

Metabolic Conditions Influence Hepatitis B Treatment Outcomes

People with HBV and obesity, diabetes or fatty liver disease were less likely to achieve full remission.

November 3, 2025 By [Sukanya Charuchandra](#)

People with chronic [hepatitis B](#) who also have metabolic conditions may respond less effectively to antiviral therapy, according to study findings published in [The Lancet eClinical Medicine](#). Even five years after starting treatment, people with metabolic dysfunction were significantly less likely to achieve a full biochemical response.

More than half of people with chronic hepatitis B virus (HBV) infection have at least one metabolic condition. What's more, many people with HBV also have metabolic dysfunction-associated steatotic liver disease (MASLD), or liver fat accumulation.

Rui Huang, MD, PhD, of Stanford University Medical Center, and colleagues conducted a study to see whether concurrent metabolic conditions would affect HBV treatment response.

The researchers analyzed data from 4,507 people with chronic hepatitis B who received first-line treatment with nucleoside/nucleotide analogs at 32 centers between January 2004 and August 2024. Of this population, more than half (55%) had at least one metabolic condition. Obesity was most common (62%), followed by hypertension (38%), dyslipidemia (32%) and type 2 diabetes (21%). People with metabolic conditions were older and more likely to be men.

The researchers put together 893 matched pairs, taking into account patient age, sex, HBV viral load and liver function status. They analyzed rates of biochemical response (normal alanine aminotransferase, or ALT, levels), virological response and complete response (ALT normalization and undetectable HBV DNA).

Response rates were lower among people with metabolic dysfunction and worsened in those with more concurrent metabolic conditions. People with metabolic disease were less likely to experience a biochemical response over five years compared to those without metabolic conditions (91% versus 96%). Likewise, complete response rates were lower among those with metabolic dysfunction compared to those with no metabolic conditions (82% versus 87%). Just 84% of people with three or more such conditions had a biochemical response and only 67% had a complete response. Virological response rates, however, were similar regardless of the presence

or absence of metabolic disease (both 94%). Hepatitis B e antigen (HBeAg) seroconversion rates were also comparable (27% and 30%).

Liver steatosis (fat accumulation) alone was not linked to lower rates of biochemical or complete response unless metabolic conditions were also present, but steatosis was associated with a higher likelihood of hepatitis B surface antigen (HBsAg) loss, considered a functional cure. Having MASLD was associated with lower biochemical, virological and complete response rates.

People who did not achieve a biochemical response within three years after starting treatment had more than double the risk of liver cancer compared with those who achieved ALT normalization. This was true even for people without metabolic conditions or MASLD.

“Metabolic disease should be taken into consideration in the management of chronic HBV patients receiving [nucleoside/nucleotide analog] treatment,” the researchers concluded.

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