

Medical Writers' Circle

a series of articles
written by medical
professionals
about the manage-
ment and treat-
ment of Hepatitis C

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Needlestick Exposure and Hepatitis C

Hepatitis C virus (HCV) is a hepatitis virus transmitted through blood-to-blood exposure. Hepatitis C is commonly acquired through blood product transfusions (primarily before 1992), needle sharing (including acupuncture), tattooing, body-piercing, and even through sharing personal hygiene items. In as many as 10% of individuals transmission route cannot be explained.

What is my risk of acquiring hepatitis C from a needlestick?

Unlike hepatitis B virus, hepatitis C is not efficiently transmitted from a needlestick. The average rate of seroconversion (changing from hepatitis C antibody negative to hepatitis C antibody positive) after an occupational exposure to HCV positive blood is about 1.8%, but has ranged as high as 7-10% in some studies. This risk is highest with hollow-bore needles.

What can be done to prevent the transmission of hepatitis C?

There is currently no vaccine or immunoglobulin (IG) to protect against HCV transmission. Several studies evaluating the response to passive immunoglobulin found that high anti-HCV titer IG

did not prevent transmission. This makes sense given that the rapid mutation rate of HCV allows the virus to escape from any protective antibody that may form during infection. Postexposure treatment with interferon, with or without ribavirin, is also confusing and controversial. At present, however, there is no recommendation for the use of antiviral therapy following needlestick exposure to an HCV-positive source.

What should I do if I'm exposed to HCV positive blood?

Currently, the best recommendation is to carefully monitor for laboratory abnormalities, signs and symptoms of acute hepatitis C infection. Acute hepatitis C is a difficult disease to study. This is due to the declining incidence of acute hepatitis C and the fact that most patients are not initially symptomatic. Given these limitations, a non-controlled study evaluating the response to a 24-week course of interferon alfa (Jaeckel et al., Treatment of Acute Hepatitis C with Interferon Alfa-2b. *NEJM* 2001;345:1452-1457) found that 98 percent of treated patients exhibited a sustained biochemical and virologic response 24 weeks after treatment of acute hepatitis C. These are exciting results, especially given

that previous studies suggested that only 15-30% of individuals with acute infection recover without treatment.

Should we treat everyone with acute hepatitis C or exposure to hepatitis C? Before recommending any treatment, we should be sure that it is the best thing for the patient. Interferon is expensive and has many side effects, some of which could be life-threatening. The study was not controlled (i.e., there was not a group with acute hepatitis C that did not receive treatment). We know that 15-30% of patients exposed to hepatitis C will recover without any treatment. In addition, the patients in the study were symptomatic and often had jaundice. Previous investigations suggest that progression to chronic hepatitis C is much lower in young patients with jaundice, making it more likely that these individuals could have spontaneous clearance. The individuals in the study were not treated immediately after exposure, but rather months after they had symptoms. This would suggest that therapy could be delayed without adverse affects, allowing patients to spontaneously recover before prescribing an expensive and difficult to tolerate medication. But the number one reason that interferon therapy is not standard in acute infection is that we need more

data to ensure that this is the most beneficial treatment to offer. Currently, the US public health service guidelines for management of HCV exposures include:

1. Baseline testing for anti-HCV and ALT activity
2. Follow-up testing at 4-6 months for anti-HCV and ALT activity or HCV RNA at 4-6 weeks
3. Exposed individuals should not donate blood, plasma, organs, tissue, or semen
4. Exposed person does not need to modify sexual practices or refrain from pregnancy or discontinue breast feeding
5. When HCV infection is confirmed early, the person should be referred for medical management to a specialist in this area
6. IG and anti-viral agents are not recommended

The 2002 NIH Consensus conference recommended that patients with acute hepatitis C were potential candidates for interferon therapy, but realized many questions remained unanswered, particularly: which patients with acute HCV should be treated, and when is the ideal time to start therapy?