

Ventricular Arrhythmia Prevalence and Characteristics for HIV+ Persons and Matched Uninfected Controls

7

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Abstract

Introduction:

Sudden cardiac death and myocardial fibrosis are common in HIV. No studies to our knowledge have examined the prevalence and morphology of ventricular ectopy or arrhythmia (VEA) for HIV+ versus uninfected persons.

Methods:

We screened 5,041 HIV+ persons and 10,121 uninfected controls (matched 1:2 on demographics and location) at an urban medical center between 2000 and 2016 for VEA using administrative codes. We then reviewed electrocardiographic data to determine (1) whether VEA were present, and (2) VEA morphology (left or right bundle and inferior or superior axis). Prevalence and morphology of VEA were compared by HIV status and markers of HIV severity.

Results:

Of 5041 HIV+ persons, 139 (2.8%) had VEA vs. 165 out of 10121 (1.6%) for controls ($p < 0.001$). This association persisted after adjustment for demographics (Odds Ratio [OR] 1.53, 95% Confidence Interval [CI] 1.21-1.94) but was attenuated to non-significance after adjustment for diabetes and hypertension. Compared with HIV+ persons with nadir $CD4 \geq 200$ cells/mm³, those with nadir $CD4 < 200$ cells/mm³ had significantly elevated odds of VEA after adjustment for demographics, diabetes, and hypertension (OR 1.65, 95% CI 1.12-2.31). Likewise, each log₁₀ higher peak HIV viral load was associated with a significantly elevated odds of VEA (OR 1.24, 95% CI = 1.07-1.44) after adjustment for demographics, hypertension, and diabetes. Right bundle, superior axis morphology was somewhat more common among HIV+ versus uninfected persons, but this did not reach statistical significance ($p = 0.092$).

Conclusions:

VEA is more common among HIV+ persons but this was attenuated after adjustment for CVD risk factors. Greater HIV viremia and immunosuppression are associated with greater odds of VEA. Compared with uninfected persons, HIV+ persons may more commonly have VEA originating from the left ventricular myocardium, suggesting abnormal myocardial substrate rather than idiopathic outflow tract arrhythmia.

Categories

1st year Fellow: Research

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