clinical cases DDIs

Date of report 15 Jul 2022

Reported case interaction between **Bictegravir** and **Rifampin**

Drugs suspected to be involved in the DDI

Victim
Bictegravir

Daily Dose
50 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
Jan. 28, 2022

End date
April 12, 2022

Perpetrator
Rifampin

Daily Dose
600 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
March 3, 2022

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

Isoniazid, Rifampin, Ethambutol and Pyrazinamide

Clinical case description

Gender

Male

Age

52

eGFR (mL/min)

>60

Liver function impairment

No

Description

This patient came to our clinic from other country. He was diagnosed with HIV in September 2018 and he had been treated with TDF/3TC/EFV. At the first visit in our clinic (January 2022) the CD4count was CD4 345, 30% and the plasma HIV-1 RNA <20 copies/mL. ART was switched to BIC/FTC/TAF.

In March 2022 he was diagnosed with pulmonary tuberculosis and on March 3rd treatment Isoniazid, Rifampin, Ethambutol and Pyrazinamide was started. At this moment his body mass index (BMI) was 25.7 kg/m^2. Because an error BIC/FTC/TAF was maintained until April 13, when ART was switched to TDF/FTC + DTG 50 mg/12h. The plasma HIV-1 RNA on April 13, before changing ART, remained <20 copies/mL.

The coadministration of BIC/FTC/TAF with rifampin is contraindicated due to decreased bictegravir plasma concentrations, which may result in the loss of therapeutic

effect and the potential development of drug resistance to any of the ARV drugs. Despite 6 weeks receiving BIC/FTC/TAF and rifampin plasma viral load remained below the limit of detection. Although coadministration of BIC/FTC/TAF and rifampin is contraindicated due to relevant drug-drug interactions, in this case we did not observed loss of efficacy of BIC/FTC/TAF. This could be explained by 1) this patient had suppressed plasma HIV viral load since more than 3 years ago; 2) the potency of BIC/FTC/TAF; 3) the short time of coadministration of BIC/FTC and rifampin

Clinical Outcome

No unwanted outcome

Editorial Comment

It is well known that bictegravir coadministration with rifampin is contraindicated. In this a case bictegravir (BIC/FTC/TAF) was given together with rifampin (600 mg QD) for over 4 weeks (from the 3rd March to the 12th April 2022). Coadministration of rifampicin (600 mg once daily) and bictegravir decreased bictegravir AUC and Cmax due to induction of CYP3A, UGT1A1, and P-gp. Coadministration of rifampicin (600 mg once daily) and bictegravir alone (75 mg single dose) decreased bictegravir Cmax and AUC by 28% and 75%. Furthermore, coadministration of rifampicin (600 mg once daily) and twice daily bictegravir/emtricitabine/tenofovir (50/200/25 mg, twice daily) decreased bictegravir Cmax, AUC and Cmin by approximately 61%, 47% and 80%,

respectively. However, loss of efficacy of BIC/FTC/TAF did not happen in this patient. This could possibly be explained with low BMI of the patient and by the short duration of co-administration.

University of Liverpool Recommendation

- These drugs should not be coadministered

For more information click here

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