Should resistance testing be done in antiretroviral-naive patients? A cost-effectiveness analysis.

Sax PE, Islam R, Losina E, Weinstein MC, Cohen CJ, Freedberg KA; International Conference on AIDS.

Int Conf AIDS. 2002 Jul 7-12; 14: abstract no. MoPeB3129.

Brigham and Women's Hospital, Boston, United States

BACKGROUND: Current guidelines do not recommend resistance testing before therapy for antiretroviral therapy (ART) naive patients with chronic HIV infection. However, data show a rising prevalence of drug resistance in those who have never received ART. Our objective was to determine the potential clinical impact and cost-effectiveness of genotype resistance testing in treatment-naive patients compared with no testing. METHODS: We developed a simulation model of HIV disease to project life expectancy, lifetime costs, and cost-effectiveness (C-E) in a hypothetical cohort of ART-naive patients with chronic HIV infection. The efficacies of ART both with and without drug resistance and with and without primary resistance testing were estimated from prospective clinical trials. Based on a national CDC survey of treatment-naive patients, we used a baseline prevalence of drug resistance of 7.5%, comprised of NRTI-resistance 5.1%, PI-resistant 0.5%, and NNRTI-resistant 1.9%. The prevalence of drug resistance, proportion-resistant by drug class, efficacy of resistance testing, and test cost were varied in sensitivity analyses. RESULTS: Under base case assumptions, a strategy of genotype resistance testing for treatment-naive individuals yielded a C-E ratio of $37,000/quality adjusted life year (QALY) saved, a result comparable to many commonly-used interventions. The C-E ratio of resistance testing remained <$50,000/QALY saved until the prevalence of resistance fell to <4%, a level lower than recently reported in developed countries. CONCLUSIONS: Genotype resistance testing of chronically-infected, treatment-naive patients with HIV infection is a cost-effective strategy based on the prevalence of drug resistance in the United States. These results should be considered in deriving future guidelines.

Publication Types:
- Meeting Abstracts

Keywords:
- Centers for Disease Control and Prevention (U.S.)
- Cost-Benefit Analysis
- HIV Infections
- Humans
- Longitudinal Studies
- Prevalence
- Quality-Adjusted Life Years
- Research Design
- United States
- economics