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Spotlight on Health

Quest Diagnostics™

Hepatitis C— Diagnosis and Cure

With about 71 million people infected worldwide, chronic hepatitis C virus (HCV) infection is a global health problem.[1,2] HCV infection increases the risk of liver fibrosis, cirrhosis, and liver cancer, and is responsible for almost 400,000 deaths annually.[1,2]

Prior to 2014, the antiviral drugs used to treat hepatitis C successfully treated only 40% to 45% of patients, as effectiveness was largely dependent on viral genotype.[3] Also, treatment regimens lasted 6 to 12 months and had multiple significant side effects.[3] However, since second-generation direct antiviral agents (DAAs) were introduced in 2014, >95% of people with HCV infection can now be cured with safer and shorter treatment regimens.[4] Unfortunately, many people in high-risk groups have not been screened for HCV. Consequently, many people with HCV remain untreated. Notably, fewer than 15% of the estimated 76.2 million baby boomers in 2015 reported having ever received HCV testing.[5]

This newsletter will discuss populations at risk for HCV infection, screening recommendations, and the new therapies that lead to a cure in most people.

Two Major Populations at Increased Risk of HCV Infection

Baby Boomers

More than 75% of Americans infected with HCV were born between 1945 and 1965, a generation known as "baby boomers."[6] Most were infected decades before HCV was identified and the health impact of HCV was known. Most don't know they are infected, and about 35% already have advanced liver disease.[6] As baby boomers age, the incidence of liver disease and deaths from HCV infection is expected to rise rapidly.

Current guidelines recommend that all baby boomers without known risk factors be tested once for HCV infection.[7,8] Furthermore, Medicare and Medicaid cover one-time HCV screening.[6] This screening is predicted to detect HCV infection in about 800,000 people.[7] Treating these people with DAAs could save about 120,000 lives, and prevent many cases of liver cancer and liver transplantation.[7]

Injection Drug Users

Injection drug use is now the most common mode of HCV transmission in the United States, and thus the most important risk factor. About one-third of injection drug users aged 18 to 30 years are infected with HCV.[9] Individuals more than 30 years old who are current or prior drug users have an even higher prevalence of HCV infection (70% to 90%).[9] Guidelines recommend that injection drug users be screened at least annually.[8]

Other Groups at Increased Risk of HCV Infection

Current guidelines also recommend screening the following groups for HCV infection[8]:

- Individuals with a history of
  - Long-term hemodialysis
  - Receiving blood transfusions or organ transplants before 1992
  - Receiving clotting factor concentrates made before 1987
  - Receiving blood or organs from a donor who later tested positive for HCV
  - HIV infection
  - Unexplained chronic liver disease
  - Chronic hepatitis including elevated alanine aminotransferase levels
  - Using illegal drugs intranasally
  - Incarceration
  - Being tattooed in an unregulated setting
- Healthcare workers accidentally exposed to HCV-infected blood (eg, via needlestick injury)
- Children born to an HCV-infected mother
- HIV-infected men who have unprotected sex with men (screen at least annually)

Unless otherwise indicated, screening frequency should be based on the clinician's assessment of risk for infection or reinfection.

New Therapies Lead to High Sustained Virological Response Rates

DAAs interrupt HCV replication by targeting the HCV NS3/4A protease or the *NS5A* or *NS5B* genomic regions.[4] DAAs are more specific in their mechanism of action, more effective, and better tolerated than older anti-HCV therapies.[4] Sustained virological response (SVR) rates, a measure of treatment success, have increased from around 45% to >95%.[4] Furthermore, SVR can often be achieved in 12 weeks or less compared to the 6 to 12 months that were required with older, interferon-based regimens.[4] For these reasons, DAAs are now the standard of care for treatment of HCV infection.

Guidelines now recommend treating everyone with chronic HCV, except those with a short life expectancy that is unlikely to be extended by treatment.[8,9] Guidelines no longer support prioritizing patients for treatment based on "greatest need."

How the Laboratory Can Help

Quest Diagnostics offers testing to screen for infection, detect ongoing viral replication, determine HCV genotype, determine status of liver fibrosis, and determine if drug-resistant variants are present.

- HCV antibody tests are used to screen for infection. All positive tests need to be confirmed by a viral RNA testing.
- RNA tests are used to confirm active infection, measure viral load, and assess treatment response.
- Blood tests are used for evaluating the extent of liver damage and inflammation.
- Tests for drug resistance-associated variants in the *NS3, NS5A,* and *NS5B* genes are used in people with HCV genotype 1 or 3. Detection of these variants can help with treatment selection.
- Routine blood tests are used to assess liver damage and to monitor response to therapy.

More information about Quest Diagnostics HCV testing can be found at:

- QuestDiagnostics.com/home/patients/tests-a-z/hcv/hcv-testing-boomers
- QuestDiagnostics.com/home/physicians/testing-services/specialists/hcv/know-their-type

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