clinical cases DDIs

Date of report 15 May 2025

Reported case interaction between **Dolutegravir** and **Carbamazepine**

Drugs suspected to be involved in the DDI

Victim
Dolutegravir

Daily Dose
50 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
Unknown

End date
Unknown

Perpetrator
Carbamazepine

Daily Dose
400 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
March 1, 2022

End date
Unknown

Complete list of drugs taken by the patient

Antiretroviral treatment

Dolutegravir
Lamivudine
Tenofovir-DF

Complete list of all comedications taken by the patient, included that involved in the DDI

Carbamazepine

Clinical case description

Gender

Male

Age

41

eGFR (mL/min)

>60

Liver function impairment

No

Description

A 41-year-old man diagnosed with HIV in 2011 developed a toxoplasmosis with neurological sequelae in 2019. He presented a seizure at the end of 2021 and another one in spring 2022, which prompted the initiation of carbamazepine at a dose of 400 mg QD. Antiretroviral treatment consisted of Dolutegravir/Lamivudine/Tenofovir.
The patient remained virologically suppressed under carbamazepine treatment for more than two years, despite receiving dolutegravir at a dose of 50 mg once daily. Dolutegravir plasma concentration under carbamazepine treatment was 893 ng/mL 21 hours post-dose, the extrapolated concentration at 24 hours post-dose was estimated at 670 ng/mL -- well above the clinical target concentration threshold of 300 ng/mL.

Dolutegravir level was reduced by 40% in presence of carbamazepine relative to the reference dolutegravir concentration when administered alone at a dose of 50 mg QD. Of interest, the magnitude of the interaction between dolutegravir and carbamazepine in this case was less pronounced than reported in a previous drug interaction study (Song I et al. Eur J Clin Pharmacol 2016), likely due to the lower carbamazepine dose in our patient (400 mg QD) compared to 300 mg BID in the previous DDI study. This observation aligns with the expectation that the extent of enzyme induction is dose- and concentration-dependent. This case has been published by Pallanza M, et al. (Antivir Ther. 2025).

Clinical Outcome

No unwanted outcome

Editorial Comment

Dolutegravir prescribing information recommends increasing the dose to 50 mg twice daily when coadministered with carbamazepine, and advises considering alternatives to carbamazepine whenever possible in patients with integrase inhibitor (INI) resistance. However, this case suggests that twice-daily dosing of dolutegravir may not always be necessary when carbamazepine is used at lower doses (e.g., 400 mg once daily, as in this report).
In this patient, dolutegravir plasma concentrations showed a 40% reduction compared to reference values, yet remained above the target threshold of 300 ng/mL. Notably, the

magnitude of the reduction was less than previously reported in studies using higher doses of carbamazepine (600 mg/day), supporting the notion of a dose-dependent interaction.

University of Liverpool Recommendation

■ Potential interaction - may require close monitoring, alteration of drug dosage or timing of administration

For more information click here

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