TWENTY YEARS OF EFFECTIVE ANTIRETROVIRAL THERAPY: INVESTIGATING RESPONSE TO TREATMENT AND CHANGES IN TREATMENT IN AUSTRALIA

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Background:
The Australian HIV Observational Database (AHOD) has more than 20 years of antiretroviral therapy (ART) data. It provides a unique opportunity to map the changes and response to treatment from the early years of effective ART to the present.

Methods:
AHOD patients were categorised into four periods by year of ART initiation: ≤1999 (very early ART), 2000-2006 (early to mid-ART), 2007-2011 (mid ART) and ≥2012 (recent ART). Descriptive statistics and time-to-event methods were used to compare treatment-related factors between groups.

Results:
Of 3183 eligible AHOD patients, 978 (30.7%) started ART in the very early ART era, 785 (24.7%) in the early to mid-ART era, 830 (26.1%) in the mid ART era and 590 (18.5%) in the recent ART era. Median time from diagnosis (in months) to ART initiation decreased from 53.0 (interquartile range (IQR) 6.0-101.9) in very early ART, to 38.7 (IQR 3.0-111.3), 30.0 (IQR 4.9-76.6), and to 8.4 (IQR 1.3-47.3) in recent ART. Median CD4+ counts (cells/mm³) at ART initiation were 333 (IQR 180-500), 274 (IQR 170-450), 290 (IQR 187-408) and 420 (IQR 280-580), respectively. Rates of viral suppression increased steadily from 103.0 per 100 person-years (95%-confidence interval (CI) 95.5-111.1), to 177.8 (CI 162.4-194.2), to 351.8 (CI 320.9-383.3) to 437.1 (CI 394.2-483.4), respectively. Rates of virological failure following suppression decreased from 16.8 per 100 person-years (CI 14.8-18.9) to 10.3 (CI 8.8-12.1), 3.6 (CI 2.8-4.5) and finally 1.9 (CI 1.1-3.0) in the recent era. Rates for switching regimen for reasons other than virological failure (including toxicity and treatment simplification) increased from 4.7 per 100 person-years (CI 4.1-5.4) to 7.3 (CI 6.4-8.3), 9.0 (CI 8.0-10.2) and 10.1 (CI 8.5-12.0).

Conclusion:
In Australia, most people with HIV (PWH) on ART now achieve durable suppression of HIV replication. Overall, PWH have vastly improved long-term immunological and virological response to treatment in the recent ART era.
Disclosure of Interest Statement:
The Australian HIV Observational Database is funded as part of the Asia Pacific HIV Observational Database, a program of amfAR, The Foundation for AIDS Research; and is supported in part by grant no. U01AI069907 from the U.S. National Institutes of Health’s National Institute of Allergy and Infectious Diseases, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, the National Cancer Institute, the National Institute of Mental Health, and the National Institute on Drug Abuse, and by unconditional grants from Merck Sharp & Dohme; Gilead Sciences; Janssen-Cilag; ViiV Healthcare. The Kirby Institute is funded by the Australian Government Department of Health, and is affiliated with the Faculty of Medicine, UNSW Australia. The content is solely the responsibility of the authors and the views expressed in this publication do not necessarily represent the position of the Australian Government or the official views of the U.S. National Institutes of Health or other funders.