Journal of the International AIDS Society

Oral presentation

Open Access

O113 HIV-1 clade C resistance genotypes after first virological failure in a large community ART programme

C Orrell*[1], RP Walensky[2], E Losina[2], KA Freedberg[2] and R Wood[3]

Address: [1]Desmond Tutu HIV Centre, UCT, Cape Town, South Africa, [2]Divisions of General Medicine and Infectious Disease, Massachusetts General Hospital, Harvard Med School and Harvard University, Harvard, USA and [3]Desmond Tutu HIV Centre, Cape Town, South Africa

* Corresponding author

from Ninth International Congress on Drug Therapy in HIV Infection
Glasgow, UK. 9–13 November 2008

Published: 10 November 2008

Journal of the International AIDS Society 2008, **11**(Suppl 1):O3 doi:10.1186/1758-2652-11-S1-O3

This abstract is available from: http://www.jiasociety.org/content/11/S1/O3

Background

In sub-Saharan Africa large numbers of clade C HIV-infected individuals are exposed to antiretrovirals through prevention of mother-to-child transmission and through first-line non-nucleoside reverse transcriptase inhibitor-based (NNRTI) regimens. HIV drug resistance pre-treatment, as well as in those failing first-line ART, has not been adequately catalogued. Choice of second-line therapy would ideally be based on patterns of resistance at first-line failure.

Methods

Genotypic resistance testing was performed on plasma samples from both treatment-naïve individuals and those failing first-line ART (confirmed HIV-RNA >1000 copies/ml) from public sector clinics in the Greater Cape Town area (2002–2007). We compared genotypic resistance profiles for ART-naïve patients and those who have failed ART. We examined whether time of genotyping was associated with differential distribution of resistance mutations.

Summary of results

Samples from 230 patients (120 naïve; 110 with virologic failure) were included. 98% had clade C virus. Among naïve patients, prevalence of primary resistance was estimated at 2.5% (95% CI: 0.0%–5.3%). Three ART-naïve patients each had one important RT mutation: K65R, Y181C, G190A. Among NNRTI-treatment experienced patients, the estimated prevalence of resistance mutations was high. Ninety-six individuals (83%) had therapy-limiting NNRTI mutations, including K103N (53%), V106M (31%), Y181C (9.4%). Eighty-one individuals (70%) had ≤2 NNRTI mutations; 15 (13%) had >3 NNRTI mutations. The M184V mutation was the most common single mutation in 91 patients (78%). Eleven of the patients with virologic breakthrough (9.5%) had the K65R mutation. A non-significant trend toward more individuals developing thymidine analogue mutations was noted when genotype was completed after 6 months on failing therapy [10/31 patients (32%)], compared to those who had genotyping before 6 months [16/79 patients (20%)].

Conclusion

Prevalence of primary resistance in a sample of ART-naïve clade C HIV-infected individuals in South Africa is low. An NNRTI-based initial ART regimen remains appropriate for most naive individuals. Patients failing first-line ART have generally developed resistance to both NNRTIs and NRTIs, the two drug classes used in first-line therapy. The emergence of the K65R mutation, without tenofovir use, is unexpected and worrisome. Current second-line ART options remain viable, but close ongoing surveillance of resistance patterns is critical to optimize clinical care.