HIV Elite Controllers are Hospitalized More Often Than Persons with Medically Controlled HIV

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Background

- Elite control is characterized by HIV suppression in the absence of antiretroviral therapy (ART).
- Elite control is associated with chronic inflammation, but data on clinical outcomes among elite controllers are scarce.
- Chronic inflammation among non-elite controllers is associated with cardiovascular and neurologic diseases.
- We hypothesized that hospitalization rates and reasons might differ between persons with elite control and medical control of HIV.

Methods

- Comprehensive demographic, laboratory, treatment and hospitalization data extracted from clinical records of patients engaged in outpatient care at 11 HIV Research Network (HVRN) sites in 2005-2011.
- Person-years excluded if they contained two consecutive CD4 measurements <50 cells/mm3 or any CD4 <200 cells/mm3.
- HIV control status categorized for each remaining person-year.
- Medical control: ≤2 consecutive HIV RNA values over <12 months in the presence of ART, with subsequent <1000 copies/mL achieved ≤96% of measurements.
- Elite control: ≤2 consecutive HIV RNA values over <12 months in the absence of ART, with subsequent <1000 copies/mL achieved ≤96% of measurements.
- Low viremia: HIV RNA <1000 copies/mL, but not satisfying other criteria for medical or elite control.
- Negative binomial regression used to assess hospitalization rates by HIV control status and adjust for covariates.
- Reasons for admission determined by primary ICD-9 codes and grouped into diagnostic categories using modified Clinical Classification Software (AHRO).

Conclusions

- Elite control is associated with higher risk of hospitalization than medical control of HIV.
- Cardiovascular and pulmonary diseases are the most common reasons for hospitalizations.
- Medical control may be incompletely captured.
- High utilization by elite controllers who are selected for medical care could contribute to higher utilization by elite controllers who are statistically significant (p≤0.05).

Strengths & Limitations

- Study includes one of the largest reported samples of elite controllers.
- Selection bias may contribute to higher utilization by elite controllers who are engaged in care as compared to elite controllers not captured in our study.
- ICD-9 codes may inaccurately describe hospitalization cause.
- Hospitalizations may be incompletely captured.

Implications

- Studies are needed to determine the reasons for high hospitalization rates among elite controllers, including the contribution of chronic immune activation and inflammation.
- Whether ART and/or anti-inflammatory agents reduce hospitalization risk among elite controllers should be investigated prospectively.
- The high rate of cardiovascular hospitalizations among elite controllers is consistent with studies showing increased risk of atherosclerosis.