Temporal change in etiology and clinical characteristics of hepatocellular carcinoma in a large cohort of patients with hepatocellular carcinoma in New South Wales, Australia

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Background: Viral hepatitis and alcohol-related liver disease (ALRD) are the main risk factors for hepatocellular carcinoma (HCC) in many countries, including in Australia. In Australia, given the access to hepatitis C virus (HCV) direct-acting antiviral (DAA) therapy since 2016, a temporal change in HCC etiology was hypothesized. This study evaluated the temporal change in the etiology and characteristics of HCC in New South Wales (NSW).

Methods: Patients diagnosed with HCC, admitted to three public hospitals in NSW between 2008-21, were included in analyses. We assessed the annual frequency of each HCC etiology and the distribution of HCC characteristics in participants. The temporal change was assessed by using interrupted time series analysis for distribution of HCV-related HCC and by using linear regression for distribution of HCC characteristics.

Results: Among 1,370 patients, the most common HCC etiologies were HCV (n=483, 35%), ALRD (n=452, 33%), non-alcoholic fatty liver disease (n=347, 25%), and hepatitis B virus (n=301, 22%). The proportion of HCV-related HCC was the highest in 2011-16 (41%), and significantly declined to 30% in 2017-21 (OR: 0.53, 95%CI 0.35–0.79; p=0.002). The proportion of HCC with earlier diagnosis (BCLC stage O/A) increased from 41% in 2008-09 to 56% in 2020-21 (OR per annum: 1.05; 95%CI: 1.02–1.08; p=0.002), and proportion of patients receiving curative HCC management increased from 29% in 2008-09 to 41% in 2020-21 (OR per annum: 1.06; 95%CI: 1.03–1.10; p<0.001).

Conclusion: The contribution of HCV to HCC burden has been decreasing in the DAA era, suggesting the role of HCV elimination in decreasing HCC risk. Increasing frequency of less advanced HCC at diagnosis over time suggests improved HCC surveillance.

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