

Hepatitis (Hepatitis A, B, and C)

- **Basics**

Overview

- **What is Hepatitis?**

Hepatitis is inflammation of the liver. This inflammation may be due to viruses, medicines, alcohol, problems with the immune system, or not enough blood supply to the liver.

The liver is an essential organ in the body and carries out a wide range of functions, including removing poisons from the body, storing energy, and regulating blood clotting.

- **What is Viral Hepatitis?**

Although other viruses can involve the liver, viral hepatitis refers to inflammation of the liver due to one of several viruses that specifically attack the liver. These viruses are labeled with the letters A, B, C, D and E. The most important viruses in the United States are viral hepatitis A, B and C.

- **How is Viral Hepatitis transmitted?**

Viral hepatitis A and E enter the body by way of the gastrointestinal tract. One gets these viruses by eating food or drinking fluids contaminated with the virus, usually from the stool of an infected person. Hepatitis A may also be transmitted in areas where there is overcrowding, such as day care centers and correctional facilities, from eating raw shell fish that came from water contaminated with sewage, or by sexual (usually anal-oral) contact. Hepatitis E, although similar to hepatitis A, is not frequently seen in the United States. This virus is seen primarily in the Indian subcontinent and in certain areas of Africa. It is transmitted primarily by fecal-oral contamination (as mentioned above).

The hepatitis B and C viruses are generally transmitted by contact with infected blood or blood products, or by sexual contact. In the United States, intravenous drug use is the most frequent mode of transmission of hepatitis C. Heterosexual transmission is uncommon for hepatitis C though men having sex with men is being recognized increasingly as a risk factor for hepatitis C transmission. Hepatitis B is commonly transmitted sexually as well as through intravenous drug use, and can also be passed from a mother to her fetus, usually at the time of delivery.

Hepatitis D (sometimes referred to as Delta hepatitis) only afflicts individuals who have the hepatitis B infection. The mode of transmission of hepatitis D is similar to that of hepatitis B.

- **What is Acute Viral Hepatitis and what are its symptoms and consequences?**

Acute viral hepatitis refers to inflammation of the liver associated with symptoms and abnormalities of liver enzymes, which last for a period less than six months. All of the viruses mentioned above can cause acute hepatitis. The symptoms of acute viral hepatitis can include low-grade fever, headaches, muscle ache, tiredness, loss of appetite, nausea, vomiting, diarrhea, dark-colored urine or light-colored stools. The most notable symptom of acute viral hepatitis is jaundice, which is a yellow discoloration of the skin and the whites of the eyes. Patients also usually complain of vague upper abdominal pain. Very few patients with acute viral hepatitis go on to develop liver failure that would require liver transplantation or lead to death. However, hepatitis E may have serious consequences if a person is infected during pregnancy.

Except for patients infected with hepatitis C, most cases of acute viral hepatitis will disappear on their own. With hepatitis C, more than 80% of patients will develop a persistent infection called chronic hepatitis. Although most of those with acute hepatitis B will resolve their infection, a significant number of infants and young children with hepatitis B will develop chronic hepatitis B.

- **What is Chronic Hepatitis? What are its consequences?**

Chronic viral hepatitis refers to ongoing inflammation and/or abnormalities of liver enzymes which last more than six months. Most patients who develop chronic hepatitis will have life-long disease unless they are treated. Chronic viral hepatitis in the United States is limited primarily to hepatitis B and C. Consequences of chronic viral hepatitis may include progressive liver disease, including cirrhosis and its complications, liver failure, liver cancer, and bleeding disorders, although many patients will never develop any of these complications. Furthermore, chronic hepatitis may be accelerated in people who use drugs that are toxic to the liver (including alcohol). Most of these complications can be prevented by early diagnosis and early treatment, and in the case of hepatitis B, vaccination will prevent acute infection in case of exposure to hepatitis B.

- **How is Viral Hepatitis diagnosed?**

Viral hepatitis (both acute and chronic) can be easily diagnosed using simple blood tests. While a liver sample (called a biopsy) is not required in the vast majority of cases, it may sometimes be helpful, especially in difficult to diagnose cases or when deciding on treatment based on the severity of the liver scarring.

- **How is Viral Hepatitis treated?**

Acute viral hepatitis generally does not require treatment, as most patients will get better on their own. Acute hepatitis C is a notable exception, because only 15% of patients will clear the virus on their own and most people, if not treated, will develop chronic hepatitis C. In addition, there is a very high cure rate when patients are treated during the acute hepatitis infection stage.

Chronic hepatitis treatments are available for hepatitis B and C, the most predominant causes of chronic hepatitis. Chronic hepatitis B is usually treated by medications that interfere with the virus' ability to multiply and replicate. These medications include oral medications as well as injectable medications. Approved medications for the treatment of chronic hepatitis B include the injectable pegylated interferons, as well as medications taken by mouth called directly acting antivirals (DAA's). These DAA's are virtually free of any side effects and are the mainstay of therapy. No medication is currently available which will rid the body completely free of the hepatitis B virus (cure). These medications keep the virus under excellent control, but will not completely eliminate the virus. The duration of treatment may vary from one year for the pegylated interferon to possibly indefinite for the oral DAAs. Research is ongoing on the medications that will completely eliminate the virus and achieve what scientists refer to as a functional cure.

Major advances have been made in the treatment of chronic hepatitis C infection. Currently, medications taken by mouth (called directly acting antivirals, or DAAs) have completely replaced the injectable medications (called pegylated interferons). These medications, which are taken by mouth, are specific for the type of virus the patient has, called genotype, of which there are six, (1-6). The oral medication ribavirin is still used in some patients with chronic hepatitis C. In the very near future, single tablet medications will be used to treat all of the six genotypes for hepatitis C! That cure rate with the currently available medications for hepatitis C is almost 100%. Although the cost of treatment for both viruses, especially hepatitis C have increased significantly, it is highly recommended that patients are treated as early as possible before they develop chronic liver disease and cirrhosis. The duration of treatment may be from eight weeks to 24 weeks.

Chronic viral hepatitis B and C should be treated by individuals who are knowledgeable of these conditions, the medications utilized to treat these conditions, and the side effects of these medications.

- **Why is it important to treat Chronic Hepatitis? Are there side effects associated with the medications used to treat Chronic Hepatitis B and C?**

The main reason to treat chronic viral hepatitis is to prevent cirrhosis of the liver, during which the liver becomes scarred and gradually loses its ability to function. This can ultimately lead to liver failure or liver cancer. Another reason for treatment is to prevent the spread of infection. The longer a patient has chronic hepatitis, the more likely it is that cirrhosis will develop. Therefore, early diagnosis is crucial for initiating treatment as soon as possible. Unfortunately, since chronic viral hepatitis is usually not associated with symptoms, most patients remain undiagnosed.

As I have said previously, the injectable medications (interferon) are no longer recommended for patients with hepatitis C. The DAAs mentioned above may be used alone or in combination with ribavirin, both taken by mouth. The side effects are minimal for the DAA's, and include a headache or difficulty with

sleeping. Some of the medications may have interactions with other medications taken by the patient. Your doctor will advise you of these possible interactions. Ribavirin side effects may be more prominent, and include anemia, skin problems, or breathing problems. Difficulties with sleeping may also be seen with ribavirin. All of the side effects are minimal and are quite manageable.

Hepatitis B may be treated with injectable medications (as mentioned above), or oral medications (DAAs). The interferons have side effects, which include anemia, depression, and other problems and while they are a recommended therapy, are much less commonly used in the United States than the oral medications. The oral medications have virtually no side effects and are quite safe. It may be necessary to give them indefinitely. All of these medications, however, may require adjustments of doses and frequency in patients who have kidney disease. As mentioned previously, patients with chronic viral hepatitis should be treated in a center with a great deal of expertise in the management of these side effects.

- **Can Viral Hepatitis be prevented?**

Most cases of viral hepatitis can be prevented by using common sense precautions. Since hepatitis A and E viruses are transmitted through contaminated foods and liquids, patients should not eat or drink in areas with unsanitary conditions. Hence, international travelers should only consume bottled water, not use ice in beverages, and avoid food sold from street vendors. Also, individuals traveling to areas with high rates of hepatitis A should receive the hepatitis A vaccine in two (2) doses, six to 18 months apart.

Other people who should receive the hepatitis A vaccine include men who have sex with men, intravenous and other drug users, people with clotting factor disorders like hemophilia, people with chronic liver disease, and children who live in areas that have historically high rates of hepatitis A. For short term protection (for example, short term travel to endemic areas), immune globulin (IG) shots may be given. This is generally needed for people who are going to remain in those areas for a period of less than one month. This IG shot can temporarily prevent you from contracting the virus. An IG shot may also be given for protection within 2 weeks following exposure to a known hepatitis A carrier.

Most patients with acute hepatitis B will get better on their own, but this is a preventable disease. The best method of prevention is vaccination. The hepatitis B vaccine is highly effective in preventing the infection. Individuals who should receive this vaccine include those who use intravenous and other drugs, men who have sex with men, individuals with high-risk sexual behavior, and individuals with multiple sexual partners. As pregnant women who carry the virus are very likely to transmit it to their baby, newborns of hepatitis B infected mothers should receive the first dose of the hepatitis B vaccine within 12 hours of birth. It is also recommended that an IG (immune globulin) shot be given at the same time. This method is highly effective in preventing infection of the newborn. If the mother also has high amounts of the virus in her blood stream, it is recommended that she receive an oral antiviral agent after the second trimester of pregnancy to further reduce the risk of transmission to her baby.

Most states currently require hepatitis B vaccination of all newborns, as well as “catch-up” vaccination for children and adolescents. A combined hepatitis A and B vaccine (Twinrix®) is also available for people who need both vaccines. These vaccines offer lifelong immunity (as does recovery from infection) unless the patient has underlying immune disease or kidney failure.

- **I heard that some medications such as herbal medications can cure Hepatitis. Is this true?**

Although some herbal medicines may briefly improve liver enzymes, there is currently no evidence that any medicines (other than those previously mentioned) can cure viral hepatitis. The most common herbal medicine, milk thistle showed no benefit in hepatitis C. One should never use any prescription or over-the-counter medications without consulting a physician first. Additionally, some herbal medications may seriously damage the liver.

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