Viral Hepatitis:
What Should I Know?

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Did you know...

Chronic viral hepatitis is a major clinical concern worldwide. In Canada, the prevalence of hepatitis B (HBV) is about 0.2% and hepatitis C (HCV) is about 0.8% of the population.[1]

Point #1

Patients who are at risk for infection, or who present with abnormal liver tests need to be screened for these viruses. Specifically, the best screening test for hepatitis B (HBV) is HBsAg for infection and anti-HBc/s for immunity and the best screening test for hepatitis C (HCV) is anti-HCV. Infection with HCV can be confirmed by polymerase chain reaction (PCR) testing for HCV RNA in serum.

An acute infection with HBV will lead to a chronic infection in up to 95% of neonates, but only in about five per cent of immunocompetent adults. Therefore, chronic HBV infection is endemic in areas of the world where younger individuals are exposed to the virus.

In contrast, acute HCV infection will lead to chronic infection in up to 85% of exposed individuals. Both chronic HBV and chronic HCV infection are clinically important as they can ultimately lead to cirrhosis, liver failure and hepatocellular cancer.

Viral hepatitis info...

Over the past 10 to 15 years, the therapeutic approaches for treating HBV and HCV have progressed significantly.

Point #2

HCV is now routinely subdivided into specific genotypes, numbered from one through to six. In Canada, genotype one (G1) infection accounts for about 70% of the disease and genotype two and genotype three (G2/G3) account for about 30%.

The identification of a patient's HCV genotype has significant implications with regards to therapeutic choices and outcomes. G1 infected patients require a full 48 weeks of therapy with weekly injections of one of the newer pegylated interferons, coupled with higher doses of the oral medication ribavirin and they can roughly expect a 50% chance of eradicating the HCV virus.[2]

In contrast, G2 and G3 infected patients require 24 weeks of treatment with a pegylated interferon, coupled with a lower dose of ribavirin. Viral eradication for this group is achieved in up to 80% of patients.[2] Moreover, long-term follow-up studies indicate that viral eradication is long-lived, prompting many physicians who treat the virus to use the word cured in these patients.[3]

Viral hepatitis fact...

For HVC therapy, viral eradication is long-lived. More than 99% of patients remain virus free for more than five years after successful therapy.

Point #3

The goals of HBV therapy include biochemical normalization (*i.e.,* normal serum alanine aminotransferase (ALT) levels), viral loss (*i.e.,* loss of HBsAg) or loss of viral replication (*i.e.,* HBEAg seroconversion and/or serum HBV DNA negativity), histological improvement (*i.e.,* inflammation fibrosis), improvements in clinical outcome, or combinations of these endpoints.

Viral Hepatitis FYI...

Treatment of a chronic HBV infection is significantly more complex than treatment of HCV. The goals of therapy in a HBV infection are less well defined and are further complicated by the relatively recent recognition of HBEAg negative HBV active infection.

Point #4

Therapies for treating HBV can be broadly split into:

1) immune system modulators plus antiviral (= interferons) and
2) antiviral (suppression of virus replication = nucleos/ tide analogues including lamivudine).

Patients selected for therapy need to have replicating HBV virus (*i.e.,* HBV DNA positive HBEAg) and traditionally, have been required to have elevated serum ALT levels; however, this requirement is less clear for patients being treated with nucleoside analogues, especially in the setting of advanced liver disease.

Treatment courses in HBEAg positive patients result in durable HBEAg seroconversion in up to 25% of patients treated with a 16 week to a 24 week course of interferon. This number is roughly 20% for patients treated with lamivudine for 48 weeks to 52 weeks. The seroconversion rates are lower for other nucleoside analogues. In contrast, durable responses to therapy in patients with HBEAg negative HBV infection are 15% to 20% with 12 months of interferon therapy. This number decreases to less than 10% after 12 months of therapy with nucleoside analogues.

About treatment

Chronic HBV and HCV infection are significant health issues for Canadians. However, our scientific understanding of these diseases has progressed significantly over the past decade and has resulted in the development of new and improved therapies for patients. Despite this, there is still an obvious need for improvements in our therapeutic armamentarium for treating these diseases and in selecting the patients most likely to benefit from therapy.

Point #5

Currently, controversy exists with regards to the best approach for treating HBV infected patients. A balance exists between a finite course of therapy with the goal of achieving a sustained response (*e.g.,* a course of interferon) vs. long-term maintenance treatment which is geared towards viral suppression (*e.g.,* nucleoside analogues). However, long-term viral suppressive therapy is potentially complicated by safety issues, problems with drug resistance and costs. Therefore, the selection of HBV infected patients for possible therapy needs to balance the potential benefits (*i.e.,* likelihood of response, severity of liver disease) with potential risks (*i.e.,* side-effects, a patient's age, comorbid illness, costs and drug resistance) and obviously requires patient individualization.[4]

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