clinical cases DDIs

Date of report 23 Sep 2025

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 4, 2025

End date
Ongoing

Perpetrator
Rifabutin

Daily Dose
300 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
June 19, 2025

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
Pyrazinamide 1500 mg
Moxifloxacine 400 mg
Ethambutol 1200 mg
Haloperidol (2 mg/mL) 10 drops x 2
Cotrimozaxole every other day
Subcutaneous insulin: rapid (8 + 16 + 16 units) and slow (35 units at night)

Clinical case description

Gender

Female

Age

72

eGFR (mL/min)

>60

Liver function impairment

No

Description

A 72-year-old woman was admitted for disseminated isoniazid-resistant tuberculosis. Her past medical history included hypertension, dyslipidemia, type 2 diabetes, and HIV infection diagnosed approximately seven years earlier. She had discontinued antiretroviral therapy (ART) multiple times due to cultural and psychological barriers to accepting the diagnosis and treatment. At presentation, her HIV RNA was 3810 copies/mL and CD4 cell count 181 cells/mm³. Anti-tubercular therapy was initiated with rifampicin, ethambutol, pyrazinamide, and moxifloxacin. After two weeks,

reinitiation of ART was advised, but the patient initially refused. Following an ethnopsychological consultation, she agreed to restart ART but insisted on a maximum of two pills daily. She was started on tenofovir alafenamide/emtricitabine/bictegravir (B/F/TAF), administered twice daily.
After one week, bictegravir trough concentration was 67 ng/mL, markedly lower than expected. Upon further questioning, the patient admitted to taking only one pill daily. She refused both the twice-daily regimen and switching to double-dose dolutegravir.
Given these limitations, B/F/TAF was maintained and rifampicin was replaced with rifabutin (300 mg/day). After two weeks, bictegravir trough concentrations reached therapeutic levels (2360 ng/mL). The patient continued rifabutin, pyrazinamide, ethambutol, moxifloxacin, and B/F/TAF. At three months, HIV RNA was undetectable and CD4 count had increased to 356 cells/mm^3.

Clinical Outcome

No unwanted outcome

Editorial Comment

This is an interesting case. A significant interaction is expected because rifabutin reduces bictegravir (BIC) trough levels, although the clinical relevance remains uncertain. Where therapeutic drug monitoring (TDM) is available, these data support the once-daily use of B/F/TAF in complex patients such as this one.

Rifampicin is a strong inducer of CYP3A4 and UGT1A1, producing a marked reduction in bictegravir exposure and a high risk of virologic failure when coadministered with B/F/TAF. The strategy of prescribing B/F/TAF twice daily in the presence of rifampicin is off-label, supported by limited evidence, and carries uncertain efficacy and potential safety concerns. In this case, subtherapeutic bictegravir levels confirmed that risk. An alternative approach endorsed in guidelines is double-dose dolutegravir, but this also poses challenges, including variable pharmacokinetics, gastrointestinal intolerance, and reduced adherence.

Despite coadministration of B/F/TAF and rifabutin is not recommended, switching rifampicin to rifabutin could be considered a safer option, since rifabutin is a weaker inducer and allows bictegravir to achieve therapeutic concentrations, though monitoring for hematological toxicity and potential drug–drug interactions is required.

This case highlights several key points: the clinical importance of induction effects on integrase inhibitors, the limitations of unvalidated dose-adjustment strategies, and the utility of TDM to guide individualized treatment decisions. Long-term follow-up with both pharmacokinetic and virologic monitoring will be essential to further validate this approach.

University of Liverpool Recommendation

- These drugs should not be coadministered

For more information click here

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