clinical cases DDIs

Date of report 07 Sep 2020

Reported case interaction between **Nevirapine** and **Desogestrel**

Drugs suspected to be involved in the DDI

Perpetrator
Nevirapine

Daily Dose
400 (mg)

Dose adjustment performed
No

Administration Route
Oral

Start date
Unknown

End date
Ongoing

Victim
Desogestrel

Daily Dose
75 (mcg)

Dose adjustment performed
No

Administration Route
Oral

Start date
Dec. 1, 2019

End date
Feb. 1, 2020

Complete list of drugs taken by the patient

Antiretroviral treatment

Nevirapine
Emtricitabine/Tenofovir-DF

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

Desogestrel

Clinical case description

Gender

Female

Age

35

eGFR (mL/min)

>60

Liver function impairment

No

Description

35 year-old woman with HIV infection on long-term cART with nevirapine (400 mg QD) plus FTC/TDF. Plasma viral load <20 copies/mL, CD4+ T cell count 442/mm3. After her second pregnancy (delivery of a healthy baby on December 2019), she decided to start taking desogestrel (75 mcg QD) as oral contraceptive. Despite contraception, the patient became pregnant again on February 2020.

Clinical Outcome

Loss of efficacy

Drug Interaction Probability Scale (DIPS)

Score

5 - Probable

Editorial Comment

Desogestrel is activated to etonogestrel, the latter is metabolized by CYP3A4. Nevirapine is a weak-moderate inducer of CYP3A4. Drug-drug interactions studies have shown a limited effect of nevirapine on etonogestrel exposure. Etonogestrel concentrations were determined in 18 HIV+ women receiving desogestrel/ethinylestradiol (0.15/0.03 mg/day) and nevirapine (200 mg twice daily) and 14 HIV-negative women receiving desogestrel/ethinylestradiol (0.15/0.03 mg/day) alone. Etonogestrel trough concentrations were decreased by 22% in presence of nevirapine however this small pharmacokinetic change did not impact the contraceptive efficacy since serum progesterone was less than 1.0 ng/ml in all subjects (Landolt NK et al. JAIDS 2014; Landolt NK et al. JAIDS 2013). In addition, nevirapine was shown to have no significant effect on etonogestrel pharmacokinetics released from a contraceptive implant in Ugandan women living with HIV (Chappell CA et al. AIDS 2017). The contraception failure in the reported case occurred in the initial weeks after giving birth. Drug metabolism is known to be induced during pregnancy by female hormones such as progesterone whose level rises significantly. Importantly, female hormones levels do not return to pre-pregnancy levels immediately after the delivery resulting in persisting hormone-related induction of drug metabolism during the post-partum period (Pennell KD et al. Steroids

2015; Marzolini C et al. Br J Clin Pharmacol 2017). Thus, the observed contraception failure could be explained by the combined effect of progesterone and nevirapine induction. A barrier method of contraceptrion should be added during the post-partum phase.

University of Liverpool Recommendation

⚠ Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required

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