Why Hepatitis C Tests May Give False Results

While generally accurate, the standard hepatitis C test is still subject to false negatives and false positives.

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In the vast majority of cases, the result of the hepatitis C virus (HCV) test is definitive, accurately stating whether an individual has contracted the virus that can cause serious liver damage over time. However, in more rare cases false positive results occur—when someone tests positive but is not actually infected. Then there are false negatives, in which someone tests negative but actually is carrying hep C. In the event that either scenario applies to you, here is some information to help explain each phenomenon.

First a bit about the two main kinds of hep C tests and how they work. The initial test that is typically used is called an enzyme-linked immunosorbent assay, or ELISA, screen. It looks for the antibodies to hep C that the immune system develops in response to an infection. Second, there is a hep C RNA test, which detects evidence of the actual virus in the bloodstream. The RNA test is more expensive to conduct, so for general screening purposes it is typically only used as a confirmatory test: If an ELISA tests positive, an RNA test is conducted to either confirm or deny the actual presence of an infection.

Natural Clearance:

Approximately one in four people who contract hep C will clear the virus on their own. When tests are taken after this process is complete, the ELISA will test positive while the RNA test will come up negative. These contradictory results happen because the antibodies to hep C remain in the body even though the virus itself is gone. Research suggests that someone who spontaneously clears the virus has no greater risk of liver disease or death than someone who never had the virus. (Hep C raises the risk of both outcomes.) It is highly unlikely that someone who has cleared the virus will have the capacity to infect others with the virus after doing so. Spontaneous clearance does not mean someone is immune to reinfection with hep C.

It is very difficult to determine whether someone has spontaneously cleared the virus or is testing false positive for another reason.

False Positives:

A false positive occurs when the ELISA test comes up positive for hep C antibodies, but the person taking the test was never exposed to hep C virus, which leads the RNA test to read as negative.

The problem is that antibodies that the immune system has produced to combat infections other than hep C can be what's known as "cross-reactive": The ELISA winds up picking up on these antibodies' presence and incorrectly coming up positive. Research has shown, for example, that people are much more likely to test false positive if they're living in areas of Africa where exposure to infectious diseases such as worms is more common. "There are a myriad of things than can infect you, particularly in areas where you don't have a lot of sanitation and clean water," says Oliver Laeyendecker, PhD, an infectious disease researcher at the National Institute of Allergy and Infectious Diseases.

Those who test false positive, regardless of the reason, will likely continue to do so for the duration of their lives. So in the event of future hep C exposure, an RNA test will be needed to accurately diagnose an infection. **Major risk factors for contracting hep C include: injection drug use, including steroids; the sharing of needles, syringes or other injection materials; needlestick injuries in a health care setting; tattoos or piercings performed with non-sterilized equipment; and condomless sex among HIV-positive men who have sex with men (MSM).**

There is also always the rare possibility of lab error leading to a false positive or a false negative test result.

False Negatives:

Just as with testing for HIV, a false negative occurs during what's known as the "window period"—the time after infection but before the immune system has developed antibodies. For hep C this is about four to six weeks. During this period, because there is no antibody to detect, the ELISA will come up negative. However, an RNA test will identify the presence of the virus, especially considering how highly sensitive that test is and how quickly the virus multiplies to high levels in the body.

Those with suppressed immune systems, including those with HIV, may be more likely to test false negative because of their diminished capacity for developing antibodies.

The crux of a false negative scenario is that in most cases only an ELISA test will be conducted, thus missing the chance to diagnose the virus accurately. Considering that medical guidelines recommend only a one-time test for many demographics, this could be the difference between identifying the virus early and waiting until decades have passed and liver disease prompts another test.

So if you have had any potential recent exposure to hep C, it is a good idea to get retested for hep

C with an ELISA test after three months have passed or to obtain an RNA screen. Hep C risk factors are listed in bold above.

Another test that may indicate a new, also known as acute, infection with hep C is the alanine aminotransferase, or ALT, liver test. An irregular result, which is likely to occur before the development of hep C antibodies, may indicate an infection with the virus. This is hardly a foolproof method of detection, however, since ALTs can elevate for all sorts of reasons and because perhaps more than half of those with hep C will have a normal read.

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