Comunicações Curtas e Casos Clínicos

Bull’s Eye Maculopathy in a patient treated with efavirenz

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ABSTRACT

Objective: To report a case of retinal toxicity associated with efavirenz in an adult. Methods: We describe a case of gradual-onset blurry vision in both eyes in a 37-year-old HIV caucasian woman, on antiretroviral therapy (ART), including efavirenz. Results: The patient presented with a best corrected visual acuity of 20/100 for the right eye (RE) and 20/25 for the left eye (LE). Fundoscopy revealed mottled atrophic changes of the macular retinal pigment epithelium (RPE) in both eyes. Fluorescein angiography revealed an annular pattern of RPE atrophy in both eyes. Full-field electretinography (ERG) was normal. Conclusions: Based on our patient’s history and on previous reports, efavirenz seems to be the culprit in this case. Our report provides evidence in support of routine ophthalmological evaluation of patients on efavirenz.

Keywords
Efavirenz, retinal toxicity. HIV, retinal pigment epithelium.

INTRODUCTION

Approximately three dozen medications have been associated with retinal toxicity1.

Efavirenz (EFV) is a non-nucleoside reverse transcriptase inhibitor used in the management of HIV infection. Well-known extraocular side effects are headache, sleep disturbances, depression, fatigue and dermatological changes.

We present a case of structural and functional retinal changes in a patient medicated with EFV.

METHODS

A 37-year-old caucasian woman, with HIV-1 and HCV co-infection detected in 1996, presented with complaints of blurry vision, which she had begun to notice 4 years prior.

Adherence to follow-up on systemic infection was poor, and she had only been medicated with antiretroviral therapy (ART) during her pregnancies: in 1996 with zidovudine (ZDV); 2002 with ZDV/lamivudine and nevirapine (NVP) and in 2004 with didanosine, lamivudine and NVP.

In 2007 her CD4+ count was 41 cells/mm³ (1.8%) and she was initiated on fixed combination tenofovir/emtricitabine and lopinavir/ritonavir, which she had stopped in the first month.

In December 2009 she appeared with a CD4+ count of 238 cells/mm³ and HIV viral load of 69498 copies/mL and started tenofovir/emtricitabine and EFV. Since this time CD4+ count have kept above 300 cells/mm³ and viral load has been undetectable.

After start on EFV she report dizziness in the morning,
trouble sleeping and tiredness and three months later the patient started to notice progressive loss of vision in both eyes and started to have an irregular adherence.

During follow-up the patient had no AIDS-defining illness.

Our first ophthalmological evaluation of this patient occurred in April 2013 and was thus performed after a cumulative period of 24 months with EFV, and 10 months after last ingestion of the drug, according to the patient.

At presentation best corrected visual acuity was 30/160 for the right eye (RE) and 20/125 for the left eye (LE). Slit-lamp and intra-ocular pressure was normal in both eyes. Dilated fundus examination revealed marked atrophic changes of the macular retinal pigment epithelium (RPE), in a bull's eye pattern, more marked in the LE (figure 1), with no other visible abnormalities.

Fluorescein angiography showed early marked hyperfluorescence in the macula of both eyes, in a bull's eye pattern, consistent with bull's eye atrophy of the RPE (figure 2).

**Fig. 1** (A), (B) Colour photographs showing marked atrophic changes of the macular RPE, in a bull's eye pattern, in both eyes.

**Fig. 3** (A), (B) Fluorescein angiography showing a ring-shaped RPE defect in the macula of both eyes.

**Fig. 2** (A), (B) Macular optical coherence tomography (OCT) revealing thinning of the retina, more evident in the temporal region of the fovea, at the expense of the outer layers of the retina, with almost total absence of the photoreceptors line (figure 3).

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Full-field electroretinography (ERG) was normal.

Chromatoscopy was normal; VDRL was negative, and cytomegalovirus (CMV) virusemia was negative.

The patient refers no family history of retinal disorders.

**DISCUSSION**

Ocular manifestations in AIDS patients are classically related to low CD4 counts, especially HIV-related microangiopathy and CMV retinitis. Our patient presented with a low CD4 count during a short period and many years before the ocular complaints, with CMV virusemia negative.
Since she was started on EFV she began to notice serious CNS side effects, followed by the visual complains.

However EFV is the most commonly used medication in ART and there is only one case of epitheliopathy linked with EFV11.

CONCLUSION

Although it’s an unusual report, despite the huge number of patients on EFV, together with the other similar case reported12, we believe that the visual defect it’s due to EFV and could justify the routine evaluation of, at least, some patients with the most serious CNS side effects, believing that these patients have an increased plasma concentration of the drug.

REFERENCES

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