IDU HIV PREVENTION

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MEDICAL MANAGEMENT OF CHRONIC HEPATITIS B AND CHRONIC HEPATITIS C

Many individuals who become infected with hepatitis B virus (HBV) or hepatitis C virus (HCV) develop chronic liver disease that can gradually lead to serious liver damage. Medical management involves periodic monitoring, abstinence from alcoholic beverages, and for some patients, antiviral therapy.

Hepatitis B Virus Infection

About 5% of Americans have been infected with HBV and 1.25 million have chronic HBV infection. In 2000, about 73,000 people in the United States were newly infected with HBV. HBV is transmitted when people share drug solution, syringes, and other drug use equipment (water, drug solution containers, and cotton filters) that are contaminated with HBV-infected blood. It's also spread through high-risk sexual behaviors, such as unprotected sex with multiple partners. Injection drug users (IDUs) with high-risk sexual and drug-use behaviors are at high risk of HBV infection.

About 50%-60% of adults with HBV infection have no signs or symptoms when the infection first develops. Those who do have symptoms might experience:

- jaundice
- fatigue
- abdominal pain
- loss of appetite
- nausea, vomiting
- joint pain

Most people who become infected as adults or older children recover fully from the infection and develop protective immunity to the virus. However, about 90% of infants infected at birth, 30% of children infected at age 1-5, and 2%-6% of those infected as older children or adults don't clear the virus from their bodies. They are chronically infected, which means that they carry the virus for the rest of their lives and can infect others.

Over the course of several decades, about one-third of chronically infected people develop a mild to moderate form of chronic liver disease that can result in fibrosis (scarring of liver tissue). About one-third develop severe liver disease that can result in cirrhosis (severe fibrosis) or liver cancer. About 15%-25% of these individuals will die from complications of chronic liver disease.

Hepatitis C Virus Infection

About 3.9 million Americans have been infected with HCV and 2.7 million have chronic HCV infection. In 2000, about 30,000 people were newly infected with HCV. HCV is transmitted when people share drug solution, syringes, and other drug use equipment (water, drug solution containers, and cotton filters) that are contaminated with HCV-infected blood. HCV is also spread through high-risk sexual behaviors, such as unprotected sex with multiple partners, but most HCV infections are due to injection drug use.

About 80% of people with HCV infection have no signs or symptoms when the infection first develops. Those who do have symptoms might experience:

- jaundice
- fatigue
- dark urine
- abdominal pain
- loss of appetite
- nausea

There are several different strains of HCV, called genotypes. Most people in the U.S. have genotype 1 infection. Genotypes 2 and 3 are more common in Europe.

HCV infection differs from hepatitis A and hepatitis B virus infections in that only a relatively small percentage of the people who become infected with HCV clear the virus from their blood. In 75%-85% of those infected, the virus persists in the body and the person has chronic infection.

Over a period of decades, about 50%-60% of chronically infected people develop a mild to moderate form of chronic liver disease that can result in fibrosis. About 10%-20% develop severe liver disease that can result in cirrhosis and, in some cases, liver cancer. About 1%-5% of these individuals will die from complications of chronic liver disease. Most patients have no symptoms until the disease is far advanced.

Managing Chronic Hepatitis B or Chronic Hepatitis C

Health experts recommend that people who have chronic viral hepatitis take several actions:

- Most important of all is to not drink alcoholic beverages, and if necessary, get into treatment, because alcohol makes liver disease worse.
- IDUs should stop injecting drugs and get into and stay in substance abuse treatment. If they can't stop, they should follow safe injection practices (always use a sterile syringe; do not share drug solution, syringes, or drug preparation equipment).
- All individuals with chronic liver disease should be immunized against hepatitis A. Individuals with chronic HCV infection who are at risk for HBV infection also should be immunized against hepatitis B.
- Individuals with chronic HBV and HCV infection should be under medical supervision.

Antiviral therapy is available for chronic hepatitis B and chronic hepatitis C

Though antiviral therapy is available, it is not recommended for all chronically infected people. Treatment should be determined based on regular monitoring for the development and extent of liver disease. Because of advances in the field of antiviral therapy for chronic hepatitis B and chronic hepatitis C, standards of practice might change, and those with chronic infection should consult with health care providers who are experienced in treating viral hepatitis.

Many people infected with HBV or HCV, especially IDUs, also have other illnesses (such as HIV, alcohol abuse, diabetes, or tuberculosis) and behaviors that put them at risk for other diseases. However, with careful monitoring by a health care team experienced in hepatitis, addiction, and other pertinent conditions, IDUs can be successfully treated.

Antiviral therapy for chronic hepatitis B

Individuals with chronic HBV infection – those who have tested positive for hepatitis B surface antigen (HBsAg) for at least 6 months – should have an initial evaluation that consists of:

- blood tests for liver disease, such as those that measure alanine amino-transferase (ALT) and aspartate aminotransferase (AST), which are enzymes released by damaged liver cells; and
- blood tests for the virus (HBeAg, anti-HBe, HBV DNA).

The Food and Drug Administration (FDA) has approved two drugs for use in treating chronic hepatitis B: alpha interferon (given for 16 weeks in adults and 24 weeks in children) and lamivudine (given for 52 weeks). Alpha interferon stimulates the body's immune system to fight the infection, but it is expensive, must be administered by injection, and has many side effects. Lamivudine is taken as pills, and has few, if any, side effects. However, the response to lamivudine may not last as long as with alpha interferon. In addition, stopping lamivudine is often followed by relapse, and continuing lamivudine indefinitely often leads to antiviral resistance.

Antiviral therapy may be appropriate for patients who:

- have abnormal levels of liver enzymes (ALT);
- have actively dividing virus in their blood (HBeAg-positive or high levels of HBV DNA); and
- have a liver biopsy that shows moderate disease activity and fibrosis.

The goals of treatment for chronic hepatitis B are sustained suppression of HBV and an end to active liver disease. Patients with HBeAg-positive chronic hepatitis who have a substantial decrease in the level of HBV DNA and a loss of HBeAg at the end of therapy are considered to have had a *virologic response* to treatment. A *sustained response* is one that persists for 6-12 months after therapy ends. Patients who have a sustained loss of HBsAg are deemed to have a *complete response* to antiviral therapy, but this does not happen very often.

The response rate to alpha interferon or lamivudine is above 50% in patients with ALT levels greater than 5 times the upper limit of normal, but lower (20%-35%) in patients with ALT levels 2-5 times the upper limit of normal. In patients with ALT levels less than 2 times the upper limit of normal, response rates are poor and therapy should be deferred.

Antiviral therapy for chronic hepatitis C

Individuals who test positive for antibody to HCV (anti-HCV) should have an initial evaluation that consists of:

- blood tests for liver disease such as those that measure levels of liver enzymes; and
- blood tests for the virus (HCV RNA).

The FDA has approved three antiviral therapies for treatment of chronic hepatitis C in persons 18 years and older: alpha interferon, pegylated interferon, and alpha or pegylated interferon in combination with ribavirin. All are given for up to 52 weeks. At present, this therapy is difficult and is effective in less than half of people treated. Antiviral therapy may be appropriate for patients 18 years and older who:

- have abnormal levels of liver enzymes (ALT);
- have the presence of virus in their blood (HCV RNA-positive); and
- have a liver biopsy showing either portal or bridging fibrosis or at least moderate degrees of inflammation and necrosis.

The main objective of therapy is to eliminate the hepatitis C virus. Undetectable virus at the end of treatment is called the *end of treatment response* (ETR). However, therapy is deemed successful only if virus remains undetectable 6 months after treatment ends. This is referred to as a *sustained virologic response* (SVR).

Among persons with HCV genotype 1, the response rate to either of the interferons given alone is 20% or less, but the response rate to the combination of alpha interferon and ribavirin is 30%-40%, and to pegylated interferon and ribavirin 40%-50%. Both the alpha and pegylated interferons are given by injection; ribavirin is taken as pills. All of these drug regimens have many side effects, some of which can be serious.

Because so many people with chronic hepatitis C have no symptoms and therefore don't realize they are infected, getting them tested and into care is an enormous challenge. Interest in viral hepatitis, especially hepatitis C, is growing but there is still a great need to educate the general public and health professionals about preventing, testing, and treating hepatitis C. This is particularly true in light of the fact that treatment is expensive and adherence over the 6-12 months of treatment can be difficult.

To Learn More About This Topic

Read the overview fact sheet in this series on drug users and viral 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)* and the Academy for Educational Development *(www.healthstrategies.org/pubs/publications.htm)* for the overview fact sheet and these 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)* for information materials, and on-line training for health professionals.

Read the final statement from the June 2002 National Institutes of Health (NIH) Consensus Development Conference on the medical management of hepatitis C *(http://odp.od.nih.gov/consensus/cons/105/105_intro.htm).*

Check out these sources of information:

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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.

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