Prevalence and Outcomes for Heavy Treatment-Experienced (HTE) Individuals Living with HIV in a European cohort

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ABSTRACT

The extent of limited treatment options due to extensive treatment history, drug resistance or intolerance to specific antiretrovirals (ARVs) is largely unknown, as are the clinical consequences. We estimated the prevalence, variation over time and potential clinical consequences of heavily treatment-experienced (HTE) individuals in the EuroSIDA study.

OBJECTIVES

To estimate the prevalence of HTE status among HIV-positive individuals in EuroSIDA between 2010 and 2016

To describe the demographic characteristics of individuals classified as HTE compared to those not HTE

To assess the virological and immunological outcomes of being HTE and the risk of developing new diagnoses of AIDS or non-AIDS-defining clinical conditions after becoming HTE

METHODS

HTE status was defined as in Box 1

The annual prevalence at mid-year and regional distribution of HTE status were calculated each year from 2010 to 2016. 3120 individuals were included in the study.

RESULTS

Of 10,570 individuals in EuroSIDA who were under follow-up between 2010 and 2016, 95% were ever HTE. 1040 individuals from South East of Europe and the Mediterranean region were classified as HTE with limited ARV options.

Compared to those not HTE, a higher proportion of HTE individuals had low CD4 cell counts (≤200 cells/μl) and viral load (RNA copies/ml) of ≥400. HTE individuals had significantly lower CD4 counts and viral suppression rates, and higher mortality rates. The incidence of AIDS and non-AIDS clinical events per 1000 person-years of follow-up (PYFU) and incidence rate ratios (IRR) were calculated using Poisson regression.

CONCLUSIONS

Around 10% of HIV-positive individuals in the EuroSIDA cohort were estimated to be HTE with limited treatment options. HTE prevalence increased over time and HTE individuals appeared to be at higher risk of developing new AIDS and non-AIDS events, which was largely explained by immunological parameters or by age/gender/cohorts. Additional therapeutic strategies to ensure viral suppression and immune recovery as well as effective management of co-morbidities remain important to reduce clinical complications in the HTE population.

Box 1. Definition of heavily treatment-experienced (HTE) status

The composite definition of HTE status was based on genotypic resistance test (GRT) data and models of ARV resistance, as well as prior exposure to specific ARV regimens.

- ARV drug resistance testing (GRT) data were available (5502 individuals in EuroSIDA had at least one GRT).
- Factors associated with the risk of developing resistance to at least one of these ARVs were identified by logistic regression modelling, and the models used to predict ARV resistance for individuals who had not received GRT data.
- The composite definition satisfied a grant [grant number DNRF126] from the Danish National Research Foundation and by the International Cohort Consortium of Infectious Disease (RESPOND). AHB is supported by Lundbeckfonden (Grant R219-2016-762).

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Figure 1. Prevalence of HTE in Europe, 2010-2016

Table 1. Characteristics of HTE individuals and controls on the index date

- Table 1: Characteristics of HTE individuals and controls on the index date

- Figure 2: Outcomes after the HTE index date

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- ARV drug resistance testing (GRT) data were available (5502 individuals in EuroSIDA had at least one GRT). ARV resistance for nucleoside and non-nucleoside reverse transcriptase inhibitors (NRTIs, NNRTIs) and protease inhibitors (PIs) was defined using the Stanford HIV database (2016) (1).
- Factors associated with the risk of developing resistance to at least one of these ARVs were identified by logistic regression modelling, and the models used to predict ARV resistance for individuals who had not received GRT data.
- The composite definition satisfied a grant [grant number DNRF126] from the Danish National Research Foundation and by the International Cohort Consortium of Infectious Disease (RESPOND). AHB is supported by Lundbeckfonden (Grant R219-2016-762).