clinical cases DDIs

Date of report 12 Dec 2024

Reported case interaction between **Bictegravir** and **Rifabutin**

Drugs suspected to be involved in the DDI

Victim
Bictegravir

Daily Dose
50 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
June 26, 2023

End date
Aug. 1, 2024

Perpetrator
Rifabutin

Daily Dose
300 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
Aug. 30, 2023

End date
Ongoing

Complete list of drugs taken by the patient

Antiretroviral treatment

Bictegravir/Emtricitabine/Tenofovir-AF

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

Rifabutin 300 mg/day; Azithromycin 500 mg/day; Ethambutol 800 mg/day; Trimethoprim/Sulfamethoxazole; Prednisone 30 mg/day

Clinical case description

Gender

Male

Age

39

eGFR (mL/min)

>60

Liver function impairment

No

Description

A 39-year-old male was diagnosed with HIV in June 2023, with a CD4+ T-cell count of 11 cells/µL (2%) and an HIV viral load (VL) of 109,809 copies/mL. Antiretroviral therapy (ART) with Bictegravir/TAF/FTC was initiated in June 2023.
In August 2023, he was hospitalized due to a disseminated Mycobacterium avium-intracellulare infection, along with immune reconstitution inflammatory syndrome. Treatment with azithromycin, rifabutin, and ethambutol was started, but poor adherence to ART led to the implementation of directly observed therapy. The viral load remained detectable until January 2024.
In August 2024, the patient was transferred to our unit. Despite sustained undetectable viral load, ART was switched from Bictegravir/TAF/FTC to dolutegravir (50 mg daily) plus

TDF/FTC. This decision was made due to the potential drug-drug interaction between Bictegravir/TAF/FTC and rifabutin, which could reduce bictegravir and/or TAF exposure, increasing the risk of virologic failure. After the switch, the patient remained virologically suppressed and free of any treatment-related toxicities.

Clinical Outcome

No unwanted outcome

Editorial Comment

Coadministration may decrease the concentrations of bictegravir and tenofovir, and is therefore not recommended. This case highlights a dual issue that could have compromised the effectiveness of the treatment. In addition to the interaction between rifabutin, bictegravir, and TAF, the patient’s poor adherence could have completely undermined the prescribed regimen. This underscores the need for a personalized review of antiretroviral treatment, considering the patient's clinical and epidemiological characteristics.
Rifabutin is an inducer of P-glycoprotein (P-gp) and is expected to decrease the absorption of tenofovir alafenamide, thereby reducing tenofovir plasma concentrations. However, intracellular exposure to tenofovir-DP (the active metabolite of tenofovir) was four times higher than the concentrations achieved with standard dose of tenofovir-DF alone.
Rifabutin has been shown to reduce bictegravir Cmin by 56%, a decrease comparable to that observed when co-

administered with antacids, which may still result in bictegravir concentrations above the protein-binding adjusted IC95 and the IQ values associated with efficacy. This may explain why no lack of efficacy of antiretroviral treatment was observed in this clinical case.

University of Liverpool Recommendation

- These drugs should not be coadministered

For more information click here

Personal information from the specialist

Name
sofia

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sabato

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fli

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ES