

ARV	NVP	EFV	LPV/r	NFV	SQV
Antimycobacterials					
Rifampicin	<p>↓NVP level by 20–58%. Virological consequences are uncertain, the potential of additive hepatotoxicity exists. Co-administration is not recommended and should only be done with careful monitoring</p> <p>None</p>	<p>↓EFV level by 25%</p>	<p>↓LPV AUC by 75% Should not be co-administered</p>	<p>↓NFV level by 82% Should not be co-administered</p>	<p>↓SQV level by 84% Severe liver impairment reported with co-administration, hence should not be co-administered</p>
Clarithromycin	None	<p>↓Clarithromycin by 39% Monitor for efficacy or use alternative drugs</p>	<p>↑Clarithromycin AUC by 75%, adjust clarithromycin dose if renal impairment</p>	No data	<p>Without RTV, ↑clarithromycin level by 45%, ↑SQV level by 177% RTV can ↑clarithromycin level by 75% No clarithromycin dose adjustment needed for unboosted SQV. For boosted SQV if renal impairment – no data</p>
Antifungals					
Ketoconazole	<p>↑Ketoconazole level by 63% ↑NVP level by 15–30% Co-administration not recommended</p>	No significant changes in ketoconazole or EFV levels	<p>↑LPV AUC ↑Ketoconazole level 3-fold Do not exceed a dose of 200 mg/day of ketoconazole</p>	No dose adjustment necessary	<p>↑SQV level by 3-fold No dose adjustment necessary if given unboosted For RTV-boosted SQV – no data (RTV treatment dose can increase ketoconazole level 3-fold)</p>

ARV	NVP	EFV	LPV/r	NFV	SQV
Fluconazole	<p>↑NVP C_{max}, AUC, C_{min} by 100%</p> <p>No change in fluconazole level</p> <p>Possible increase in hepatotoxicity with co-administration requiring monitoring of NVP toxicity</p>	No data	No data	No data	No data
Itraconazole	No data	No data	<p>↑Itraconazole level</p> <p>Do not exceed a dose of 200 mg/day of itraconazole</p>	No data but potential for bidirectional inhibition, monitor toxicities	<p>Bidirectional interaction has been observed. May need to decrease itraconazole dose. Consider monitoring SQV level (especially if given unboosted with RTV)</p> <p>No data for unboosted SQV</p> <p>RTV treatment dose can ↓level of ethinyl estradiol by 41%</p>
Oral contraceptives	<p>↓Ethinyl estradiol by 20%</p> <p>Use alternative or additional methods</p>	<p>↑Ethinyl estradiol by 37%. Use alternative or additional methods</p>	<p>↓Ethinyl estradiol level by 42%</p> <p>Use alternative or additional methods</p>	<p>↓levels of norethindrone by 18% and ethinyl estradiol by 47%</p>	
Lipid-lowering agents					
Simvastatin, lovastatin	No data	<p>↓Simvastatin level by 58%</p> <p>EFV level unchanged</p> <p>Adjust simvastatin dose according to lipid response, not to exceed the maximum recommended dose</p>	<p>Potential large ↑ in statin level</p> <p>Avoid concomitant use</p>	<p>↑ Simvastatin AUC by 505%</p> <p>Potential large ↑ in lovastatin AUC</p> <p>Avoid concomitant use</p>	<p>Potential large ↑ in statin level</p> <p>Avoid concomitant use</p>

ARV	NVP	EFV	LPV/r	NFV	SQV
Atorvastatin	No data	↓ Atorvastatin AUC by 43% EFV level unchanged Adjust atorvastatin dose according to lipid response, not to exceed maximum recommended dose	↑ Atorvastatin AUC 5.88-fold Use lowest possible starting dose with careful monitoring	↑ Atorvastatin AUC by 74% Use lowest possible starting dose with careful monitoring	↑ Atorvastatin level by 450% when used as SQV/RTV Use lowest possible starting dose with careful monitoring
Pravastatin	No data	No data	↑ Pravastatin AUC by 33% No dose adjustment needed	No data	↓ Pravastatin level by 50% No dose adjustment needed
Anticonvulsants					
Carbamazepine, phenobarbital, phenytoin	Unknown. Use with caution Monitor anticonvulsant levels	Use with caution. One case report showed low EFV levels with phenytoin Monitor anticonvulsant and EFV levels	↑ Carbamazepine from RTV Both phenytoin and LPV/r levels ↓ For all, avoid concomitant use or monitor LPV/r/anticonvulsant levels	Unknown but may decrease NFV level substantially Monitor NFV/anticonvulsant levels	Unknown for unboosted SQV but may markedly ↓ SQV level Monitor SQV/anticonvulsant levels

AUC area under the curve C_{max} maximum concentration C_{min} minimum concentration

Note: Concomitant use of fluticasone with RTV results in markedly reduced serum cortisol concentrations. Co-administration of fluticasone with RTV or any RTV-boosted PI regimen is not recommended unless the potential benefit outweighs the risk of systemic corticosteroid side-effects.

(Adapted from the *Guidelines for the use of antiretroviral agents in pediatrics: HIV infection*, Nov 3, 2005, www.aidsinfo.nih.gov.)