Poster #: 00791

HYPERTENSION TREATMENT GAP AMONG PEOPLE WITH/WITHOUT HIV IN KENYA, NIGERIA, TANZANIA, AND UGANDA

Matthew L. Romo[1,2], Nicole Dear[1,2], Trevor A. Crowell[1,2], Seth Frndak[1,2], Hannah Kibuuka[3], John Owuoth[4,5], Valentine Sing'oei[4,5], Jonah Maswai[1,6], Emmanuel Bahemana[1,7], Victor Anyebe[1,8], Zahra Parker[1,2], Julie A. Ake[1], J. Sean Cavanaugh[1], Neha Shah[1]; on behalf of the African Cohort Study (AFRICOS) group

[1]U.S. Military HIV Research Program, CIDR, Walter Reed Army Institute of Research, Silver Spring, MD, USA; [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Bethesda, MD, USA; [3]Makerere University Walter Reed Project, Kampala, Uganda; [4] U.S. Military HIV Research Program, Walter Reed Army Institute of Research Africa, Kisumu, Kenya; [5]HJF Medical Research International, Kisumu, Kenya; [6]U.S. Military HIV Research Program, Walter Reed Army Institute of Research Africa, Kericho, Kenya; [7]HJF Medical Research International, Kericho, Kenya; [8]U.S. Military HIV Research Program, Walter Reed Army Institute of Research Africa, Mbeya, Tanzania; [9]HJF Medical Research International, Mbeya, Tanzania; [10]U.S. Military HIV Research Program, Walter Reed Army Institute of Research Africa, Abuja, Nigeria; [11]HJF Medical Research International, Abuja, Nigeria; [12]U.S. Military HIV Research Program, Walter Reed Army Institute of Research Africa, Lagos, Nigeria

60% of people with hypertension did not receive any treatment. This gap in hypertension treatment was similar between people living with and without HIV.

Background

- Disability and mortality associated with hypertension are among the highest globally in sub-Saharan African countries[1]
  - Little improvement in diagnosis, treatment, and control in the past 30 years[2]
- Effectively managing hypertension among people with HIV (PWH) has especially high clinical and public health importance in sub-Saharan Africa where most PWH reside
  - PWH have two times higher risk of cardiovascular disease compared with people without HIV (PWoH)[3]
- The United States President's Emergency Plan for AIDS Relief (PEPFAR) strategic direction to end the HIV/AIDS pandemic includes a focus on *integrating HIV programming more efficiently into local health service delivery to provide patient-centered care*
  - Best practices should be informed through an understanding of the local context
- **Objective:** Examine the local epidemiology of hypertension treatment and blood pressure (BP) control among PWH and PWoH accessing services at PEPFAR-supported facilities in Kenya, Nigeria, Tanzania, and Uganda

Methods

- Data from the prospective **African Cohort Study (AFRICOS)**, which enrolls individuals aged ≥15 years who are engaging in clinical care at 12 PEPFAR-supported facilities located at 5 programs in Kenya (Kisumu West, South Rift Valley), Nigeria (Abuja, Lagos), Tanzania (Mbeya), and Uganda (Kayunga)
  - At the enrollment visit and every 6 months visits thereafter: physical exam, medical history, and demographic and behavioral questionnaires
  - At enrollment and 12-month visits thereafter: blood chemistry, depression screening
- BP was measured at every 6-monthly study visit
  - Measurement repeated if BP was out of the normal range (depending on site specific protocol)
  - **Hypertension:** systolic BP ≥140 mmHg at two consecutive study visits and/or diastolic BP ≥90 mmHg at two consecutive study visits (based on International Society of Hypertension definition),[4] and/or prescription of any BP lowering medication
    - Once this definition was met, a participant was considered to have hypertension at all subsequent study visits
  - **Untreated hypertension:** Met hypertension definition but was not prescribed a BP lowering medication at a study visit
  - **Uncontrolled BP:** Systolic BP ≥130 mmHg and/or diastolic BP ≥80 mmHg at a study visit when prescribed a BP lowering medication
- Included all participants who had at least two study visits; excluded study visits during pregnancy
- Statistical analysis: Multivariable random intercept log-Poisson models with robust standard errors to examine associations with risk of untreated hypertension and uncontrolled BP

Results

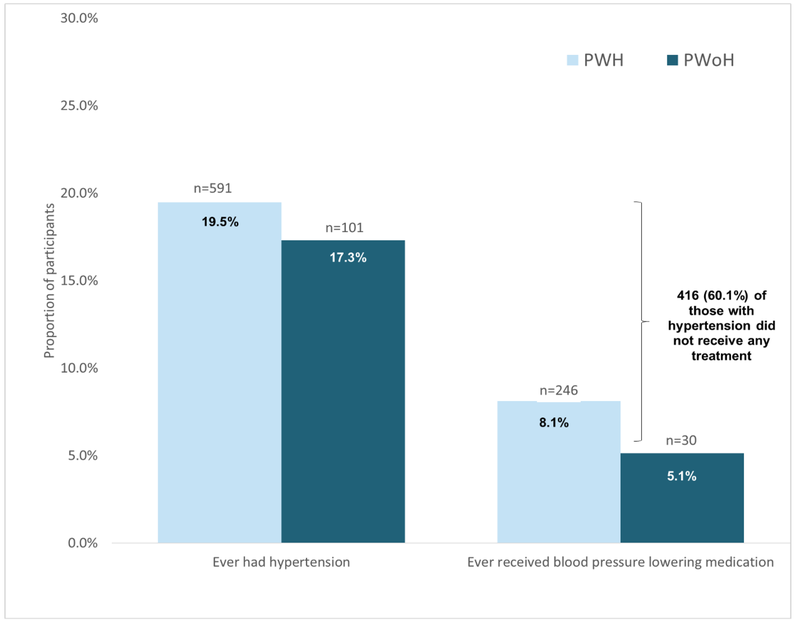
- From 1/2013–6/2023, 4,114 participants were enrolled in AFRICOS and 3,617 participants were included (3,033 [83.9%] PWH, 584 [16.1%] PWoH; **Table 1**) with a total of 19,404.68 person-years of follow-up
  - **692 (19.1%) met criteria for hypertension** (crude incidence 36.2 cases per 1000 person-years)

Table 1. Demographic characteristics stratified by hypertension status

	Total	Hypertension		
		Yes	No	p-value
	n=3,617	n=692	n=2,925	
Sex				
Male	1,527 (42.2%)	313 (45.2%)	1,214 (41.5%)	0.074
Female	2,090 (57.8%)	379 (54.8%)	1,711 (58.5%)	
Age, median years (IQR)	41.8 (32.6-50.0)	47.6 (40.7-54.1)	40.1 (30.2-48.4)	<0.001
Study site				
Kayunga, Uganda	623 (17.2%)	69 (10.0%)	554 (18.9%)	<0.001
South Rift Valley, Kenya	1,244 (34.4%)	263 (38.0%)	981 (33.5%)	
Kisumu West, Kenya	689 (19.0%)	84 (12.1%)	605 (20.7%)	
Mbeya, Tanzania	656 (18.1%)	160 (23.1%)	496 (17.0%)	
Abuja & Lagos Nigeria	405 (11.2%)	116 (16.8%)	289 (9.9%)	

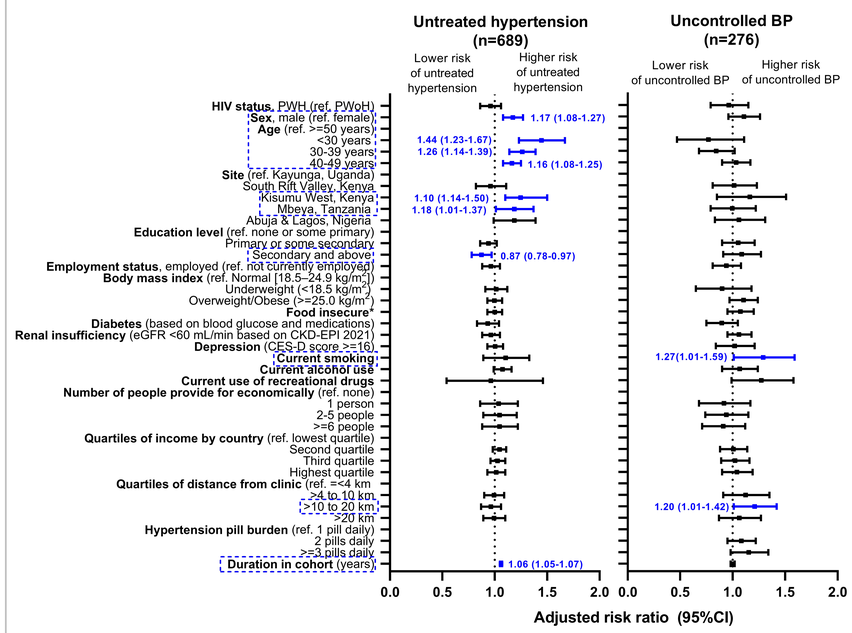
- Out of the 692 participants with hypertension, 276 (39.9%) ever received BP lowering medication (**Figure 1**) among whom:
  - Median (IQR) proportion of study visits with uncontrolled BP on treatment: 0.8 (0.4–1.0)
  - Receiving World Health Organization recommended combination hypertension treatment at most recent visit: 156/276 (56.5%)
    - Two-drug combination therapy: ACE/ARB ± dihydropyridine CCB ± thiazide diuretic

Figure 1. Hypertension prevalence and treatment gap by HIV status



- Examination of demographic characteristics and variables that could potentially impact hypertension treatment access and BP control (e.g., adherence to treatment) with risk of untreated hypertension and uncontrolled BP (**Figure 2**)

Figure 2. Predictors of risk of untreated hypertension and uncontrolled blood pressure



CES-D, Center for Epidemiological Studies-Depression; CKD-EPI, Chronic Kidney Disease Epidemiology Collaboration; eGFR, estimated glomerular filtration rate. Statistically significant associations p<0.05 are in blue. Random intercept models (log-Poisson with robust standard errors) restricted to participants with complete case data; multicollinearity tested using the variable inflation factor and a cutoff value of 5 and no variables were found to be collinear in either model. *Food insecurity was defined as not having enough food to eat over the past 12 months or receiving <3 meals/day.[5]

Conclusions

- We identified a substantial burden of untreated hypertension and uncontrolled BP, unaffected by HIV status
  - Males, younger people, and people with lower educational attainment had higher risk of untreated hypertension
  - Smokers and people living farther from clinics had higher risk of uncontrolled BP
- Differences in untreated hypertension by site may reflect varying integration of HIV care with medical care
  - PWoH routinely referred to outside care for hypertension management. For PWH, some sites provide hypertension management in the ART clinic whereas others refer to a separate hypertension clinic
- Strategies are needed to optimally scale up hypertension diagnosis and management in the context of existing HIV treatment services for PWH and testing & prevention services for PWoH

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Presenter contact: mromo@hivresearch.org