The Quest for a Hepatitis B Cure Continues

The liver virus affects as many as one in four people worldwide.

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As liver disease treatment improves around the world, researchers continue to diligently search for a cure for hepatitis B virus (HBV). A recent report from Science magazine overviews nearly 50 new potential treatments currently in development and suggests we could soon be one step closer to a cure for HBV.

The shape-shifting nature of hepatitis B virus has long perplexed researchers. In some cases, the virus simply waits inside liver cells, barely signaling its presence. In other cases, it can establish a chronic infection, churning out lots of new virus but doing little harm. In yet other cases, the virus can trigger liver damage that can turn into cirrhosis or cancer, which kills nearly 900,000 people around the world every year.

Currently, HBV can be controlled with drugs and prevented with a vaccine. However, HBV drugs have to be taken for a lifetime, and vaccine coverage around the world remains spotty. The result: Health authorities say hepatitis B affects as many as one in four people worldwide; they also believe nearly 300 million people are living with a chronic infection and just 10 percent know they're infected.

Two major types of hepatitis B cures are under development—those that directly attack different phases of the viral life cycle and those that boost immunity against the virus. Researchers are also looking into a latent form of viral DNA produced by HBV called covalently closed circular DNA (cccDNA), which forms a minichromosome inside the nucleus of infected cells that likely needs to be fully eliminated before a cure can be achieved.

So far, no drugs specifically target ccDNA. For now, researchers are looking to develop "functional cures" that lower the amount of virus to the point that the body's own immune system can keep the infection in check, allowing for people to stop treatment.

Experts in the field estimate that it will take 5 to 10 years to clear cccDNA. In the meantime, if researchers can keep pushing toward functional cures and continue to vaccinate those who are not infected, we may very well soon eradicate the virus.

To learn more about the specifics of ongoing HBV cure research, click here.
