Adherence as a predictor of the development of class-specific resistance mutations : the Swiss HIV cohort study

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Non-adherence is one of the strongest predictors of therapeutic failure in HIV-positive patients. Virologic failure with subsequent emergence of resistance reduces future treatment options and long-term clinical success.; Prospective observational cohort study including patients starting new class of antiretroviral therapy (ART) between 2003 and 2010. Participants were naïve to ART class and completed $\geq$1 adherence questionnaire prior to resistance testing. Outcomes were development of any IAS-USA, class-specific, or M184V mutations. Associations between adherence and resistance were estimated using logistic regression models stratified by ART class.; Of 314 included individuals, 162 started NNRTI and 152 a PI/r regimen. Adherence was similar between groups with 85% reporting adherence $\geq$95%. Number of new mutations increased with increasing non-adherence. In NNRTI group, multivariable models indicated a significant linear association in odds of developing IAS-USA (odds ratio (OR) 1.66, 95% confidence interval (CI): 1.04-2.67) or class-specific (OR 1.65, 95% CI: 1.00-2.70) mutations. Levels of drug resistance were considerably lower in PI/r group and adherence was only significantly associated with M184V mutations (OR 8.38, 95% CI: 1.26-55.70). Adherence was significantly associated with HIV RNA in PI/r but not NNRTI regimens.; Therapies containing PI/r appear more forgiving to incomplete adherence compared with NNRTI regimens, which allow higher levels of resistance, even with adherence above 95%. However, in failing PI/r regimens good adherence may prevent accumulation of further resistance mutations and therefore help to preserve future drug options. In contrast, adherence levels have little impact on NNRTI treatments once the first mutations have emerged.
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