segment (e.g., dry eye, keratitis) and doses greater than 300–375 mg/m². Previous approaches used to treat taxane-associated maculopathy have included discontinuation of the drug, topical carbonic anhydrase agents and intravitreal injection of antivascular endothelial factor antibodies. The efficacy of the pharmacologic approaches remains unknown because of the small number of patients. Clinicians caring for patients undergoing taxane-based chemotherapy should remain alert to changes in vision and consider prompt referral to an ophthalmologist, because cessation of treatment can be associated with improvement in vision.

References

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