

The Impact of HIV on the Prevalence and Characterization of Peripheral Arterial Disease in Kigali, Rwanda

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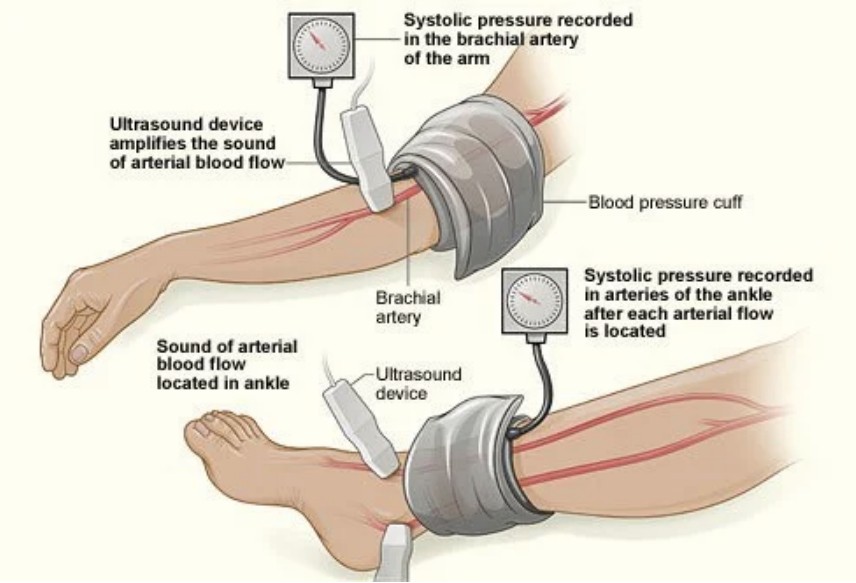
Introduction

No studies have estimated the prevalence of peripheral arterial disease (PAD) in Rwanda, especially when accounting for the increased rate of human immunodeficiency virus (HIV) in the country, which is often associated with an increased risk of PAD. This study sought to estimate the prevalence of PAD stratified by HIV status in Rwanda.



Methods

This is a cross-sectional study conducted at three health centers across Kigali. Patients older than 40 presenting for non-emergent reasons were eligible for PAD screening. An ankle-brachial index (ABI) was measured using the Unetixs Revo 1100/8 MHz probe. ABI definitions were ≤ 0.9 for diagnostic and > 1.3 for inconclusive. HIV status and comorbidities were self-reported by survey.



Results

A total of 859 participants were included with an overall PAD positivity rate of 3.14%. In total, 174 patients were HIV positive (20.3%) and 685 were HIV negative (79.7%). HIV positivity was associated with an inconclusive ABI (44 (25%) vs 121(18%), $p=0.04$), while there was no significant association with a diagnostic ABI (3 (1.7%) vs 24 (3.5%), $p=0.45$). Additionally, people living with HIV (PLWH) were more likely to be younger (54 vs 57, $p<0.01$) and less likely to have other comorbidities such as diabetes (27 (16%) vs 171 (25%), $p<0.01$) and hypertension (57 (33%) vs 307 (45%), $p<0.01$).

Table 1. Study demographics and prevalence rates based on HIV status

Characteristic	HIV+ (N=174)	HIV- (N=685)	p-value
Age	54 [48 - 60]	57 [48 - 65]	0.008
Sex			0.697
Female	132 (76%)	508 (74%)	
Male	42 (24%)	177 (26%)	
Location			<0.001
Masaka	25 (14%)	241 (35%)	
Remera	99 (57%)	176 (26%)	
Nyiranyuma	50 (29%)	268 (39%)	
ABI			0.0514
Normal	127 (73%)	540 (79%)	
Low	3 (1.7%)	24 (3.5%)	0.45
High	44 (25%)	121 (18%)	0.04
T2DM	27 (16%)	171 (25%)	0.009
HTN	57 (33%)	307 (45%)	0.005
HLD	2 (1.1%)	8 (1.1%)	1
CKD	2 (1.1%)	5 (0.73%)	0.634
Prior MI	2 (1.1%)	5 (0.73%)	0.634
Stroke	1 (0.57%)	5 (0.73%)	1
Smoking Status			0.851
Current	9 (5.2%)	29 (4.2%)	
Former	48 (28%)	192 (28%)	
Never	117 (67%)	464 (68%)	
Obesity	21 (12%)	113 (16%)	0.162
FH Stroke	6 (3.4%)	20 (2.9%)	0.804
FH Heart Attack	15 (8.6%)	62 (9.1%)	1
FH PAD	13 (7.5%)	40 (5.8%)	0.479

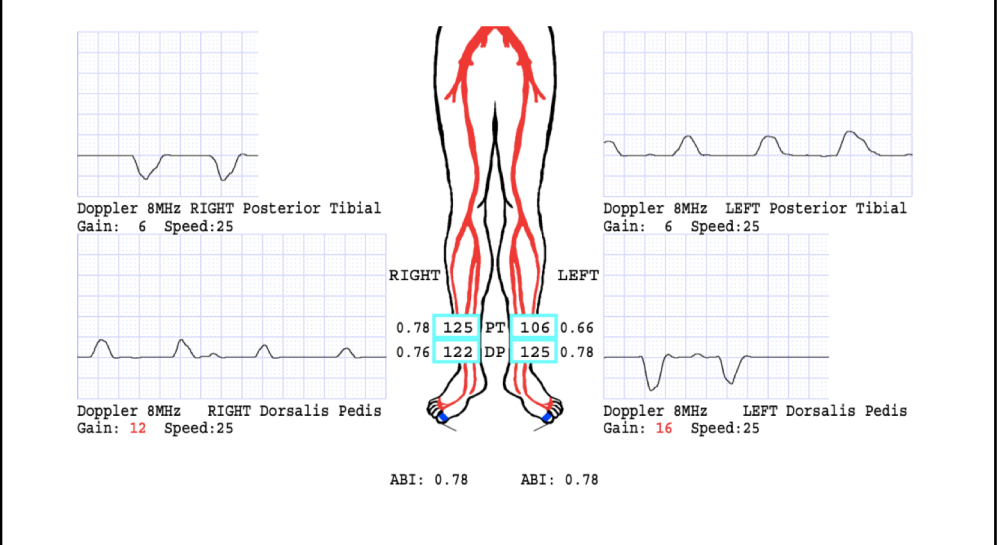


Table 2. Study demographics and prevalence rates

Characteristic	Normal ABI (N=668)	Low ABI (N=27)	High ABI (N=166)	p-value
Age	56 [48 - 63]	63 [54 - 70]	56 [49 - 63]	0.062
Sex				<0.001
Femal	527 (79%)	18 (67%)	96 (58%)	
Male	140 (21%)	9 (33%)	70 (42%)	
Unkown	1 (0.15%)	0 (0%)	0 (0%)	
Location				<0.001
Masaka	224 (34%)	15 (56%)	27 (16%)	
Remera	194 (29%)	4 (15%)	77 (46%)	
Nyiranyuma	250 (37%)	8 (30%)	62 (37%)	

Conclusions

This study revealed that there is a significantly higher rate of inconclusive ABIs among PLWH in Kigali, Rwanda despite lower rates of diabetes which may suggest calcific vascular disease due to HIV. Further research is warranted to better understand the prevalence and pathophysiology of vascular disease in this population.

Future Directions

- Further studies needed to evaluate vascular disease in this population and similar countries
- Work aimed at primary prevention can relieve the burden of PAD in this population
- Need for improvement in vascular training and access in the African continent

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