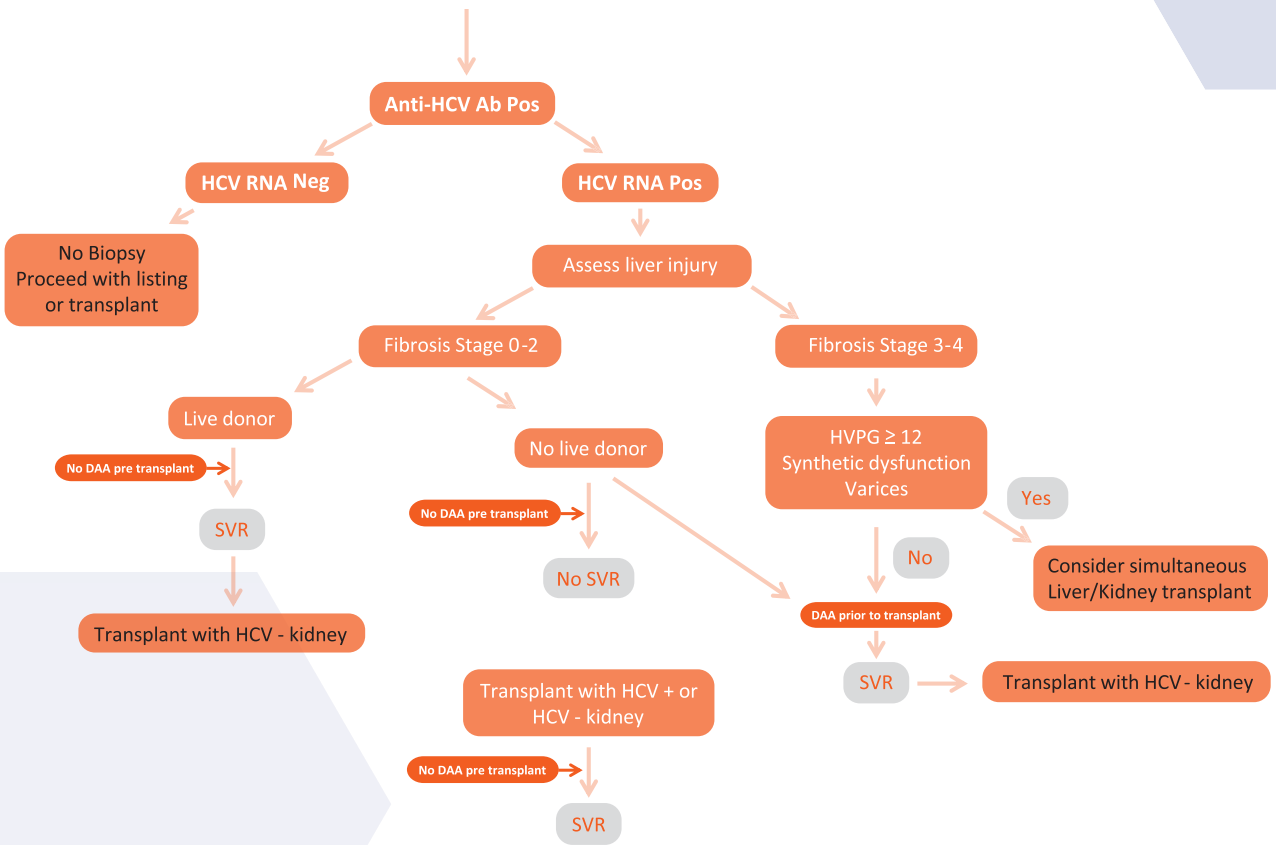
National Kidney Foundation®

Management of Hepatitis C in Kidney Transplantation

Hepatitis C and Kidney Transplantation

- Hepatitis C viral (HCV) infection is a concern in kidney transplantation, as it has been implicated in diminished patient and graft survival.[1]
- HCV infection is the main cause of liver disease in kidney transplant recipients.[2,3]
- All patients being evaluated for kidney transplantation should be screened for HCV infection.

Suggested paradigm for the management of the HCV-infected pretransplant candidate.[2]



Critical decision points include whether the patient has a living donor and the extent of liver fibrosis. The option to accept a kidney from a HCV positive donor could significantly shorten wait times. HVPG, hepatic venous pressure gradient; Neg, negative; Pos, positive; SVR, sustained virologic response; DAA, direct antiviral agent.

The timing of treatment in potential kidney transplantation candidates (before versus after transplantation) should be decided in collaboration with the nephrologist and transplant center.[4]

Generally, the HCV treatment goal is sustained virologic response (SVR), defined as undetectable HCV RNA 12 weeks post-treatment. DAAs have been the focus of clinical research in recent years for their improved efficacy (90-100% SVR in most cases) and better tolerability compared to interferon-based therapy.[4]

Drug interactions are an important consideration in kidney transplant recipients, as with many medications. Treatment of the post-transplant patient mandates very careful monitoring of kidney function and immunosuppressive drug levels to ensure the maintenance of adequate immunosuppression.[2,5]

DAA Interactions with Calcineurin Inhibitors[5]

Name	Cyclosporine	Tacrolimus
Sofosbuvir*	4.5-fold ↑ in SOF AUC, but GS-331007 metabolite unchanged; no a priori dose adjustment	No interaction observed; no a priori dose adjustment
Ledipasvir	No data; no a priori dose adjustment	No data; no a priori dose adjustment
Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir	5.8-fold ↑ in CSA AUC; modeling suggest using 1/5 of CSA dose during PrOD treatment, monitor CSA levels and titrate CSA dose as needed	57-fold ↑ in TAC AUC; modeling suggests TAC 0.5 mg every 7 days during PrOD treatment; monitor TAC levels and titrate TAC dose as needed
Elbasvir-Grazoprevir	15-fold ↑ in GZR AUC and 2-fold ↑ in EBR AUC; co-administration is not recommended	43% ↑ in TAC; no a priori dose adjustment
Velpatasvir	No interaction observed; no a priori dose adjustment	No data; no a priori dose adjustment
Glecaprevir-Pibrentasvir	5-fold ↑ in GLE AUC with higher doses (400 mg) of CSA; not recommended in patients requiring stable CSA doses >100 mg/day	1.45-fold ↑ in TAC AUC; no a priori dose adjustment; monitor TAC levels and titrate TAC dose as needed
Sofosbuvir-Velpatasvir-Voxilaprevir*	9.4-fold ↑ in VOX AUC; co-administration is not recommended	No data; no a priori dose adjustment

AUC, area under the curve; CSA, cyclosporine; DAC, daclatasvir; EBR/GZR, elbasvir/grazoprevir; GLE/PIB, glecaprevir/pibrentasvir; LED, ledipasvir; SMV, simeprevir; SOF, sofosbuvir; TAC, tacrolimus; VEL, velpatasvir.

Sofosbuvir has significant renal elimination. Sofosbuvir-containing regimens not licensed for use in patients with a GFR <30 mL/min/1.73m². Other currently approved DAAs are not eliminated by the kidneys.[4]

†Consult Package Insert for specific indications

References

1 Fabrizi F, Martin P, Dixit V, et al. Meta-analysis of observational studies: Hepatitis C and survival after renal transplant. *J Viral Hepat.* 2014;21:314-324.
2 Ladino M, Pedraza F, Roth D. Hepatitis C virus Infection in chronic kidney disease. *J Am Soc Nephrol.* 2016;27:2238-22346.
3 Baid-Agrawal S, Pascual M, Moradpour D, Frei U, Tolkoff-Rubin N: Hepatitis C virus infection in haemodialysis and kidney transplant patients. *Rev Med Virol.* 2008;18:97-115.
4. Jadoul M, Martin P. Hepatitis C treatment in chronic kidney disease patients: The Kidney Disease Improving Global Outcomes Perspective. *Blood Purif.* 2017;43:206-209.
5. American Association for the Study of Liver Diseases, and the Infectious Diseases Society of America (AASLD-IDSA). Recommendations for testing, managing, and treating Hepatitis C. http://www.hcvguidelines.org. Accessed February 1, 2018.

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