

Outcomes of Atrial Fibrillation in People Living with HIV in British Columbia, Canada

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Background

Previous data from our group showed that People Living with HIV (PLHIV) developed Atrial fibrillation (AF) 10 years earlier than HIV-negative individuals but incidence rates were similar¹.

In the general population, AF is associated to several comorbidities and poses an increased risk of cerebrovascular disease and other related conditions. However, few data are available for AF effects, risk factors or management in PLHIV.

Our study objective is to compare AF-related comorbidities, treatment uptake and clinical outcomes in PLHIV with an HIV-negative control group.

Methods

- The Comparative Outcomes and Service Utilization Trends (COAST) study, a population-based cohort of PLHIV and a 10% general population sample aged ≥19 years, contains clinical and administrative health data from the BC Centre for Excellence in HIV/AIDS and Population Data BC.
- ICD-9/10 codes were used to identify AF diagnosis from 1996 to 2013 and define the analytic sample.
- Outcomes variables of interest related to AF included: Transient Ischemic Attack (TIA), Stroke and all-cause mortality.
- AF treatment uptake included the identification of oral anticoagulants (warfarin and direct oral anticoagulants) and rhythm control drugs according to Drug Identification Number (DIN), and cardioversion code according to CIHI Day Procedure Groups 2007.
- Bivariate analysis using the chi-squared and rank sum tests was performed to compare demographic characteristics, comorbidities and treatment for AF among PLHIV and HIV-negative individuals.
- Age-adjusted incidence rates were calculated using the age distribution of 2011 Canadian standard population.

Results

- Among 20,276 individuals with AF analyzed, 212 were PLHIV and 20,064 were HIV-negative individuals.
- The population was predominantly male, accounting for 85% of PLHIV and 54% of HIV-negative individuals ($p < 0.001$), reflecting the HIV epidemic in BC. Additionally, 31% vs. 77% were older than 65 years at AF diagnosis respectively ($p < 0.001$).
- PLHIV had higher substance and alcohol use (48% vs. 10%, $p < 0.001$) and chronic kidney disease (25% vs. 18%, $p = 0.003$) while HIV-negative cases had more hypertension (74% vs. 58%, $p < 0.001$) and ischemic heart disease (60% vs. 45%, $p < 0.001$) (Table 1).
- PLHIV with AF received less oral anticoagulation (45% vs. 56%, $p = 0.002$), warfarin being the main agent (42% vs 52%, $p = 0.004$). Other treatments for the management of AF were similarly used in both groups (Figure 1).
- Age-adjusted incidence rates of stroke, TIA and mortality per 100 Person-Years (%PY) for both populations are shown in Table 2.
- Among men aged 19-49, PLHIV had higher stroke (72.1%PY vs. 5.5%PY) and mortality rates (8.2%PY vs. 1.2%PY; rate ratio: 6.9, 95% CI: 3.5–13.6) than HIV-negative individuals.

Table 1. Comorbidities of individuals with AF

	PLHIV (n=212)	HIV-negative individuals (n= 20,064)	PLHIV vs. HIV-negative individuals (p-values)
Substance use disorder (with alcohol)	102 (48%)	2,058 (10%)	<0.001
Chronic kidney disease	54 (25%)	3,529 (18%)	0.003
Chronic obstructive pulmonary disease	56 (26%)	4,961 (25%)	0.570
Hyperthyroidism	6 (3%)	692 (3%)	0.623
Diabetes mellitus	55 (26%)	6,172 (31%)	0.130
Heart failure	95 (45%)	10,218 (51%)	0.076
Hypertension	123 (58%)	14,925 (74%)	<0.001
Ischemic heart disease	95 (45%)	12,058 (60%)	<0.001

Figure 1. Treatment uptake in PLHIV and HIV-negative individuals

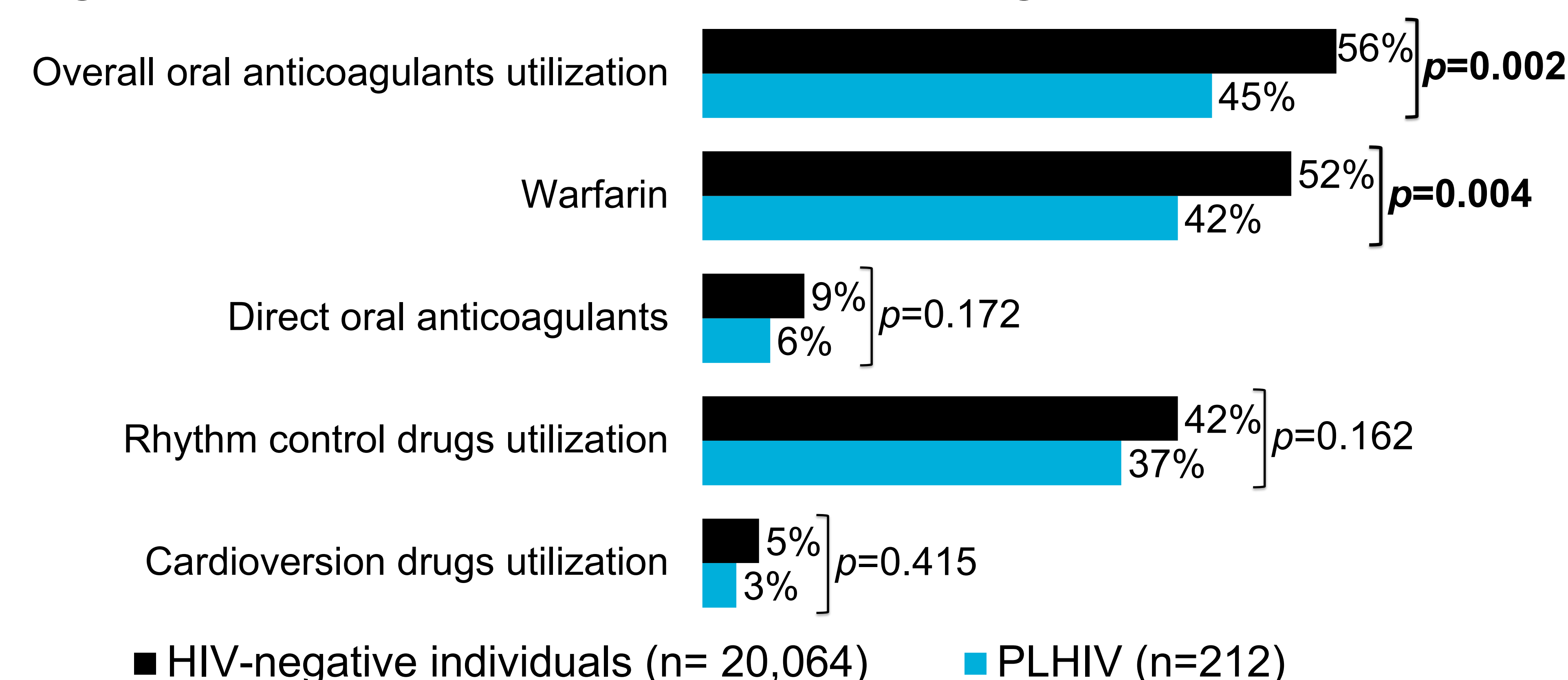


Table 2. Age-adjusted incidence rates for men of TIA and stroke and all-cause mortality of AF per 100 person-years (95% CI)

	PLHIV	HIV-negative individuals	PLHIV vs. HIV-negative individuals rate ratio
TIA	1.33 (0.44-2.23)	1.32 (1.17-1.48)	1.01 (0.33-1.69)
Stroke	48.50 (44.22-52.79)	12.98 (12.53-13.43)	3.74 (3.41-4.07)
All-cause mortality	9.48 (7.26-11.70)	3.48 (3.30-3.65)	2.73 (2.09-3.37)

Discussion

PLHIV with AF had less traditional comorbidities for AF compared to HIV-negative individuals and were significantly less likely to receive oral anticoagulation. However, stroke and mortality rates were higher in PLHIV, particularly among younger men. This finding illustrates the need to consider AF diagnosis and treatment at an earlier age in PLHIV.

References

- Vizcarra P, Eyawo O, Ye M, Lu M, Bennett M, Hogg RS, Montaner JSG, Guillemi S. Incidence and factors associated with Atrial Fibrillation in People Living with Human Immunodeficiency Virus in British Columbia, Canada. Presented at the 9th IAS Conference on HIV Science, Paris, France, July 23-26, 2017.