Hepatitis C Virus Elimination in the Human Immunodeficiency Virus–Coinfected Population

Leveraging the Existing Human Immunodeficiency Virus Infrastructure

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KEYWORDS

• Hepatitis C infection • Elimination • Human immunodeficiency virus • Coinfection • Care cascade • Care continuum

KEY POINTS

- Consequences of hepatitis C virus (HCV) infection are more severe in the setting of human immunodeficiency virus (HIV) coinfection, and those with HIV-HCV coinfection are a population to be prioritized for care.
- Leveraging the existing HIV infrastructure is a practical solution for expediting treatment services to coinfected patients.
- Colocalization of HCV care within HIV centers will allow centralized resources to be effectively used, optimizing the chance of an HCV cure for coinfected patients.

INTRODUCTION

More than 2 million people worldwide are coinfected with human immunodeficiency virus (HIV) and hepatitis C virus (HCV).[1] In the setting of HIV coinfection, the

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consequences of HCV infection are more severe, including accelerated progression to cirrhosis, liver failure, and liver-associated death.[2–4] Therefore, reaching the coinfected population with curative HCV treatment is an urgent priority.[5]

Since the inception of interferon (IFN)-based therapies, the treatment of HCV infection has been subject to many barriers.[6] Patients' medical and psychiatric comorbidities were contraindications to therapy; providers faced obstacles in determining treatment candidacy (eg, the need to obtain a liver biopsy); side effects from medications were often intolerable, and the adverse effects required close clinical and laboratory monitoring. For patients with HIV-coinfection, the limitations were even greater: disproportionately less access to care,[7,8] lower response rates to treatment,[9,10] and greater risk of adverse events, including cytopenias.[11–13]

The advent of direct-acting antiviral (DAA) therapy has been one of the greatest medical advancements of the twenty-first century. In the DAA era, treatment of HCV is achieved with excellent safety, tolerability, and efficacy. Furthermore, HIV-coinfected patients achieve cure rates comparable with monoinfected patients.[14–16] With the success of DAA regimens in HIV-HCV coinfected patients, current guidelines from the American Association for the Study of Liver Diseases/Infectious Diseases Society of America recommend that all coinfected patients be prioritized for therapy and be treated the same as patients without HIV, with special consideration given only to potential drug interactions with antiretroviral therapy.[17]

However, obstacles persist in the DAA era; medical barriers have in many cases been replaced by socioeconomic barriers.[18] In the United States, insurance status, poor clinic attendance, ongoing alcohol or substance use, or other social circumstances may impede efforts to treat. As in the IFN era, provider bias continues to impact treatment opportunities.[19] In countries other than the United States, particularly in low- and middle-income countries (LMICs), HCV diagnosis and treatment are limited by a lack of resources; however, through dedicated efforts in some LMICs, there are already early signs of success.

The objective of this review is to consider how the existing HIV infrastructure may be leveraged to inform and improve HCV treatment efforts in the coinfected population. Current gaps in HCV care relevant to the care continuum are reviewed. Successes in HIV treatment will then be applied to the HCV treatment model for coinfected patients. Finally, the authors give examples of HCV treatment strategies for coinfected patients in both domestic and international settings.

HEPATITIS C VIRUS CARE CASCADE AND IDENTIFIED GAPS

The care cascade, or continuum, is a framework for exploring the proportion of patients proceeding to successive stages of care engagement culminating in biological disease control, in the setting of HIV infection, or cure, in the setting of HCV infection. The cascade, first defined in patients with HIV,[20] has been applied to HCV infection, outlining the sequential clinical stages from screening to diagnosis to treatment to cure. The World Health Organization (WHO) profiled the global care cascade for HCV in 2015, demonstrating that stark gaps in care remain.[5] For example, only an estimated 20% of the 71 million persons living with HCV are aware of their diagnosis. As of 2015, approximately 5.4 million HCV-infected persons had been placed on treatment. Of those initiating treatment specifically in 2015 (1.1 million), about half received DAA therapy and only approximately 843,000 achieved a sustained virologic response (SVR).[5]

Other groups have outlined the HCV care cascade, demonstrating low treatment initiation and SVR achievement, especially in the IFN era. In Canadian and US cohorts,