

Population pharmacokinetics of rifampicin and 25-O-desacetyl-rifampicin in Brazilian patients with pulmonary tuberculosis living or not with HIV

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Introduction

Rifampicin (RIF) is possibly the most important drug among the four first-line anti-tuberculosis drugs (FLATDs). Currently, the World Health Organization recommends treating TB with fixed-dose combined tablets (FDC) of these antibiotics according to the patient body weight (table below). Despite its extensive use, the knowledge of RIF dosing to ensure optimal drug exposure remains limited. Then, this study presents the population pharmacokinetics of RIF and 25-O-desacetyl-rifampicin (desRIF) in Brazilian patients with pulmonary tuberculosis diagnosed negative for HIV (TB-HIV-) or living with HIV (TB-HIV+).

Aims

(1) Evaluate by non-linear mixed effect modelling whether HIV, body size descriptors, and other covariates affect RIF pharmacokinetics and (2) their dosing implications.

Methods

TB-HIV-; n=15

TB-HIV+; n=18

After 15 days of FLD

After 15 days of FLD

Antiretroviral treatment
Lamivudine + tenofovir (or zidovudine) +raltegravir (or efavirenz)

Aged between 18 to 60 years

Aged between 18 to 60 years

Non-obese

Non-obese

No other comorbidities

No other comorbidities

Serial blood samples during one dose interval (0-24h)

Serial blood samples during one dose interval (0-24h)

Rifampicin, Isoniazid, Pyrazinamide, Ethambutol
Fixed dose tablets: 150/75/400/275 mg

Weight	Dose amount	Months
20kg a 35kg	2 x 150/75/400/275 mg	
36kg a 50kg	3 x 150/75/400/275 mg	2
> 50kg	4 x 150/75/400/275 mg	

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References

- [1] Susanto BO *et al.* (2020) Rifampicin Can Be Given as Flat-Dosing Instead of Weight-Band Dosing.
[2] Pasipanodya JG *et al.* (2013) Serum Drug Concentrations Predictive of Pulmonary Tuberculosis Outcomes.

