



Facts About...

Anti-Retroviral Drug Resistance to Human Immune Deficiency Virus

BACKGROUND: Resistance testing among antiretroviral treatment-naïve persons recently infected with HIV is increasingly recommended on a routine basis in the US.¹ The clinical value of antiretroviral resistance testing at this early stage of HIV infection depends on both the prevalence of resistance-associated mutations among recently infected persons, and the persistence of resistant virus. Researchers once predicted that wild-type (susceptible) HIV could outgrow and completely replace antiretroviral-resistant HIV before newly infected people begin highly active antiretroviral therapy (HAART). However, we now know the resistant virus can persist indefinitely.² Since the resistant virus may reproduce more slowly, the best time to identify the existence of antiretroviral resistant strains is as soon as possible after HIV diagnosis. This information is important for post-exposure prophylaxis and treatment planning.

MEASURING HIV RESISTANCE IN KING COUNTY:

Local data from the Antiretroviral Drug Resistance Testing (ARVDRT) project, from July 2003 and available through October 2005, were used to examine the prevalence of drug resistance mutations among recently HIV diagnosed, HAART-naïve patients.

- Of the 536 patients screened for eligibility, 299 (56%) were eligible for genotype testing. Eligibility required a new diagnosis of HIV at a participating laboratory. Of those eligible, 257 (86%) have had an adequate volume of leftover sera that was available and successfully tested.
- Among the 257 specimens with genotype results, 12% had high level resistance of at least one class of HIV drugs (2% to a protease inhibitor [PI], 4% to a nucleoside reverse transcriptase inhibitor [NRTI], 10% to non-nucleoside reverse transcriptase inhibitor [NNRTI]). Only 3% of specimens had high level resistance to more than one HIV drug classes.
- When genotype results for ARVDRT patients are compared with recent genotype results in a cohort of HAART-naïve and HAART-experienced patients from the Adult/Adolescent Spectrum of HIV-related Disease (ASD) project, ARVDRT results resemble results for HAART-naïve ASD patients. However HAART-experienced patients have much higher rates of resistance (Table).

Comparison of ARVDRT (antiretroviral naïve) 2003-2005 vs. Adult Spectrum of HIV-related Disease (ASD) project (naïve & experienced) 1998-2003.

	% ARVDRT 2003-2005 N=257	% naïve ASD 1998-2003 N=54	% experienced ASD 1998-2003 N=392
High-level resistance to:			
Any drug class	12	13	65
NNRTI	10	6	32
NRTI	4	4	54
PI	2	6	30
Two or more drug classes	3	2	42

References

1. Hirsch MS et al. Antiretroviral drug resistance testing in adults infected with human immunodeficiency virus type 1: 2003 recommendations of an International AIDS Society-USA panel. *CID* 2003;37:113-128.
2. Little SJ et al. Persistence of transmitted drug resistance among subjects with primary HIV infection not receiving antiretroviral therapy [abstract 95]. 9th Conference on Retroviruses and Opportunistic Infections Seattle 2003.