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REVIEW

Hepatitis C and kidney disease: A narrative review

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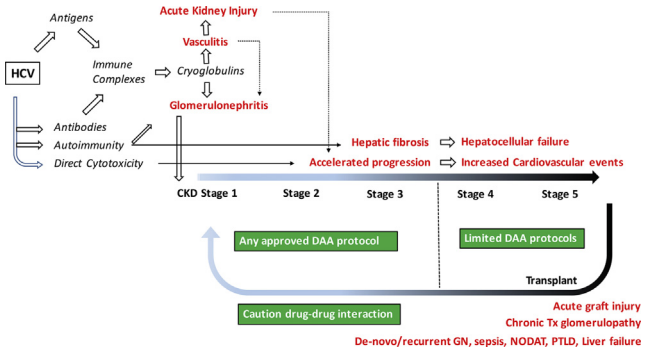
GRAPHICAL ABSTRACT



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ABSTRACT

Hepatitis-C (HCV) infection can induce kidney injury, mostly due to formation of immune-complexes and cryoglobulins, and possibly to a direct cytopathic effect. It may cause acute kidney injury (AKI) as a part of systemic vasculitis, and augments the risk of AKI due to other etiologies. It is responsible for mesangiocapillary or membranous glomerulonephritis, and accelerates the progression of chronic kidney disease due to other causes. HCV infection increases cardiovascular and liver-related mortality in patients on regular dialysis. HCV-infected patients are at increased risk of acute post-transplant complications. Long-term graft survival is compromised by recurrent or de novo glomerulonephritis, or chronic transplant glomerulopathy. Patient survival is challenged by increased incidence of diabetes, sepsis, post-transplant lymphoproliferative disease, and liver failure. Effective and safe directly acting antiviral agents (DAAs)

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List of abbreviations

AA-protein Amyloidal-A protein
AASLD American Association For The Study Of Liver Disease
ADA American Diabetes Association
AKD Acute kidney disease
AKI Acute kidney injury
C1q, C3a, C4, C5a, C5-9 Respective complement components
CKD Chronic Kidney disease
CLD Chronic liver disease
CYP-450 Cytochrome P-450
D +ve HCV positive donor
DAAs Direct-acting antivirals
DNA Desoxyribonucleic acid
EASL European Association For The Study Of The Liver
eGFR Estimated glomerular filtration rate
ELISA Enzyme-linked immunosorbent assay
ESKD End-stage kidney disease
FCH Fibrosing cholestatic hepatitis
FDA Food and Drug Administration
FSGS Focal segmental glomerulosclerosis
GN Glomerulonephritis
GT Genotype
HBV Hepatitis B virus
HCV Hepatitis C virus
HCV +ve HCV infected
HCV −ve HCV non-infected
HIV Human Immunodeficiency virus
IFN-α Interferon-alpha
IgA, IgG, IgM Immunoglobulins A, G and M (respectively)
κ-RF Kappa-Rheumatoid factor
MGN Membranous glomerulonephritis
MPGN Membranoproliferative (Mesangiocapillary) glomerulonephritis
mTOR Mammalian target of rapamycin
NHL Non-Hodgkin lymphoma
NODAT New-onset diabetes after transplantation (Post-transplant diabetes mellitus)
NSx Non-structural viral protein-number (x)″
PCRc Polymerase chain reaction for Hepatitis C virus
PTLD Post-transplant lympho-proliferative disorder
R +ve HCV positive recipient
RBV Ribavirin
RCT Randomized controlled trial
RDT Regular dialysis treatment
RF Rheumatoid Factor
RNA Ribonucleic Acid
RR Relative Risk
SVRx Sustained Viral Response In (x) weeks
USRDS United States Renal Data System

Dialysis
Renal transplantation
Direct-acting antivirals

are currently available for treatment at different stages of kidney disease. However, the relative shortage of DAAs in countries where HCV is highly endemic imposes a need for treatment-prioritization, for which a scoring system is proposed in this review. It is concluded that the thoughtful use of DAAs, will result in a significant change in the epidemiology and clinical profiles of kidney disease, as well as improvement of dialysis and transplant outcomes, in endemic areas.

Rashad Barsoum Emeritus Professor and former chairman of Internal Medicine and chief of Nephrology at Cairo University. He authored 44 chapters on kidney diseases in 25 international textbooks. He published ≈200 papers with over 2500 citations. He served on the editorial boards of 18 and reviewer for 35 international journals. He holds the Egyptian First Class Order of Arts and Sciences and was the recipient of the Egyptian Nile Award and State Appreciation Prize, the ISN Roscoe Robinson Award, the International Award of the USA National Kidney Foundation Tarek Suhaimat Award of the ASNRT, Pioneer Award of the ISN, and many others.

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