Antiretroviral Drug Resistance Among HIV-infected Black Men who Have Sex with Men in the US

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Background

In the United States (US), Black men who have sex with men (MSM) are disproportionately affected by HIV. Understanding the prevalence and patterns of antiretroviral (ARV) drug resistance among Black MSM is important since ARV drug resistance can complicate treatment options and lead to treatment failure. We analyzed ARV drug resistance in men from the HIV Prevention Trials Network (HPTN) 061 study [1, 2]. The HPTN 061 study enrolled both HIV-infected and HIV-uninfected Black MSM in six US cities and is the largest longitudinal cohort of Black MSM in the US to date.

Study Cohort

The HPTN 061 study enrolled 1,553 Black MSM in six US cities, including 348 men who were HIV infected at enrollment [1, 2]. Follow-up visits occurred 6 and 12 months after enrollment. HIV testing was performed at each visit; 28 men seroconverted during the one-year study follow-up.

Laboratory Methods

HIV genotyping was performed retrospectively using the ViroSeq HIV Genotyping System. HIV-infected men with a viral load >400 copies/mL at the enrollment (N=171) or seroconversion (N=24) visit were genotyped (Figure 1). Samples were also tested for the presence of ARV drugs.

Statistical Methods

Individuals who had drug-resistant HIV were compared to those who did not using Fisher’s Exact or \( \chi^2 \) tests. A P-value <0.05 was considered statistically significant.

Methods

Results

Genotyping results were obtained for 169 men who were HIV infected at enrollment and 23 seroconverters (Figure 1). The men who were HIV infected at enrollment included three who were acutely infected and 13 who were classified as recently infected by a multi-assay algorithm, which uses both serologic and non-serologic assays to identify recent HIV infections [3].

Figure 1. Study cohort

1,553 enrolled
348 HIV infected
28 seroconverted
14 refused testing/no sample
183 with a VL <400 c/mL
171 genotyped
23 genotyped with resistance results*
169 with resistance results
16 with resistance results
3 acute infections*
13 recent infections*
155 established infections

Results

We analyzed factors associated with ARV drug resistance and multi-class drug resistance at enrollment. These factors included: city, age, income, employment status, education, healthcare, drug use, and number of male sexual partners.

The prevalence of ARV drug resistance varied significantly by city (P<0.01, Figure 2). Boston and San Francisco had the highest prevalence (50.0% for both), followed by Los Angeles (41.5%), New York City (20.0%), Atlanta (16.7%), and Washington, DC (16.7%).

Figure 2. ARV drug resistance prevalence by city

ARV drug resistance was detected in HIV from nine (23.1%) of the 39 newly-infected men. Due to the small sample size, further statistical analyses were not performed.

Conclusions

ARV drug resistance is common among Black MSM in the US.

- In three of the cities studied, >40% of the men had drug-resistant HIV.
- Overall, 11.2% of the men had HIV with multi-class drug resistance.
- Nearly a quarter of newly-infected men had drug-resistant HIV.

These findings underscore the importance and urgency of scaling up culturally appropriate and acceptable programs to engage Black MSM in care and promote adherence to ARV treatment.

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References