Hepatitis C virus infection

MASTERING SPECIAL SITUATIONS

Diagnostic gap

Diagnostic gaps are time periods where important markers of infection cannot be detected, even though an infection is present.

In hepatitis C, two diagnostic gaps are present:

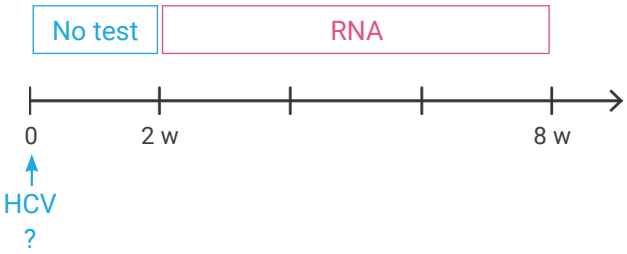
Serologic gap
After infection, it takes about 7–8 weeks until Anti-HCV antibodies are detectable in blood.

Molecular gap
After infection, it takes about two weeks until HCV RNA is detectable in blood.

Thus, if we test too early after infection, we may see negative results, even though infection has occurred.

Therefore, if you believe your patient was recently exposed to HCV, you will have to wait two weeks to detect an early infection. In the following weeks, before an immune response begins, it is necessary to measure RNA to confirm an infection.

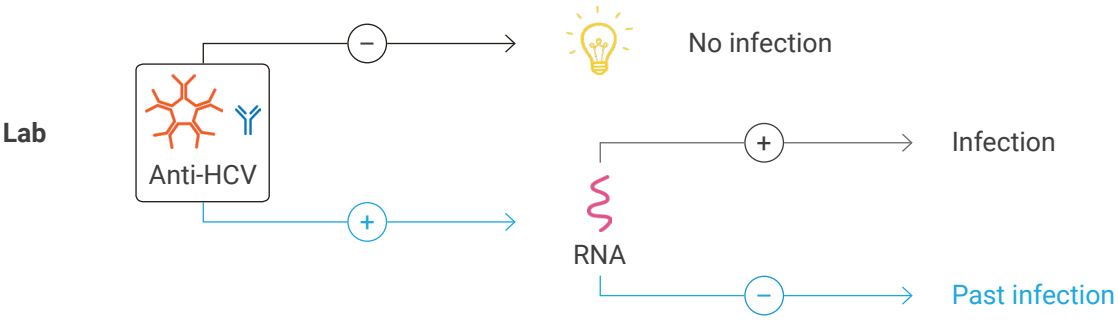
More than eight weeks after infection, HCV screening routinely begins by measuring anti-HCV antibodies.



Additional testing

If the patient's lab report shows a positive anti-HCV test and a negative HCV RNA result, they may have had a past infection.

However, you need additional testing in order to confirm this interpretation.



\+ positive test result
\- negative test result

There are two possibilities as to why this result may not actually be the consequence of a past infection:

- The first possibility is that the patient suffers from a **chronic infection**, but RNA levels are temporarily not detectable, since RNA levels fluctuate in chronic courses. So by definition this is not a false negative result, it is just a possibility in the pathophysiological course of a chronic infection! In order to exclude a possible chronic infection, it is recommended that testing be repeated six months later.
- The second possibility could be a **false positive anti-HCV**. This is the consequence of choosing high sensitivity over specificity in a screening test. In order to exclude a possible false positive anti-HCV result, it is recommended that anti-HCV testing be repeated immediately using a second (different) test system.

To wrap up, if you see a set of lab results that suggests a past hepatitis C infection, you must first repeat the following tests in order to make the right conclusions:

- ***Repeat RNA measurements in six months***
- ***Repeat anti-HCV immediately** with a second test system*

Further Reading

European Association for the Study of the Liver. 2015. EASL Recommendations on Treatment of Hepatitis C 2015. *J Hepatol.* **63:** 199–236.