Patients With HIV/HCV Coinfection

Recommendations Related to HCV Medication Interactions With HIV Antiretroviral Medications

RECOMMENDED	RATING
Antiretroviral drug switches, when needed, should be done in collaboration with the HIV practitioner. For HIV antiretroviral and HCV direct-acting antiviral combinations not addressed below, expert consultation is recommended.	I, A
Daclatasvir when used in combination with other antivirals Daclatasvir requires dose adjustment with ritonavir-boosted atazanavir (decrease to 30 mg/d), cobicistat-boosted atazanavir (decrease to 30 mg/d), elvitegravir/cobicistat (decrease to 30 mg/d), and efavirenz or etravirine (increase to 90 mg/d).	IIa, B
Daily fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) Elbasvir/grazoprevir should be used with antiretroviral drugs with which it does not have clinically significant interactions: abacavir, emtricitabine, enfuvirtide, lamivudine, raltegravir, dolutegravir, rilpivirine, and tenofovir.	IIa, B
Daily fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg)[a] Glecaprevir/pibrentasvir should be used with antiretroviral drugs with which it does not have clinically significant interactions: abacavir, emtricitabine, enfuvirtide, lamivudine, raltegravir, dolutegravir, rilpivirine, and tenofovir. Given the limited data on the safety of elvitegravir/cobicistat with glecaprevir/pibrentasvir, monitoring for hepatic toxicity is recommended until additional safety data are available in HIV/HCV-coinfected patients.	IIa, B
Simeprevir used in combination with other antivirals Simeprevir should be used with antiretroviral drugs with which it does not have clinically significant interactions: abacavir, emtricitabine, enfuvirtide, lamivudine, maraviroc, raltegravir, dolutegravir, rilpivirine, and tenofovir.	IIa, B
Daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) Sofosbuvir/velpatasvir can be used with most antiretrovirals, but not efavirenz, etravirine, or nevirapine. Because velpatasvir has the potential to increase tenofovir levels when given as tenofovir disoproxil fumarate, concomitant use mandates consideration of renal function and should be avoided in those with an eGFR <60 mL/min. Due to limited experience with this drug combination, renal monitoring is recommended during the dosing period. Tenofovir alafenamide may be an alternative to tenofovir disoproxil fumarate during sofosbuvir/velpatasvir treatment for patients who take cobicistat or ritonavir as part of their antiretroviral therapy.	IIa, B
Daily fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) Ledipasvir/sofosbuvir can be used with most antiretrovirals. Because this therapy increases tenofovir	IIa, C

Recommendations Related to HCV Medication Interactions With HIV Antiretroviral Medications

levels when given as tenofovir disoproxil fumarate, concomitant use mandates consideration of renal function and should be avoided in those with an eGFR <60 mL/min. The absolute tenofovir levels are highest, and may exceed exposures for which there are established renal safety data, when tenofovir disoproxil fumarate is administered with ritonavir- or cobicistat-containing regimens. Due to lack of sufficient safety data with this drug combination, consideration should be given to changing the antiretroviral regimen. If the combination is used, renal monitoring is recommended during the dosing period. Tenofovir alafenamide may be an alternative to tenofovir disoproxil fumarate during ledipasvir/sofosbuvir treatment for patients who take cobicistat or ritonavir as part of their antiretroviral therapy.	
For combinations expected to increase tenofovir levels, baseline and ongoing assessment for tenofovir nephrotoxicity is recommended.	IIa, C
Daily fixed-dose combination of paritaprevir (150 mg)/ritonavir (100 mg)/ombitasvir (25 mg) with dasabuvir (600 mg) as part of an extended-release regimen or plus twice-daily dosed dasabuvir (250 mg) Paritaprevir/ritonavir/ombitasvir plus dasabuvir should be used with antiretroviral drugs with which they do not have substantial interactions: atazanavir, dolutegravir, emtricitabine, enfuvirtide, lamivudine, raltegravir, and tenofovir. The dose of ritonavir used for boosting atazanavir should be held when administered with paritaprevir/ritonavir/ombitasvir plus dasabuvir and then restored when HCV treatment is completed. Atazanavir (300 mg) should be administered at the same time as the fixed-dose HCV combination.	IIa, C
Daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)/voxilaprevir (100 mg) Sofosbuvir/velpatasvir/voxilaprevir should be used with antiretroviral drugs with which they do not have substantial interactions: dolutegravir, emtricitabine, enfuvirtide, lamivudine, rilpivirine, and raltegravir. Given increases in voxilaprevir AUC with darunavir/ritonavir or elvitegravir/cobicistat coadministration and lack of clinical safety data, monitoring for hepatic toxicity is recommended until additional safety data are available in HIV/HCV-coinfected patients. Because this therapy has the potential to increase tenofovir levels when given as tenofovir disoproxil fumarate, concomitant use mandates consideration of renal function and should be avoided in those with an eGFR <60 mL/min. In patients receiving sofosbuvir/velpatasvir/voxilaprevir and tenofovir disoproxil fumarate concomitantly, renal monitoring is recommended during the dosing period.	IIa, B

[a] This is a 3 tablet coformulation. Please refer to the prescribing information.

Regimens Not Recommended for Patients with HIV/HCV Coinfection

NOT RECOMMENDED	RATING
Antiretroviral treatment interruption to allow HCV therapy is **not** recommended.	III, A
Elbasvir/grazoprevir should **not** be used with cobicistat, efavirenz, etravirine, nevirapine, or any HIV protease inhibitor.	III, B
Glecaprevir/pibrentasvir should **not** be used with atazanavir, ritonavir-containing antiretroviral regimens, efavirenz, or etravirine.	III, B
Sofosbuvir/velpatasvir should **not** be used with efavirenz, etravirine, or nevirapine.	III, B
Sofosbuvir/velpatasvir/voxilaprevir should **not** be used with ritonavir-boosted atazanavir, efavirenz, etravirine, or nevirapine.	III, B
Sofosbuvir-based regimens should **not** be used with tipranavir.	III, B
Paritaprevir/ritonavir/ombitasvir plus dasabuvir should **not** be used with darunavir, efavirenz, ritonavir-boosted lopinavir, ritonavir-boosted tipranavir, etravirine, nevirapine, cobicistat, or rilpivirine.	III, B
Paritaprevir/ritonavir/ombitasvir with or without dasabuvir should **not** be used in HIV/HCV-coinfected individuals who are not taking antiretroviral therapy.	III, B
Ribavirin should **not** be used with didanosine, stavudine, or zidovudine.	III, B
Simeprevir should **not** be used with cobicistat, efavirenz, etravirine, nevirapine, or any HIV protease inhibitor.	III, B

Table 1.
Drug Interactions Between Direct-Acting Antivirals and Antiretroviral Drugs—Recommended Regimens
Green indicates coadministration is safe; yellow indicates a dose change or additional monitoring is warranted; and pink indicates the combination should be avoided.

	Ledipasvir/ Sofosbuvir (LDV/SOF)	**Sofosbuvir/ Velpatasvir (SOF/VEL)**	**Elbasvir/ Grazoprevir (ELB/GRZ)**	**Glecaprevir/ Pibrentasvir (GLE/PIB)**	**Sofosbuvir/ Velpatasvir/ Voxilaprevir (SOF/VEL/VOX)**
Ritonavir-boosted atazanavir (ATZ)	▲ LDV ▲ ATZ[a]	▲ VEL ▲ ATZ[a]	▲ ELB ▲ GRZ ▲ ATZ	▲ GLE ▲ PIB ▲ ATZ	▲ VOX ▲ ATZ
Ritonavir-boosted darunavir (DRV)	▲ LDV ◀▶ DRV[a]	◀▶ VEL ◀▶ DRV[a]	▲ ELB ▲ GRZ ◀▶ DRV	▲ GLE ◀▶ PIB ▲ DRV	▲ VOX ▼ DRV
Ritonavir-boosted lopinavir (LPV)	ND[a]	◀▶ VEL ◀▶ LPV[a]	▲ ELB ▲ GRZ ◀▶ LPV	▲ GLE ▲ PIB ▲ LPV	ND
Ritonavir-					

	Ledipasvir/ Sofosbuvir (LDV/SOF)	**Sofosbuvir/ Velpatasvir (SOF/VEL)**	**Elbasvir/ Grazoprevir (ELB/GRZ)**	**Glecaprevir/ Pibrentasvir (GLE/PIB)**	**Sofosbuvir/ Velpatasvir/ Voxilaprevir (SOF/VEL/VOX)**
boosted tipranavir (TPV/r)	ND	ND	ND	ND	ND
Efavirenz (EFV)	▼ LDV ▼ EFV[a]	▼ VEL ▼ EFV	▼ ELB ▼ GRZ ▼ EFV	ND	ND
Rilpivirine (RPV)	◄► LDV ◄► RPV	◄► VEL ◄► RPV	◄► ELB ◄► GRZ ◄► RPV	◄► GLE ◄► PIB ▲ RPV	◄► VOX ▼ RPV
Etravirine (ETV)	ND	ND	ND	ND	ND
Raltegravir (RAL)	◄► LDV ◄► RAL	◄► VEL ◄► RAL	◄► ELB ◄► GRZ ▲ RAL	◄► GLE ◄► PIB ▲ RAL	ND
Cobicistat-boosted elvitegravir (COB)	▲ LDV ▲ COB[a]	▲ VEL ▲ COB[a]	▲ ELB ▲ GRZ ▲ COB	▲ GLE ▲ PIB ▲ COB	▲ VOX ▲ COB[a]
Dolutegravir (DTG)	◄► LDV ◄► DTG	◄► VEL ◄► DTG	◄► ELB ◄► GRZ ▲ DTG	▼ GLE ▼ PIB ▲ DTG	ND
Tenofovir Alafenamide (TAF)/ Emtricitabine (FTC)/ Bictegravir (BIC)	▼ LDV ◄► BIC	ND	ND	ND	◄► VOX ▲ BIC
Maraviroc (MVC)	ND	ND	ND	ND	ND
Tenofovir (TFV) disoproxil fumarate	◄► LDV ▲ TFV[c]	◄► VEL ▲ TFV[b]	◄► ELB ◄► GRZ ▲ TFV	▲ TFV	▲ TFV[b]
Tenofovir (TFV) alafenamide	◄► LDV ▲ TFV[d]	◄► VEL ▲ TFV[d]	ND	◄► TFV	▲ TFV[b]

ND, No data
[a] Caution only with tenofovir disoproxil fumarate
[b] Increase in tenofovir depends on which additional concomitant antiretroviral agents are administered.
[c] Avoid tenofovir disoproxil fumarate in patients with an eGFR <60 mL/min; tenofovir concentrations may exceed those with established renal safety data in individuals on ritonavir- or cobicistat-containing regimens.
[d] Studied as part of fixed-dose combinations with ledipasvir/sofosbuvir or sofosbuvir/velpatasvir plus TAF, emtricitabine, elvitegravir, and cobicistat.

Table 2.
Drug Interactions Between Direct-Acting Antivirals and Antiretroviral Drugs—Alternative Regimens
Green indicates coadministration is safe; yellow indicates a dose change or additional monitoring is warranted; and pink indicates the combination should be avoided.

	Simeprevir/ Sofosbuvir (SMV/SOF)	**Daclatasvir/ Sofosbuvir (DCV/SOF)**	**Paritaprevir/ Ritonavir/ Ombitasvir + Dasabuvir (PrOD)**	**Paritaprevir/ Ritonavir/ Ombitasvir (PrO)**
Ritonavir-boosted atazanavir (ATZ)	ND	▲ DCV[a]	▲ PRV ▲ ATZ	▲ PRV ◀▶ ATZ
Ritonavir-boosted darunavir (DRV)	▲ SMV ◀▶ DRV	▲ DCV ◀▶ DRV	▼▲ PRV ▼ DRV	▲ PRV ◀▶ DRV
Ritonavir-boosted lopinavir (LPV)	ND	▲ DCV ◀▶ LPV	▲ PRV ◀▶ LPV	▲ PRV ◀▶ LPV
Ritonavir-boosted tipranavir (TPV/r)	ND	ND	ND	ND
Efavirenz (EFV)	▼ SMV ◀▶ EFV	▼ DCV[b]	NPD[c]	ND
Rilpivirine (RPV)	◀▶ SMV ◀▶ RPV	ND	▲ PRV ▲ RPV	ND
Etravirine (ETV)	ND	▼ DCV[b]	ND	ND
Raltegravir (RAL)	◀▶ SMV ◀▶ RAL	ND	◀▶ PrOD ▲ RAL	◀▶ PrO ▲ RAL
Cobicistat-boosted elvitegravir (COB)	ND	▲ DCV[a]	ND	ND
Dolutegravir (DTG)	◀▶ SMV ◀▶ DTG	◀▶ DCV ▲ DTG	▼ PRV ▲ DTG	ND
Tenofovir Alafenamide (TAF)/ Emtricitabine (FTC)/ Bictegravir (BIC)	ND	ND	ND	ND
Maraviroc (MVC)	ND	ND	ND	ND
Tenofovir (TFV) disoproxil fumarate	◀▶ SMV ◀▶ TFV	◀▶ DCV ◀▶ TFV	◀▶ PrOD ◀▶ TFV	◀▶ PrO ◀▶ TFV
Tenofovir (TFV) alafenamide	ND	ND	ND	ND

ND, No data
[a] Daclatasvir dose should be reduced to 30 mg.
[b] Daclatasvir dose should be increased to 90 mg.

Treatment Recommendations for Patients With HIV/HCV Coinfection

RECOMMENDED	RATING
HIV/HCV-coinfected persons should be treated and retreated the same as persons without HIV infection, after recognizing and managing interactions with antiretroviral medications (see Initial Treatment of HCV Infection and Retreatment of Persons in Whom Prior Therapy Has Failed).	I, B
Daily daclatasvir (refer to information above for dose) plus sofosbuvir (400 mg), with or without ribavirin, is a recommended regimen when antiretroviral regimen changes cannot be made to accommodate alternative HCV direct-acting antivirals. Refer to Initial Treatment of HCV Infection and Retreatment of Persons in Whom Prior Therapy Has Failed sections for treatment duration.	I, B

Regimens Not Recommended for Patients With HIV/HCV Coinfection

NOT RECOMMENDED	RATING
Ledipasvir/sofosbuvir for 8 weeks is **not** recommended, regardless of baseline HCV RNA level.	IIb, C

Last update: May 24, 2018