Predictors of Unstructured Antiretroviral Treatment Interruption and Resumption among HIV-Positive Individuals in Canada

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HIV Medicine, September 2014

Objective

This study estimated trends and determinants of treatment interruptions (TIs) and treatment resumption among HIV-positive individuals on combination antiretroviral therapy (cART) in Canada.

Main Finding

Women, younger individuals, people who start treatment with higher CD4 counts, Aboriginals, injecting drug users, and patients using zidovudine as opposed to tenofovir in their initital cART regimen were at higher risk of TIs.

Importance of this Study

- TIs resulting from treatment fatigue and side effects have become major challenges to successful HIV treatment, as incomplete adherence promotes viral rebound, CD4 cell loss, and increases the risk of opportunistic infections.
- As universal HIV treatment programs become more prevalent, it is crucial to reduce the occurrence of TIs.
- This study provided an opportunity to recognize TI trends in a Canadian setting of universal free access to HIV care.

How this Study was Conducted

- Data was analyzed from the CANOC collaboration, an interprovincial collaborative cohort of HIV-positive individuals on antiretroviral therapy in Canada.
- CANOC compiled HIV clinical, virological, immunologic, and demographic data from 8 cohorts across British Columbia, Ontario, and Quebec.
- 7,633 participants who initiated cART between 2000 and 2011 were included in this analysis.
- TI was defined as an interruption of all antiretroviral drugs for a period of at least 90 consecutive days.

Study Results

- 1,860 participants (24.5%) experienced a TI during the study period.
- The prevalence of TIs within the first year of cART initiation decreased by half over the study period.
- Predictors of a first TI were female sex (1.59 times increased risk), Aboriginal ancestry (1.67), a history of injection drug use (1.43), HCV seropositivity (2.17), initiating treatment with a higher CD4 count (1.46), and use of zidovudine vs. tenofovir in the initial cART regimen (2.47).
- 84% of participants who experienced TIs restarted cART within a median timeframe of 9.6 months.
- Factors predicting treatment resumption included male sex, older age, and a CD4 cell count < 200 cells/µL at cART initiation.

Implications

- These findings indicate that treatment interruptions remain relatively high in a setting that offers universal free access to HIV care.
- Strategies targeting the most affected groups experiencing TIs may be warranted.
- The identification of people who start treatment with higher CD4 counts as a risk factor for TI is concerning, and justifies close prospective monitoring of treatment adherence as new HIV treatment guidelines advocating treatment initiation at higher CD4 counts are widely implemented.