ASSOCIATION OF HYPERTENSION AND ART USE IN A POPULATION-BASED COHORT IN RAKAI, UGANDA

2791

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4 Johns Hopkins Bloomberg School of Public Health, Baltimore, MD USA; 5 Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD USA

BACKGROUND

Antiretroviral therapy (ART) has prolonged survival of people living with HIV (PLHIV). Studies have reported an increased risk between prolonged ART use and development of hypertension.

Primary Objective: We assessed the association between ART duration and hypertension in a well characterized community cohort.

METHODS

We conducted a cross-sectional study among HIV infected adults (35-49) years old on ART in the Rakai Community Cohort Study (RCCS) from August 2016 to May 2018.

Primary Outcomes: Systolic and diastolic blood pressure was measured twice, averaged, and classified as:

- Hypertension (stage 1): Systolic blood pressure (BP) ≥ 140mmHg and/or diastolic BP ≥ 90mmHg, and/or taking anti-hypertensive medication
- Severe hypertension (stage 2): Systolic BP> 160mmHg and/or diastolic BP > 100mmHg;
- Hypertensive crisis (stage 3): Systolic BP > 180mmHg and/or diastolic BP > 110mmHg

Primary Exposure: ART duration was categorized as follows;

- Short (< 2 years),
- Moderate (2-5 years)
- Prolonged (>5 years)

Confounding variables included: age, gender and body mass index (BMI). We used a log binomial distribution to estimate adjusted prevalence ratios (aPR) of hypertension associated with ART duration.

RESULTS

- 1775 HIV infected adults on ART with documented BP information were identified in the RCCS. 265 (14.9%) had hypertension stage 1, 119 (6.7%) had hypertension stage 2 and 64 (3.6%) had hypertension stage 3.

- The rest of the patients (1351) did not have any hypertension and were included in the study

- Risk of developing all stages of hypertension significantly increased beyond 5 years of ART treatment (Stage 1 aORs=1.55 (95%CI=1.07-2.26); stage 2 aOR=1.70 (95% CI 0.97- 3.01) and stage 3 at aOR=2.32 (95% CI 1.05-5.16)(Table 1).

- **Women are more affected compared to men.**
- **The risk of developing hypertension significantly increases after 5 consecutive years of ART treatment**
- **Further studies are needed to elucidate the mechanism between prolonged ART use and hypertension.**
- **Evidence for public health interventions, including routine screening for hypertension in PLHIV**

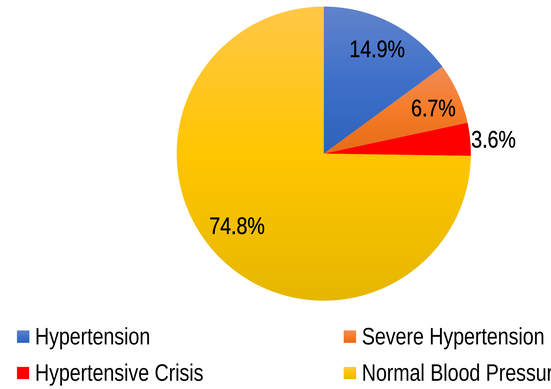

Figure 1. Prevalence of hypertension among people on ART

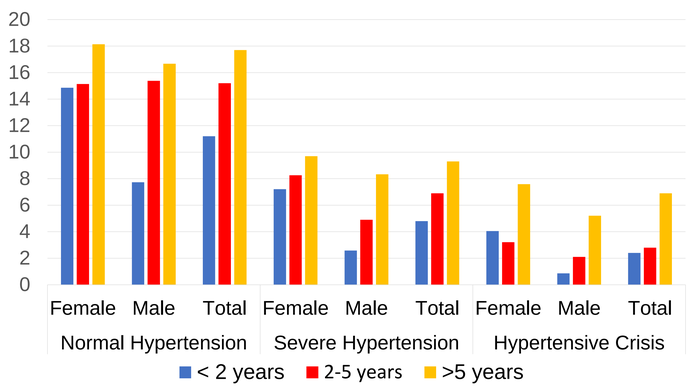

Figure 2. Association between ART duration and hypertension (Gender disaggregated)

Table 1. Association of ART duration and risk of hypertension in HIV infected adults
*Controlled for age, gender, and body mass index (BMI)

	Unadjusted Relative Risks	p Value	Adjusted Relative Risk (95% CI)	p Value
Stage 1 Hypertension 140-90 mmHg				
ART Duration				
<2 years	Ref		Ref	
2-5 years	1.36 (0.95-1.94)	0.09	1.30 (0.92-1.85)	0.14
> 5 years	1.58 (1.12-2.24)	0.01	1.55 (1.07-2.26)	.022*
Severe Hypertension 160-100 mmHg				
ART Duration				
<2 years	Ref		Ref	
2-5 years	1.43 (0.82-2.50)	0.206	1.34 (0.77-2.35)	0.296
> 5 years	1.93 (1.14-3.26)	0.015	1.70 (0.97-3.01)	0.066
Hypertensive Crisis >180-110 mmHg				
ART Duration				
<2 years	Ref		Ref	
2-5 years	1.15 (0.49-2.67)	0.752	1.04 (0.44-2.44)	0.926
> 5 years	2.86 (1.41-5.78)	0.004	2.32 (1.05-5.16)	.038*

CONCLUSIONS

- The risk of developing hypertension significantly increases after 5 consecutive years of ART treatment.

- Routine screening for hypertension should be incorporated into clinical care of PLHIV.

- Further studies to elucidate the mechanism for prolonged ART use and hypertension are needed.

AUTHOR CONTACT

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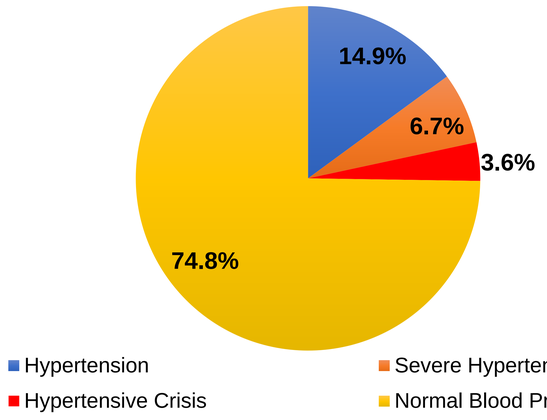

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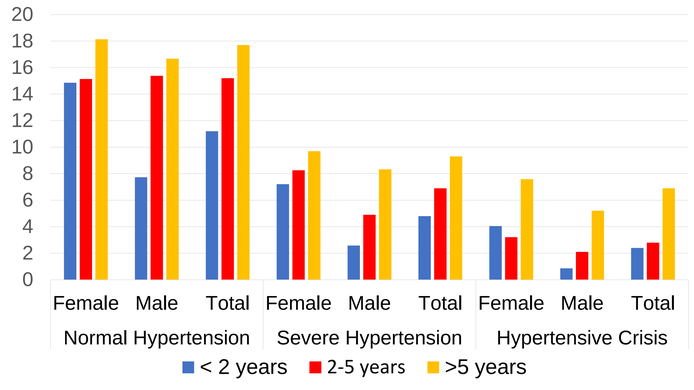

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