CASE REPORT

Orbital floor triamcinolone causing Cushing's syndrome in a patient treated with Kaletra for HIV 1

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SUMMARY

We report the first known case of iatrogenic cushingoid features following orbital floor triamcinolone, a synthetic corticosteroid, in a patient taking Kaletra (200 mg lopinavir/50 mg ritonavir) twice daily and Truvada (tenofovir/emtricitabine) once daily for HIV 1. Previous reports have included similar findings following epidural triamcinolone injections and with inhaled fluticasone.

CASE PRESENTATION

A 39-year-old Ecuadorian woman was initially diagnosed with HIV 1 in 2002 when she presented with disseminated cytomegalovirus (CMV) retinitis and colitis, and mycobacterium avium-intracellulare disease.^{1 2}

She was an inpatient for 11 weeks. Initial CD4 count was 8 cells/mm³, with HIV 1 viral load of greater than 5 00 000 copies/ml. Figure 1 shows the CD4, CD8 cell counts and HIV 1 viral load.

As a result of the CMV retinitis infection she was left blind (NPL) in her right eye (figure 2), with low vision in the left and a small visual field due to extensive retinal involvement and secondary optic atrophy. Figure 3 shows the trend over recent years of her visual acuity in the left eye.

The patient presented in February 2010, 8 years after being diagnosed with an AIDS-defining illness, with decreasing left visual acuity. An optical coherence tomography (OCT) showed cystoid macular oedema (CMO) (see figure 4). This was presumed to be delayed left eye immune reconstitution inflammatory uveitis, and 40 mg of orbital floor triamcinolone was given, with dramatic resolution of CMO on OCT when reviewed 4 weeks later. Unfortunately, CMO had recurred 3 months after the first orbital floor injection, and therefore a

Figure 2 Right eye cytomegalovirus retinitis.

further 40 mg triamcinolone was injected into the orbital floor (see figure 5, OCT from May 2010).

When reviewed 4 weeks after the second injection, the patient had become overtly cushingoid, with a 'moon face' and 'buffalo hump'.

INVESTIGATIONS

A random cortisol level was 6 nmol/l (reference range 64–327) and ACTH level was less than 5 ng/l.

OUTCOME AND FOLLOW-UP

Kaletra (ritonavir boosted lopinavir) was changed to an integrase inhibitor, raltegravir 400 mg twice daily, to minimise further drug interaction and within a week, symptoms noticeably settled. One month later, the patient's random cortisol level was 100 nmol/l. A further steroid injection has been given intravitreally since changing Kaletra to raltegravir (see figure 3), and has induced no untoward effects.

DISCUSSION**Drug interaction**

Lopinavir, which provides the antiviral effects of Kaletra, is almost exclusively metabolised by the isoenzyme CYP3A in the hepatic cytochrome P450

Figure 1 CD4, CD8 cell counts and HIV 1 viral load over time.

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Figure 3 The trend over recent years of left eye visual acuity.

Figure 4 Optical coherence tomography showing cystoid macular oedema.

system and Ritonavir is a potent CYP3A inhibitor therefore inhibiting the metabolism of lopinavir, increasing plasma levels. CYP3A-mediated 6 β -hydroxylation is a major metabolic pathway for glucocorticoids and triamcinolone, like other corticosteroids, is mainly hepatically metabolised by 6 β -hydroxylation. It therefore comes as no surprise that, taken together, these drugs will cause increased plasma concentrations and prolonged adverse effects of the corticosteroids.

Figure 5 Optical coherence tomography 3 months after initial steroid treatment.

Learning points

- This case highlights the potential for unhelpful interactions between antiretroviral treatment and local corticosteroid treatment and therefore a drug history and potential drug interactions should be checked at all times.
- A dose reduction of the local glucocorticoid should be considered with close monitoring.
- A glucocorticoid which is not a substrate for CYP3A could be considered³ or alternatively the antiretroviral drug could be changed, as in this case.

Competing interests None.

Patient consent Obtained.

Provenance and peer review None.

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