The disease and economic burden of hepatocellular carcinoma in Australia

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Objectives: Hepatocellular carcinoma (HCC) is one of the most common liver cancers; however, epidemiological and disease burden data are limited. We aimed to quantify the burden of HCC in Australia.

Methods: HCC cases registered in four Australian cancer registries (Victoria, Tasmania, ACT and Queensland) with the last follow up by December 2018 were identified in the Australian cancer database using *International Statistical Classification of Diseases* (ICD-10-AM code C22.0). Incidence rates were calculated using Australian Institute for Health and Welfare approaches. Incidence trends were modelled using least-squares linear regression. The data were divided into 3-year periods (2009-2011, 2012-2014, 2015-2017) for Kaplan-Meier survival analysis. Utility and disability weights, and treatment costs were assigned to the remaining life expectancy to estimate the corresponding Quality-adjusted/disability-adjusted life years (QALY and DALY) and lifetime healthcare costs. TreeAge Pro Healthcare 2021 was used to construct a two-state Markov model (e.g., alive and dead) to estimate the economic burden.

Results: 5933 HCC patients were identified with crude annual incidence of HCC estimated as 28.31-69.94 per 1,000,000 person-years. There was an increasing trend over the 10-year crude rates (coefficient, 4.65 P<0.0001). Around 15.5 % of patients were alive at 10 years of follow-up, regardless of sexes (P=.6233) while median survival ranged from 1.29 to 1.48 years over the defined periods. Base case results suggested a stable trend for remaining life expectancy (≈ 3.8 years), QALY (≈2.7), and DALY (≈18) over the three periods. The average cost per patient was highest in period 3 (≈ $121,545). Taking period 1 as the reference period ($117,452 per patient), the lifetime incremental cost was $1,243 (period 2) and $4,093 (period 3) per patient.

Conclusion: Incidence of HCC in Australia has been increasing over the last decade, while corresponding QALY, DALY, and cost remained relatively stable. Efforts should be dedicated to improving the survival of patients with HCC.