

## Atazanavir–bilirubin interaction: a pharmacokinetic–pharmacodynamic model [Corrigendum]

Lozano R, Domeque N, Apesteguia AF. *Clinical Pharmacology: Advances and Applications*. 2013;5(1):153–159.

On page 155, “Deriving Michaelis–Menten’s equation,<sup>26</sup>

$$V = \frac{K_{\text{cat}} E_0 C}{K_m + C},$$

for bilirubin and ATZ, we have

$$\frac{dV_{\text{ATZ}}}{dC_{\text{ATZ}}} = K_{\text{cat}}^{\text{ATZ}} E_0 K_m^{\text{ATZ}}$$

and

$$\frac{dV_{\text{BIL}}}{dC_{\text{BIL}}} = K_{\text{cat}}^{\text{BIL}} E_0 K_m^{\text{BIL}}$$

at SS, when

$$dV_{\text{ATZ}} = dV_{\text{BIL}},$$

then we have

$$\Delta[\text{ATZ}]_{\text{SS}} = \frac{K_{\text{cat}}^{\text{BIL}} K_m^{\text{BIL}}}{K_{\text{cat}}^{\text{ATZ}} K_m^{\text{ATZ}}} \Delta[\text{BIL}]_{\text{SS}}$$

and

$$\frac{\Delta[\text{ATZ}]_{\text{SS1}}}{\Delta[\text{ATZ}]_{\text{SS2}}} = \frac{\Delta[\text{BIL}]_{\text{SS1}}}{\Delta[\text{BIL}]_{\text{SS2}}}, \quad [1]$$

where  $V$  = glucuronidation reaction rate for bilirubin and ATZ, respectively;  $E_0$  = UGT1A1 enzyme concentration;  $K_m$  = Michaelis–Menten constant for bilirubin and ATZ,

respectively; and  $K_{\text{cat}}$  = turnover number for bilirubin and ATZ, respectively.” should have been written as, “Deriving Michaelis–Menten’s equation,<sup>26</sup>

$$V = \frac{K_{\text{cat}} E_0 C}{K_m + C},$$

for bilirubin and ATZ, we have

$$\frac{dV_{\text{ATZ}}}{dC_{\text{ATZ}}} = \frac{K_{\text{cat}}^{\text{ATZ}} E_0 K_m^{\text{ATZ}}}{(K_m^{\text{ATZ}} + C_{\text{ATZ}})^2}$$

and

$$\frac{dV_{\text{BIL}}}{dC_{\text{BIL}}} = \frac{K_{\text{cat}}^{\text{BIL}} E_0 K_m^{\text{BIL}}}{(K_m^{\text{BIL}} + C_{\text{BIL}})^2}$$

at SS, when

$$\Delta V_{\text{ATZ}} = \Delta V_{\text{BIL}},$$

then we have

$$\Delta[\text{ATZ}]_{\text{SS}} = \frac{K_{\text{cat}}^{\text{BIL}} K_m^{\text{BIL}}}{K_{\text{cat}}^{\text{ATZ}} K_m^{\text{ATZ}}} \Delta[\text{BIL}]_{\text{SS}}$$

and

$$\frac{\Delta[\text{ATZ}]_{\text{SS1}}}{\Delta[\text{ATZ}]_{\text{SS2}}} = \frac{\Delta[\text{BIL}]_{\text{SS1}}}{\Delta[\text{BIL}]_{\text{SS2}}}, \quad [1]$$

where  $V$  = glucuronidation reaction rate for bilirubin and ATZ, respectively;  $E_0$  = UGT1A1 enzyme concentration;  $K_m$  = Michaelis–Menten’s constant for bilirubin and ATZ, respectively; and  $K_{\text{cat}}$  = turnover number for bilirubin and ATZ, respectively.”