Hepatitis From A To G

by Kim Collison

Viral hepatitis is a worldwide health problem. It is estimated that 300 million people throughout the world carry the hepatitis B virus, while over 4 million Americans have hepatitis C. Considering the frequency of contact with blood and body fluids when working in funeral service, it is important to understand how the hepatitis viruses are transmitted, and what precautions you need to follow to protect yourself.

Hepatitis is defined as an inflammation of the liver that can damage this organ and even cause death. While there are several etiologic agents that may be responsible for liver inflammation, the term "hepatitis" is most commonly associated with several distinct viruses. Hepatitis has been documented for centuries including accounts of human hepatitis appearing in Babylonian texts and Hippocrates' works. However, it has only been in the last 40 years that the hepatitis viruses have been discovered and identified. The signs and symptoms of all types of hepatitis are similar, so blood tests are necessary to determine which of the nine known viruses is causing the disease.

Viral hepatitis can be separated into two basic groups based on their mode of transmission. Hepatitis A and E are transmitted via the fecal-oral route, while hepatitis B, C, D, G, and GBV are bloodborne. The bloodborne viruses are spread whenever there is the possibility of the exchange of blood or body fluids.

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Hepatitis A

Hepatitis A, formerly called infectious hepatitis, is caused by the enterically transmitted hepatitis A virus. The Center for Disease Control and Prevention (CDC) estimate that over 140,000 cases of acute hepatitis A occur in the United States each year, accounting for approximately 80 deaths. Worldwide, the incidence of hepatitis A (HAV) infection exceeds 1.5 million cases. HAV is especially common in parts of Asia, Africa, South America, and Mexico. HAV enters the body through the digestive system, when one eats food or drinks water that has been contaminated with fecal material. Hepatitis A can also be spread via fresh fruit, salads, or vegetables washed in contaminated water.

The virus can be transmitted between family members, within institutions, by food handlers, and through sexual contact. An HAV positive person can spread the disease even if he or she has no symptoms. Hepatitis A generally produces a mild infection that lasts 6 to 10 weeks. Children and young adults account for 50% to 60% of the reported cases of HAV. Once you have the infection, you develop a natural immunity, so you never become infected again. Being vaccinated or just following good handwashing practices will protect you from acquiring hepatitis A in the prep room.

Hepatitis E

In 1990, the virus which is responsible for enterically transmitted non-A, non-B hepatitis was discovered. Hepatitis E (HEV) is prevalent in Asia, Africa, and the Middle East and has caused epidemics in Mexico. Like hepatitis A, hepatitis E is transmitted in water contaminated with infectious human waste. HEV generally produces a mild infection with an overall fatality rate of 1% - 3%. However, this disease does pose a serious risk to pregnant women, causing a fatality rate of 15% - 25%. There is not a blood test available for diagnosing hepatitis E, and researchers are currently testing a possible vaccine. Because there is the potential for contamination with fecal material in the prep room, strict adherence to universal precautions should protect you from both hepatitis A and E.

Hepatitis D

Hepatitis D, or delta hepatitis, is a

bloodborne virus that only exists in combination with the hepatitis B virus. The prevalence of hepatitis D in the United States is low, except in IV drug users and multiply transfused individuals. The coinfection of hepatitis B and D results in a severe disease state, and often results in severe chronic liver disease. There is no vaccine available for hepatitis D. However, because it can only exist with hepatitis B, the hepatitis vaccine will therefore offer protection against hepatitis D.

Hepatitis G

Hepatitis G virus (HGV) is spread in the same manner as other conventional bloodborne viruses. The risk factors for HGV are similar to those of hepatitis B and C — namely: IV drug use, multiple blood transfusions, and accidental sharps injuries. Chronic infection develops in 90% - 100% of individuals infected with HGV.

Hepatitis GBV

In June 1995, hepatitis GBV was discovered. It also appears to be transmissible through contaminated blood and body fluids. Extensive hepatitis research is still necessary, since approximately 20% of cases of acute and chronic hepatitis cannot be attributed to any of the known viruses.

Hepatitis C

Most hepatitis cases that were once referred to as bloodborne non-A, non-B are now known to be due to the hepatitis C virus (HCV). The recent identification of HCV and the development of screening tests for it have brought to light the enormity of the worldwide health problem. According to the American Liver Foundation, over 4 million people in the United States have chronic hepatitis C. In addition, each year an estimated 150,000 people are infected with HCV, and about 10,000 die of hepatitis C. The CDC now predicts that over the next 10 years the hepatitis C death toll will triple. Hepatitis C has been responsible for most cases of transfusion-related hepatitis. However, since 1989, blood products have been screened for hepatitis C, and no longer pose a risk. Today, one of the leading causes for liver transplantation is the presence of cirrhosis and/or liver cancer due to hepatitis C. Well-known individuals who've had transplants include David Crosby, Larry Hagman, and Mickey Mantle.

Hepatitis C is transmitted in many of the same ways as hepatitis B, and therefore they share many of the same risk factors. Essentially any activity which results in the transfer of contaminated blood or body fluids can result in the transmission of HCV. Common risk factors are: IV drug use, chronic hemodialysis, accidental sharps injuries, tattooing, body piercing, being the offspring of HCV positive mothers, and intranasal cocaine use. Studies show that the incidence of household (non-sexual) transmission of HCV range from 0% - 11%. They also estimate that the risk of hepatitis C transmission from a single needlestick involving HCV positive blood is 3% - 10%.

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An average 6 - 7 week incubation period follows infection with the hepatitis C virus. The early stage of HCV infection is termed acute hepatitis, and it may be mild or severe. Unlike the illness which occurs following infection with hepatitis A or B, many people with HCV will initially suffer flu-like symptoms while the virus quietly damages the liver. According to recent studies, up to 80% of people with acute hepatitis will develop chronic hepatitis — that is, hepatitis that continues beyond a six month period — and they may remain infected for several years or life. Up to 25% of these patients will progress to hepatic cirrhosis. Also, hepatitis C is a known predisposing factor in the development of liver cancer.

In 1992, the FDA approved the use of interferon-alpha 2b for treating selected cases of chronic hepatitis C. Although studies have shown that this treatment can lead to significant improvement in liver function tests, it has some major drawbacks. First of all, it's expensive and has numerous side effects. Also, fewer than half of HCV infected individuals respond to treatment, and most trials report at least a 50% relapse rate within six months of completing therapy. In October 1997, the FDA approved the use of Infergen, a biologically engineered version of interferon. Unfortunately, Infergen is about as effective as interferon against the hepatitis C virus.

Any accidental sharps injury or mucous membrane exposure to blood or body fluids in the prep room should be immediately documented and reported. Because post exposure testing of the source will be difficult, you should assume the source is positive for HCV. You should have a blood test to check for anti-HCV immediately following the exposure. Six months after the exposure, you should be tested again for anti-HCV and for the liver enzyme ALT. There is no established post-exposure prophylaxis for hepatitis C.

Hepatitis B

It is estimated that 300 million people throughout the world carry the hepatitis B virus (HBV). In China, Southeast Asia, and Africa, up to 12% of the population carries the hepatitis B virus. In this country, approximately 200,000 - 300,000 people become infected with HBV each year. Based on estimates from the

CDC, there are approximately 1.25 million chronic carriers, or people with ongoing hepatitis B infection, in the United States alone. Of these people, nearly 5000 die from cirrhosis or liver cancer each ear. The CDC reports that almost 12,000 health care workers become infected with HBV each year, with about 200 dying from the disease.

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The hepatitis B virus can be found in blood, saliva, semen, vaginal secretions, cerebrospinal fluid, peritoneal fluid, pericardial fluid, and basically any other body fluid contaminated with blood. Blood is the single most important source of hepatitis B and other bloodborne pathogens in the occupational setting. Often overshadowed by the fear of AIDS, hepatitis B is a greater threat in terms of infection, sickness, and death — mainly because it is a much hardier virus.

The hepatitis B virus is passed either directly from an infected individual by contact with his or her body fluid or indirectly, by contact with dried blood or body fluids on clothing or other surfaces. HBV is acquired through the skin by way of cuts, scrapes, hangnails, or needle sharing. Other means are by tattooing, by ear or body piercing, or by sharing razors, pierced earrings, toothbrushes, or nail clippers. It is also acquired through the mucous membranes such as the eyes, nose, or mouth by exposure to infected blood or body fluids, through sexual contact, and through contact between an infected mother and her newborn child. Also, hemophiliacs are a high-risk group due to their need for numerous blood products, many of which were not screened for HBV prior to 1975.

Needlesticks continue to be the main source of occupational exposure. More than 800,000 needlesticks and sharps injuries are reported each year, although the number of actual injuries is believed to be much higher. Because there can be 500 million hepatitis B viral particles in 1cc of carrier's blood, the risk of acquiring HBV from a needlestick ranges from 6% to 30%. After an exposure and an incubation period of 60 to 180 days, symptoms such as fatigue, enlarged liver, and jaundice will appear. The short term consequence of an HBV infection include an average 8 - 12 weeks off work and risk of permanent liver damage. Long term effects include chronic active hepatitis, cirrhosis, liver cancer, and death.

The best methods for protection against HBV are strict adherence to universal precautions and the hepatitis B vaccine. The first hepatitis B vaccine was derived from human plasma and became available in 1982. In 1986 a genetically engineered vaccine was licensed by the FDA. When given in the deltoid muscle, the hepatitis B vaccine produces protective antibody in more than 90% of healthy individuals. A blood test to check for the development of protective antibodies can be done 1 - 6 months after completing the 3-injection vaccine series. Currently there are different theories regarding the need for booster doses and how to treat those individuals who fail to produce protective antibodies following the vaccination series.

Should an exposure occur in the prep room, testing and treatment should be initiated within 72 hours. The exposure source should be assumed to be positive. You will require blood tests and should also receive one dose of hepatitis B immune globulin and one dose of the hepatitis B vaccine. Follow-up testing is generally done six months post exposure.

Hepatitis is a worldwide health problem and a major occupational hazard in funeral service. It is important that you understand how these different viruses are transmitted, because you are most likely embalming undiagnosed hepatitis positive remains. Your best protection against hepatitis B is the hepatitis B vaccine. Your best protection against all forms of hepatitis is following universal precautions.

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