699

ELIMINATION OF HCV AMONG PEOPLE WITH HIV IN AUSTRALIA

Joanne Carson[1], Marianne Martinello[1], Samira Hosseini-Hooshyar[1], Phillip Read[1,2], David Baker[3], Jeffrey Post[4,5,6], Robert Finlayson[7], Mark Bloch[8], Joseph Doyle[9,10], David Shaw[11], Margaret Hellard[9,10], Ecaterina Filep[1], Gregory Dore[1,12], Gail Matthews[1,12] on behalf of the CEASE study group

[1]The Kirby Institute, University of New South Wales, Sydney, Australia; [2]Kirketon Road Clinic, Sydney, Australia; [3]East Sydney Doctors, Sydney, Australia; [4]The Albion Centre, Sydney, Australia; [5]Prince of Wales Hospital, Sydney, Australia; [6]School of Clinical Medicine, University of New South Wales, Sydney, Australia; [7]Taylor Square Private Clinic, Sydney, Australia; [8]Holdsworth House Medical Practice, Sydney, Australia; [9]Alfred Hospital, Melbourne, Australia; [10]Burnet Institute, Melbourne, Australia; [11]Royal Adelaide Hospital, Adelaide, Australia; [12]St Vincent's Hospital, Sydney, Australia.

Background

An estimated 2000-2500 people were living with HIV-HCV co-infection in Australia prior to availability of HCV direct-acting antiviral (DAA) treatments (predominantly gay and bisexual men). Rapid DAA scale-up occurred from 2016 following unrestricted DAA access for adults. The aim of this analysis was to evaluate progress towards HCV elimination among people with HIV in Australia.

Methods

The CEASE prospective cohort study enrolled people with HIV and anti-HCV antibodies, irrespective of HCV RNA status, from 14 primary and tertiary clinics. Enrolment (ENR; 2014-2016), Follow-Up 1 (FU1; 2017-2018) and Follow-Up 2 (FU2; 2021-2023) visits were undertaken. Biobehavioural data were collected at each visit and comprehensive clinical data extracted from medical records, including HCV treatment and HCV RNA testing occurring between study visits. The proportion with HCV RNA was calculated throughout the study period. Death incidence was assessed among participants with at least two study data points. Reinfection incidence was assessed among participants with an HCV RNA negative test and at least one subsequent HCV RNA test. Incidence rates were calculated per 100 person-years (PY). Time-dependent proportional hazards models were used to assess associated factors. Estimated risk of reinfection was plotted using a generalized additive model with time dependent covariate.

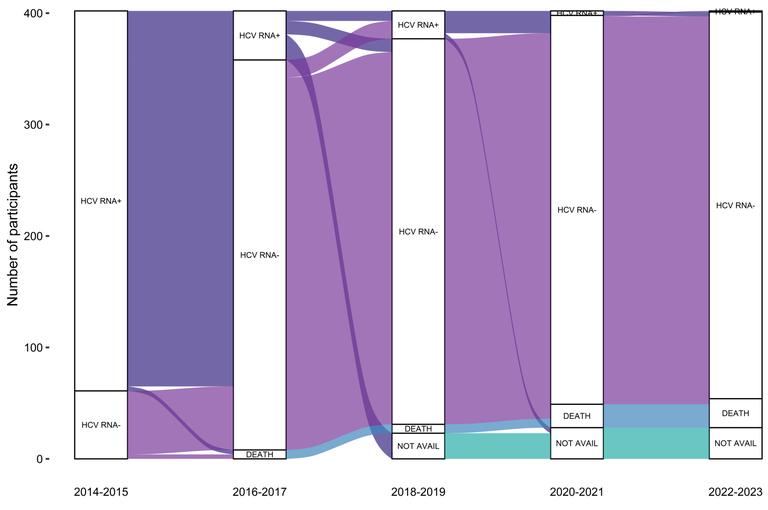

Figure 1. Alluvial plot of HCV status. The plot visualizes transitions between HCV status and states over the study period. Legend: HCV RNA +, hepatitis C virus RNA detected; HCV RNA –, hepatitis C virus RNA not detected; DEATH; deceased, NOT AVAIL , no HCV RNA test available.

CEASE was a national cohort study assessing progress towards HCV elimination among people with HIV .

Following rapid DAA scale up, **HCV RNA prevalence declined from 84% to less than 1%** by study end.

HCV reinfection incidence declined over time.

Death incidence remained stable.

Results

Population characteristics at enrolment
Of 402 participants (median age 49 [IQR 43, 55]; 95% male), 83% identified as gay or bisexual men (GBM), 82% had a history of injecting drug use and 36% injected drugs in the past six months (84% stimulants; 16% opioids). Of 335 GBM, 52% reported condomless anal intercourse with casual male partners in the past 6 months and 32% reported group sex.

HCV prevalence
At enrolment, 341 participants were HCV RNA positive. By study end, 91% of HCV RNA positive participants were treated, 2% had spontaneously cleared, and 7% were lost to follow up. HCV RNA prevalence declined from 84% at enrolment, to 8% at Follow Up 1, to <1% at Follow Up 2 (**Figure 1**). Two participants were HCV RNA positive at Follow Up 2 - one had reinfection (second episode, untreated by study end) and the other had primary infection (successfully treated by study end).

Death incidence
Death incidence was 2.3/100 PY (95%CI 1.5-3.1; 30 deaths among 387 participants). Median age at death was 56 years (IQR 53-57). Factors associated with increased risk of death were age (per 10-year increase; aHR 1.7; 95%CI 1.1-2.6), history of opioid injecting (aHR 2.4; 95%CI 1.1-5.4) and cirrhosis (aHR 2.3; 95%CI 1.1-5.1). Sepsis was the most common cause of death (17%). Three liver-related deaths occurred (hepatocellular carcinoma, cholangiocarcinoma, hepatic failure).

HCV reinfection incidence
Reinfection incidence was 1.8/100 PY (95%CI 1.1-2.9; 16 reinfections among 213 participants), which declined over time (**Figure 3**). Median time to reinfection was 1.1 years (IQR 0.6-1.6). Factors associated with reinfection included recent opioid injecting (aHR 3.4; 95%CI 1.2-9.7) in the overall population, and group sex (aHR 4.2; 95%CI 1.2-14.5) among gay and bisexual men.

Conclusion

HCV prevalence among people with HIV in Australia has declined substantially following rapid DAA scale-up and reinfection incidence has declined. Surveillance for HCV (re)infection among those people with HIV and HCV-risk behaviors should be continued. Despite universally high treatment success, death rates within this cohort remain significantly higher than the age matched general population and are likely related to chronic co-morbidities and lifestyle factors as well as underlying liver disease.

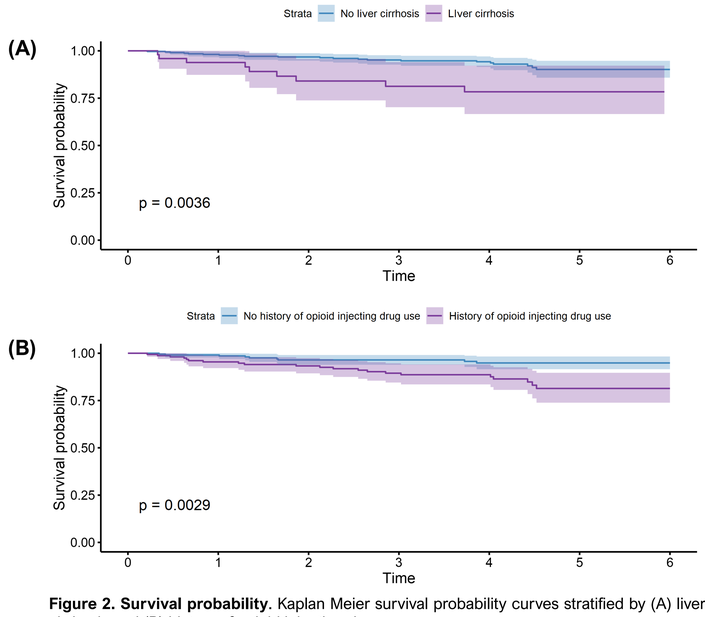

Figure 2. Survival probability. Kaplan Meier survival probability curves stratified by (A) liver cirrhosis and (B) history of opioid injecting drug use

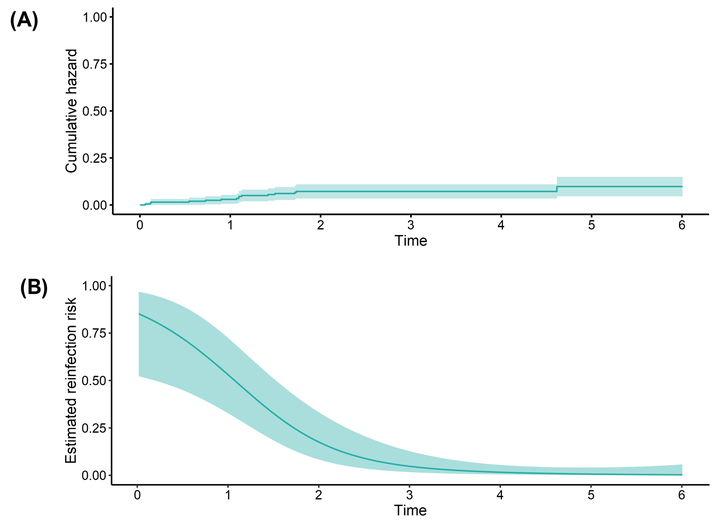

Figure 3. Reinfection hazard and estimated risk. (A) Cumulative hazard curve of reinfection and (B) generalized additive model estimation of longitudinal reinfection risk

The Kirby Institute is funded by the Australian Government Department of Health and Ageing. The views expressed in this publication do not necessarily represent the position of the Australian Government. clinicaltrials.gov Identifier NCT02102451

For further information about this analysis please contact
jcarson@kirby.unsw.edu.au

Kirby Institute

UNSW SYDNEY