HIV-1 subtypes and baseline transmitted drug resistance in people living with newly diagnosed HIV in a metropolitan Sexual Health clinic

Authors:
Vickers T[1], Foster R[1,2], McNulty A[1,3], Varma R[1,2]

[1] Sydney Sexual Health Centre, Australia
[2] The Kirby Institute, UNSW
[3] School of Population Health, UNSW

Background:
HIV-1 transmitted drug resistance (TDR) remains a global challenge for effective antiretroviral therapy (ART). Australian TDR rates have been falling over the past decade, however with new options including 2 drug regimes, surveillance of TDR remains vital to guide clinicians, particularly within the context of early ART initiation.

Methods:
We undertook a retrospective clinical audit of HIV-1 subtypes and resistance assays performed as standard of care between 2010-2021. Inclusion criteria was newly diagnosed treatment naïve HIV, with diagnosis at our service or referred for confirmation. HIV-1 resistance reports were generated by a HIV Reference Laboratory using the Stanford HIV Drug Resistance Database. Analysis of factors associated with subtype B and TDR were performed with Stata 14.2.

Results:
There were 674 new diagnoses; 590 (87.5%) were sequenced for subtype and resistant mutations (RM) (95.6% cis-males, 3.4% cis-female, 1.0% transgender people) and 107 (18.1%) had any form of low/intermediate/high-level RM. There were 332 (56.3%) diagnoses of subtype B. Of that, 33 people (9.9%, P<0.01) had intermediate/high-level RM to ≥1 drug compared to 6 people (2.3%) with a non-B subtype. Intermediate/high-level RM were most common for NNRTIs 3.7% (18 B vs. 4 non-B;P<0.01) followed equally by NRTIs 1.7% (8 B vs. 2 non-B;P=1.27) and PIs 1.7% (9 B vs. 1 non-B;P=0.03). Subtype B was associated with being Australian-born (OR 2.1;95%CI 1.4-3.3;P<0.01), NNRTI intermediate/high-level RM (OR 4.1;95%CI 1.3-12.7;P=0.02) and diagnosis before 2016 (OR 2.0;95%CI 1.4-2.8;P<0.01). No intermediate/high-level integrase RM were observed.

Conclusion:
Our large contemporaneous dataset shows TDR remains an important issue to consider for 2 or 3 drug ART initiation, particularly when baseline sequencing is generally unavailable for early, pre-ART initiation in Australia. Diagnoses with TDR were mostly subtype B and Australian-born however our non-B prevalence was higher than current estimations and highlights the changing landscape of transmission with a diverse population accessing our service. Ongoing TDR surveillance is required.

Disclosure of Interest Statement:
Nothing to disclose.