Trends in decompensated cirrhosis and hepatocellular carcinoma diagnosis among people with a hepatitis B notification in New South Wales: a population-based data linkage study

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Background: Population-level trends and factors associated with hepatitis B virus (HBV)-related decompensated cirrhosis (DC), hepatocellular carcinoma (HCC), and liver mortality are crucial to evaluate therapeutic intervention impacts.

Methods: Trends in HBV-DC and -HCC diagnoses and liver-related mortality in New South Wales, Australia, were determined through linkage of HBV notifications (1993-2017) to hospital admissions (2001-2018), mortality (1993-2018), and cancer registry (1994-2014) databases. Late HBV notification was defined as notification at or within two years of DC and HCC diagnosis. Cox proportional hazards regression and multivariable logistic regression analyses were performed to evaluate factors associated with DC and HCC diagnoses and late HBV notification, respectively.

Results: Among 59,911 people with HBV notification, 1,196 (2.0%) DC and 1,001 (1.7%) HCC diagnoses, and 1,158 (1.9%) liver-related deaths were documented. Since early 2000s, DC and HCC diagnoses increased; however, age-standardised incidence decreased from 2.58 and 1.99 in 2003 to 0.96 and 0.95 per 1,000 person-years (PYs) in 2017. Similarly, age-standardised liver mortality decreased from 2.64 in 2003 to 0.97 per 1,000 PYs in 2017. Among people with DC and HCC diagnoses, late HBV notification declined from 41% and 40% during 2001-2009 to 28% and 26% in 2010-2018, respectively. Predictors of DC diagnosis included older age (birth <1944, adjusted hazard ratio [aHR] 8.15, 95% CI 6.26, 10.61), alcohol-use disorder (aHR 7.19, 95% CI 5.83, 8.86) and HCV co-infection (aHR 2.17, 95% CI 1.74, 2.70). Predictors of HCC diagnosis included older age (birth< 1944, aHR 11.61, 95% CI 8.63, 15.61) and male gender (aHR 3.65, 95% CI 2.90, 4.59).

Conclusion: In an era of improved antiviral therapies, HBV liver morbidity and mortality risk has declined. HCV co-infection and alcohol-use disorder are key modifiable risk factors to HBV disease burden.

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