

Chronic Hepatitis B and Latent Tuberculosis Coinfection in the United States



How prevalent is hepatitis B virus (HBV) and latent tuberculosis coinfection in the United States, and are there opportunities to improve testing?



Background

Assessing the rate of HBV testing in patients with latent tuberculosis infection (and vice versa) and the prevalence of coinfection is important because HBV increases the risk of drug-induced liver injury during drug treatment for latent tuberculosis infection (LTBI).



Methods

Retrospective analysis using laboratory data from 2014 through 2020 to assess (1) testing patterns for chronic HBV infection and LTBI, and (2) HBV-LTBI coinfection.



Results

Only

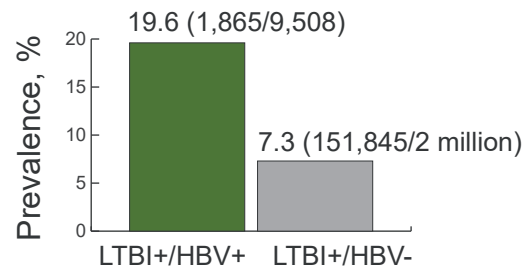
11%

of HBV+ patients were tested for LTBI (ie, coinfection).

LTBI prevalence was

>2x

as high in patients with chronic hepatitis B as in those without.



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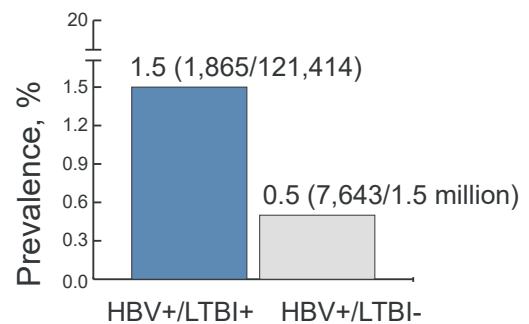
32%

of LTBI+ patients were tested for HBV (ie, coinfection).

HBV prevalence was

3x

as high in patients with LTBI as in those without.



Testing rates for HBV-LTBI coinfection are low among individuals with chronic hepatitis B and those with LTBI. Among those who were tested, coinfection is substantial, suggesting the need for testing for HBV-LTBI coinfection to mitigate risk of drug-induced liver injury.

¹Wong RJ, Kaufman HW, Niles JK, et al. Prevalence of hepatitis B virus and latent tuberculosis coinfection in the United States. *J Public Health Manag Pract.* 2022;28(5):452-462. doi:10.1097/PHH.0000000000001536

Chronic Hepatitis B and Latent Tuberculosis Coinfection in the United States

Article title: Prevalence of Hepatitis B Virus and Latent Tuberculosis Coinfection in the United States

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Background

- Patients with latent tuberculosis infection (LTBI) have increased risk for drug-induced liver injury during treatment if they also have chronic hepatitis B.¹
- The package insert of the primary anti-tuberculosis drug, isoniazid, warns about potential severe and sometimes fatal hepatitis and recommends monitoring aspartate aminotransferase (AST) and alanine aminotransferase (ALT) during therapy.²
- The frequency of testing for both LTBI and hepatitis B and the prevalence of coinfection are not well understood.
- **Objective:** This study used a national clinical laboratory database to examine patterns of hepatitis B and LTBI testing and the prevalence of hepatitis B virus (HBV)-LTBI coinfection.

Methods

- The investigators retrospectively analyzed deidentified test results in the Quest Diagnostics database for testing carried out from 2016 through 2020.
 - Chronic hepatitis B was indicated by 2 positive results ≥ 6 months apart for any combination of hepatitis B surface antigen test, hepatitis B e antigen test, or HBV DNA test.
 - LTBI was indicated by a positive QuantiFERON® or T-SPOT® test, absent laboratory evidence of active TB infection.
- The volumes of HBV and LTBI testing and prevalence of chronic HBV infection, LTBI, and HBV-LTBI coinfection were assessed; results were stratified by sex, age, race/ethnicity, and US geographic region.

Results

- Laboratory testing for HBV was conducted for 17,635,261 individuals. The overall prevalence of chronic hepatitis B in this group was 0.51% (95% CI, 0.50-0.51).
- Laboratory testing for LTBI was conducted for 5,205,393 individuals. The overall prevalence of LTBI in this group was 7.6% (95% CI, 7.6-7.6).
- Among 89,259 individuals with chronic hepatitis B, 9,508 (10.7%) were tested for LTBI.
 - LTBI prevalence was >2 times as high in individuals with chronic hepatitis B as in those without (19.6% vs 7.3%; $P < .01$).
 - LTBI coinfection was most prevalent among those aged ≥ 70 years (29.5%) and Asian American individuals (22.8%).
- Among the 394,817 individuals with LTBI, 127,414 (32.3%) were tested for HBV.
 - Chronic hepatitis B prevalence was 3 times as high in individuals with LTBI as in those without (1.5% vs 0.5%; $P < .01$).
 - HBV-LTBI coinfection was more prevalent in men (1.9%) than women (1.2%) and was most prevalent among those aged 50 to 69 years (1.8%), Asian American individuals (2.7%), and in regions of California and southern Nevada.

Conclusions

- The prevalence of HBV-LTBI coinfection in this study was substantial, despite likely underestimation due to suboptimal testing
- These findings reveal an opportunity to reduce the risk of drug-induced liver injury among patients with both LTBI and chronic HBV to improve clinical outcomes.
- Identification of HBV infection in patients with LTBI may be useful in selecting therapies that minimize liver toxicity.

References

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2. Isoniazid. Prescribing information. Sandoz Inc. 2016. Accessed April 1, 2022. https://www.accessdata.fda.gov/drugsatfda_docs/label/2016/008678s0281bl.pdf

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