Very low hepatitis C viral loads in treatment-naïve persons: do they compromise hepatitis C virus antigen testing?

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BACKGROUND
Hepatitis C virus (HCV) antigen testing is less expensive than quantitative RT-PCR but has lower sensitivity for very low viral loads (VLVL; HCV RNA ≤3,000 IU/ml). Currently the benefits of antigen testing for screening are discussed, but data on prevalence and outcomes of persons with VLVL are scarce.

METHODS
We assessed prevalence and predictors of VLVL by logistic regression in treatment-naïve participants in the Swiss Hepatitis C Cohort Study. We analyzed if the last viral load after VLVL was low, compared cirrhosis and mortality in persons with and without VLVL, and evaluated the number of samples with VLVL that were reactive by antigen testing.

RESULTS
We included 2,533 treatment-naïve persons with available quantitative HCV RNA testing results. Overall, 133 persons (5.3%) had a VLVL. Age 18-40 years, female gender and HIV coinfection were associated with VLVL. Of 72 persons with a viral load available after VLVL, 14% had a VLVL and 17% had spontaneous viral clearance. The prevalence and incidence of cirrhosis and mortality were comparable in persons with and without VLVL; all 24 persons with VLVL and cirrhosis had excessive alcohol consumption or immunosuppression. Overall 33% of samples with VLVL were reactive by antigen testing.

CONCLUSIONS
The frequency of VLVL was low. Among the persons who would probably be missed by antigen screening, some had a favorable disease course, but some had immunosuppression and liver cirrhosis. The benefit of HCV antigen testing for screening may be limited by the risk of missing patients with severe liver disease.
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