Feature Editor: Melissa Prest, DCN, RDN, CSR, LDN

Hepatitis C and Chronic Kidney Disease

Melissa Prest, DCN, RDN, CSR, LDN

CHRONIC HEPATITIS C virus (HCV) affects roughly 58 million people worldwide.[1] In the United States, between 2013 and 2016, an estimated 2.4 million people were living with HCV.[2] Common risk factors include use of illegal intravenous drugs, blood transfusions, having sex with an infected person, getting a tattoo or body piercing with an infected needle, and sharing items like toothbrushes with an infected person.[3] Retrospective studies demonstrate that there is an association between HCV and the development of chronic kidney disease (CKD) and end-stage kidney disease (ESKD).[4] HCV affects the kidneys by chronic inflammation, impaired glucose utilization, and vascular disease.[5] In HCV, systemic vasculitis is present which affects small-sized vessels that expand B cells production of pathogenic IgM and IgG and rheumatoid factor activity.[4] Immune complex deposits result in clinical manifestations that increase both morbidity and mortality and reduce the efficacy of antiviral treatment.[5]

The risk of ESKD in patients infected with HCV is 7 times higher than noninfected persons and dependent on the viral load.[5] The risk of ESKD mortality is also higher in persons with HCV than non-HCV infection.[5] Hepatitis C infection is associated with a higher risk of diabetes and vascular disease.[5] Antiviral treatment for HCV has been found to improve renal and vascular outcomes.[5] Due to higher risk of death and illness, persons with CKD Stages 4 and 5 should be given priority access to HCV treatment.[4,5] Indications for antiviral treatment are based on the severity of liver fibrosis.[6]

Treatment and standard of care for HCV has progressed over the past 20 years and the World Health Organization estimates 95% cure rates.[1,5,6] World Health Organization guidelines preferred treatment regimen is either sofosbuvir or daclatasvir or a combination of sofosbuvir/ledipasvir.[1] These direct-acting antiviral drugs have been noted to be more effective than traditional therapies of pegylated interferon alfa and ribavirin and can cure most persons with HCV in 12 weeks.[1,5,6] Direct-acting antiviral drugs target vital proteins such as NS3/4A protease inhibitors, NS5B nucleostidic and non-nucleostidic polymerase inhibitors, and NS5A replication complex inhibitors.[5] Because HCV infection is generally asymptomatic, at risk populations (like persons with CKD) should be screened for anti-HCV antibodies by enzyme immunoassay and followed by nucleic acid testing if the immunoassay is positive.[4,6] In persons treated with renal replacement therapy, it is recommended that HCV screening be done upon admission to a dialysis facility and when transferring between dialysis facilities or treatment modalities.[4,6,7] Patients who test negative for HCV should be rescreened by enzyme immunoassay every 6 months.[4,6,7]

Supplementary Data

Supplementary data associated with this article can be found in the online version at 10.1053/j.jrn.2022.02.003.

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Foundation Dietitian, National Kidney Foundation of Illinois, Chicago, Illinois.

The author has no conflicts of interest to declare.

Address correspondence to Melissa Prest, DCN, RDN, CSR, LDN, Foundation Dietitian, National Kidney Foundation of Illinois, Chicago, IL. E-mail: melissa.rdld@gmail.com

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