



Date of report 03 Feb 2020

## Reported case interaction between **Cobicistat** and **Simvastatin**

### Drugs suspected to be involved in the DDI

Perpetrator

**Cobicistat**

Daily Dose

150 (mg)

Dose adjustment performed

No

Administration Route

Oral

Start date

Unknown

End date

Unknown

Victim

**Simvastatin**

Daily Dose

Unknown

Dose adjustment performed

No

Administration Route

Oral

Start date

Unknown

End date

Unknown

# Complete list of drugs taken by the patient

Antiretroviral treatment  
Elvitegravir/Cobicistat/Emtricitabine/Tenofovir-AF

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

# Clinical case description

|               |                           |
|---------------|---------------------------|
| Gender        | Age                       |
| Male          | 50                        |
| eGFR (mL/min) | Liver function impairment |
| <30           | No                        |

### Description

Middle aged HIV infected patient who developed a severe rhabdomyolysis 2 weeks after being switched to elvitegravir/cobicistat, emtricitabine, tenofovir alafenamide while on treatment with simvastatin (dose unknown). Within 2 weeks, the patient developed severe muscle pain and reduced micturition as well as a dark discoloration of the urine.

Laboratory analyses showed severe renal impairment (eGFR 12 mL/min), postassium 6.1 mmol/L, very high transaminase levels (ALT > 2279 U/L; AST > 5193 U/L) and creatinine kinase > 200000 U/L. The patient was diagnosed with rhabdomyolysis and secondary acute renal failure and underwent dialysis. After discontinuation of the antiretroviral treatment and simvastatin, creatinine kinase and transaminase levels decreased rapidly so that dialysis could be stopped after 2 months. This case has been published by Perrone C et al. AIDS 2018; 32:676-677.

### Clinical Outcome

#### Toxicity

### Drug Interaction Probability Scale (DIPS)

Score

**7 - Probable**

### Editorial Comment

This drug-drug interaction occurred because of cobicistat strong inhibitory effect on CYP3A4, the main enzyme contributing to simvastatin metabolism. Coadministration of simvastatin with strong CYP3A4 inhibitors is estimated to increase simvastatin exposure by 100 fold (Stader F et al. Antimicrob Agent Chemother 2018). Given the large magnitude of the drug-drug interaction and related high risk of rhabdomyolysis, coadministration of simvastatin with boosted antiretroviral agents is contra-indicated.

## University of Liverpool Recommendation

- These drugs should not be coadministered

For more information [click here](#)