

# FAILURE OF ANTIRETROVIRAL THERAPY (ART) IN AUSTRALIAN ADULTS IS MAINLY DUE TO ART TOXICITY

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**Background:** Reasons for failure of antiretroviral therapy (ART) in Australian adults are unknown.

**Methods:** We recruited HIV-infected adults on stable ART with undetectable viral load for  $\geq 3$  months into a national cohort study at 17 sites between September 2014 and November 2016. ART data were extracted from medical records and pharmacy logs. ART failure was defined as one or more of ART switch for toxicity, virological failure, loss to follow-up or death.

**Results:** Of 522 adults, 94.5% were men, mean age was 50.8 years, mean HIV duration 12 years, median ART duration 11.0 years and median duration HIV RNA  $< 50$  was 3.3 years. Data were received for all participants at 6 months and for 507 (96.9%) at 12 months. The proportion with ART failure at 12 months was 23% (n=119). The most common reason for failure was ART switch for toxicity (n=68, 13.0%), mostly nephrotoxicity (n=21, 4.0%), CNS symptoms (n=14, 2.7%), side effects (e.g. nausea/vomiting) (n=14, 2.7%), hepatotoxicity (n=8, 1.5%), and metabolic toxicity (n=5, 1.0%). Protease inhibitors were the most frequently ceased antiretroviral medications (ceased 45 times) with integrase inhibitors the most frequently initiated (82 times). A further 28 (5.4%) participants had at least one detectable HIV viral load through Month 12, but only 8 (1.5%) had two consecutive results  $> 400$  copies/mL. Less common causes of ART failure were death (n=3, 0.6%) and loss to follow-up (n=2, 0.4%). Other missing data that may not represent ART failure were transfer of care to a non-study site (n=2, 0.4%), incarceration (n=1, 0.2%), revocation of consent (n=4, 0.8%), and no data received from site (n=7, 1.3%). Additionally, 46 (8.6%) participants simplified their ART solely to simplify their regimen.

**Conclusions:** Nearly one-quarter of our sample experienced ART failure over 12 months, primarily for toxicity. Virological failure was uncommon, and true loss to follow-up rare.

**Disclosure of Interest Statement:** This work was supported by unrestricted educational grants from Gilead Sciences (IN-AU-264-0131); the Balnaves Foundation; the Victorian Department of Health and Human Services (Australia); Government of Western Australia, Department of Health; the ACT Ministry of Health (Australia); and in-kind support from the Queensland Department of Health (Australia).

KJS is a recipient of an Australian government research training program scholarship, has received a Gilead fellowship grant, and has received conference and travel sponsorships from Gilead Sciences. LM has no interests to declare. SR has no interests to declare. JR has no interests to declare. JM has received lecture fees and travel sponsorships from ViiV. JdW has received lecture sponsorship from BMS Australia. AC has received research funding from Bristol-Myers Squibb, Gilead Sciences, and ViiV Healthcare; lecture and travel sponsorships from Bristol-Myers Squibb, Gilead Sciences, and ViiV Healthcare; and has served on advisory boards for Gilead Sciences and ViiV Healthcare.