

# HEPATITIS C VIRUS AND HIV COINFECTION

*Coinfection with HIV and hepatitis C virus (HCV) is a significant problem, especially among injection drug users (IDUs). Care for individuals living with both diseases is complex. Coinfected IDUs can be treated successfully, although the caregiving team should have expertise in liver disease, HIV, and addiction.*

## **Many IDUs are Coinfected with HIV and HCV**

HIV has been an important and familiar health and social crisis for two decades. Less familiar, but also important, is HCV infection. These two viruses are similar in a number of ways, and infection with both is a serious problem. Both HCV and HIV are transmitted by exposure to infected blood. About one-quarter of the people infected with HIV also have HCV.

The majority of coinfecting people are IDUs. HCV is acquired relatively soon after individuals begin injecting drugs. Within 5 years of beginning to inject, 50% to 80% of IDUs are infected with HCV. As a result, many IDUs who become infected with HIV are already infected with HCV. It is estimated that 50% to 90% of IDUs with HIV also have HCV infection.

## **Why Is HIV-HCV Coinfection Important?**

The introduction in the mid-1990s of highly active antiretroviral therapy (HAART) for HIV has caused a sharp drop in the number of deaths from AIDS. This means that people with

## **A recent study demonstrates the importance of coinfection among IDUs**

Between 1996 and 2000, more than 80% of the patients admitted to a large HIV/AIDS care center in Madrid, Spain, were IDUs. The proportion of these patients who were admitted because of liver failure almost doubled, from 9% to 16%.

End-stage liver disease is now the cause of death for 45% of HIV-infected patients in this hospital. HCV infection was the cause of the liver disease in nearly three-quarters of the HIV patients who were admitted or died during the course of the study.

*Source: Martin-Carbonero et al., 2001*

HIV are living longer. Therefore, if they are coinfecting, the complications from HCV have more time to develop. These complications (cirrhosis, liver cancer, end-stage liver disease) generally develop over 20-30 years. Liver disease from HCV is now the leading non-AIDS cause of death in the U.S. in coinfecting individuals with HIV.

Treatment for each disease is complicated, expensive, and has side effects. This poses difficult issues for patients who are living with both HIV and HCV.

Finally, coinfection is important because it has a disproportionate impact on certain communities, including those in prison and jail and communities of color.

## **Effects of Coinfection on HIV and HCV**

### *HIV's effect on HCV*

Studies have shown that HIV infection in a person who is also infected with HCV results in higher levels of HCV in the blood, more rapid progression to HCV-related liver disease, and increased risk for cirrhosis and liver cancer. As a result, HCV is now regarded as an opportunistic infection in people with HIV infection, although it is not considered an AIDS-defining illness.

### *HCV's effect on HIV*

These effects are less well understood. Some research suggests that infection with genotype 1 HCV is associated

with more rapid progression to AIDS or death, although this is still controversial. (HCV has several genetic variations, called genotypes. Most people with HCV infection in the U.S. have genotype 1. Genotypes 2 and 3 are more common in Europe.) Some evidence also indicates that HCV is associated with impaired CD4+ T cell recovery during antiretroviral therapy.

## Care and Treatment of Coinfected IDUs

### General recommendations

Coinfected IDUs should:

- stop injecting drugs, get into substance abuse treatment, and stay in treatment; if they are not able to stop, they should use sterile syringes and equipment and not share drug solution, syringes, or preparation equipment (needles, drug solution containers, water, cotton filters);
- stop drinking alcoholic beverages; if they are not able to stop, they should limit drinking because alcohol contributes to liver damage; when appropriate, they should be referred to alcohol treatment and relapse-prevention programs;
- practice safer personal care and sexual behaviors (not sharing toothbrushes and razors, using condoms consistently, limiting the number of sex partners, getting treatment for sexually transmitted diseases);
- be immunized against hepatitis A and hepatitis B, unless they are already immune from past exposure; and
- get regular check-ups to monitor overall health and status of liver disease; coinfecting individuals on HAART may be at increased risk of liver toxicity and should be closely monitored.

### Treatment for chronic hepatitis C

The Food and Drug Administration (FDA) has approved two antiviral drugs for the treatment of chronic hepatitis C:

- alpha interferon or an improved form of interferon, called pegylated interferon; and
- ribavirin.

Interferon is given alone or in combination with ribavirin usually for a 12-month period to patients with chronic hepatitis C who are at greatest risk of developing serious liver disease.

### Treatment issues for coinfecting individuals

Treatment for each of these diseases involves long-term therapy with multiple powerful drugs. Adherence to either treatment regimen is critically important to their success, and for HIV, to prevent resistance from developing. These issues are compounded for individuals who are living with both treatment regimens.

Treatment for either disease also has side effects, which should be closely monitored. Therapy with interferon alone appears to be reasonably well tolerated in coinfecting patients. However, combination therapy (with ribavirin) may result in severe complications, including death. Until further safety data are available, combination therapy should be used with caution. Another factor to consider is that effectiveness of treatment may be influenced by factors such as the person's age, how healthy he or she is at the beginning of therapy, the degree of existing liver disease, the person's CD4 count, and the extent of any other HIV-related illnesses.

### Additional issues for IDUs

Coping with coinfection and the demands of antiviral therapy pose particular challenges for coinfecting IDUs:

- Many IDUs also drink alcohol and abstaining from drinking may be difficult.
- For those IDUs who have stopped injecting, using interferon can trigger a desire to inject again because its effects can resemble drug withdrawal (feeling "drug sick"); in addition, interferon is given by injection. If the person continues to inject or begins again, there may be a high risk of HCV reinfection.

Although treatment of coinfection is complicated for IDUs, they can be successfully treated, and those who have stopped injecting have response rates similar to non-IDUs. A key aspect of their care is close monitoring by a caregiving team that has expertise in liver disease, HIV, and addiction medicine.

### To Learn More About This Topic

Read the overview fact sheet in this series on drug users and hepatitis – "Viral Hepatitis and Injection Drug Users." It provides basic information, links to the other fact sheets in this series, and links to other useful information (both print and Internet).

Visit websites of the Centers for Disease Control and Prevention ([www.cdc.gov/idu](http://www.cdc.gov/idu)) and the Academy for Educational Development ([www.healthstrategies.org/pubs/publications.htm](http://www.healthstrategies.org/pubs/publications.htm)) for these and related materials:

- *Preventing Blood-borne Infections Among Injection Drug Users: A Comprehensive Approach*, which provides extensive background information on HIV and viral hepatitis infection in IDUs and the legal, social, and policy environment, and describes strategies and principles of a comprehensive approach to addressing these issues.

- *Interventions to Increase IDUs' Access to Sterile Syringes*, a series of six fact sheets.
- *Drug Use, HIV, and the Criminal Justice System*, a series of eight fact sheets.
- *Substance Abuse Treatment and Injection Drug Users*, a series of six fact sheets.

**Visit the CDC's Viral Hepatitis website** ([www.cdc.gov/hepatitis](http://www.cdc.gov/hepatitis)) for information materials and on-line training for health professionals.

**Check out these sources of information:**

Bica I, McGovern B, Dhar R, et al. Increasing mortality due to end-stage liver disease in patients with human immunodeficiency virus infection. *Clinical Infectious Diseases* 2001;32:492-497.

Blackmund M, Meyer K, Von Zielonka M, Eichenlaub D. Treatment of hepatitis C infection in injection drug users. *Hepatology* 2001;34(1):188-193.

Centers for Disease Control and Prevention (CDC). Frequently asked questions and answers about coinfection with HIV and hepatitis C virus. [www.cdc.gov/hiv/pubs/facts/HIV-HCV\\_Coinfection.htm](http://www.cdc.gov/hiv/pubs/facts/HIV-HCV_Coinfection.htm)

Davis GL, Rodrigue JR. Treatment of chronic hepatitis C in active drug users. *New England Journal of Medicine* 2001;345(3):215-217.

Dodig M, Tavill AS. Hepatitis C and human immunodeficiency virus coinfections. *Journal of Clinical Gastroenterology* 2001;33(5):367-374.

Edlin BR, Seal KH, Lorvick J. Is it justifiable to withhold treatment for hepatitis C from illicit-drug users? *New England Journal of Medicine* 2001;345(3):211-214.

Graham CS, Baden LR, Yu E, et al. Influence of human immunodeficiency virus infection on the course of

hepatitis C virus infection: a meta-analysis. *Clinical Infectious Diseases* 2001;33:562-569.

Martin-Carbonero L, Soriano V, Valencia E, et al. Increasing impact of chronic viral hepatitis on hospital admissions and mortality among HIV-infected patients. *AIDS Research and Human Retroviruses* 2001;17(16):1467-1471.

Martinez EH. Hepatitis B and hepatitis C co-infection in patients with HIV. *Reviews in Medical Virology* 2001; 11(4):253-270.

National AIDS Treatment Advocacy Project (NATAP). Current review and update on hepatitis C and HIV/HCV coinfection. New York: NATAP; Summer 2001. [www.natap.org](http://www.natap.org)

Rodriguez-Rosado R, Perez-Olmeda M, Garcia-Samaniego J, et al. Management of hepatitis C in HIV-infected persons. *Antiviral Research* 2001;52(2 Special Issue):189-198.

Serfaty L, Costagliola D, Wendum D, et al. Impact of early-untreated HIV infection on chronic hepatitis C in intravenous drug users: a case-control study. *AIDS* 2001;15(15):2011-2016.



Department of Health and Human Services

<http://www.cdc.gov/idu>

Through the Academy for Educational Development (AED), IDU-related technical assistance is available to health departments funded by CDC to conduct HIV prevention and to HIV prevention community planning groups (CPGs). For more information, contact your CDC HIV prevention project officer at (404) 639-5230 or AED at (202) 884-8952.