Rates of Viral Suppression among HIV-positive Women in Rural North-Central Nigeria

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Daniel Lee[1], Gloria Rinomhota[2], Udochisom C. Anaba[3], Nadia A. Sam-Agudu[3,4]

[1]University of Maryland School of Medicine, Baltimore, USA; [2]University of Maryland School of Pharmacy, Baltimore, USA
[3]International Research Center of Excellence, Institute of Human Virology Nigeria, Abuja, Nigeria;
[4]Institute of Human Virology, University of Maryland School of Medicine, Baltimore, USA.

Background

The effectiveness of antiretroviral drugs in prevention of mother-to-child transmission (PMTCT) and suppression of viral load (VL) is well-documented. In addition, viral suppression is in line with the 90-90-90 global strategy for HIV elimination. To determine adherence and effectiveness of PMTCT treatment, we assessed VL in postpartum HIV positive women enrolled in a large PMTCT implementation research study in rural-North-Central Nigeria

Methods

Within this prospective cohort study, 497 HIV-positive pregnant women were enrolled from 20 Primary Healthcare Centers. Plasma VL testing (lower limit of detection at <20 copies/ml) was performed at 6 months post-partum. Per WHO guidelines, women with VL <1,000 were classified as suppressed/adherent, while those with VL of >1,000 copies/ml were considered non-suppressed/treatment failure. Wilcoxon rank sum, Spearman's correlation and Kruskal-Wallis were used to test for associations.

Findings

Out of 497 enrolled women, 275 (55.3%) presented for VL testing and 234 (85.1%) had their samples collected. Out of 213 (91.0%) available results, 171 (80.3%) were virally suppressed/adherent. ART regimen, duration on ART, and employment/educational status were not determinants of suppression. For distance lived from facility, there was a positive but weak correlation where VL was higher with further distance lived **(Table 1).**

Interpretation

While the target of 90% was not achieved, a substantial proportion of women (80%) were adherent to ART. Only "Distance lived from facility" approached significance as a determinant of suppression/adherence. This is understandable as rural areas often have difficult terrain, and residents are often economically disadvantaged. Additionally, ART regimen did not make a difference in suppression rate, giving EFV vs NVP comparable efficacy in our study cohort. Approximately 20% of women failed treatment; however they were not labeled "non-adherent" due to the possibility of acquired resistance, which was not assessed in this study. While this study demonstrates appreciable treatment success in a cohort of rural women, more robust studies are needed in Nigeria to determine factors associated with ART non-adherence and non-suppression among PMTCT clients.

Table 1: Socio-demographic Characteristics & Viral Suppression

Characteristics	All (N = 213)	Viral Suppression (N = 171)	P- Value
	n (%) or Median (IQR)	n (%) or Median (IQR)	
Distance Lived from Facility, km			
<5	125 (59.8)	106 (63.5)	0.08
5 - 10	24 (11.5)	15 (9.0)	
>10	60 (28.7)	46 (27.5)	
Missing	4	4	
Employment Status			
Employed	80 (38.3)	67 (39.9)	0.72
Unemployed	129 (61.7)	101 (60.1)	
Missing	4	3	
Duration on ART, months (n = 170)	10.0 (9.0 – 12.0)	10.0 (9.0 -12.0)	0.43
ART Regimen			
Efavirenz (EFV)	140 (67.0)	116 (69.0)	0.56
Nevirapine (NVP)	63 (30.1)	47 (28.0)	
Lopinavir (LPV/r)	6 (2.9)	5 (3.0)	
Missing	4	3	
Educational Status			
<Secondary	90 (43.1)	70 (41.7)	0.15
≥Secondary	119 (56.9)	98 (58.3)	
Missing	4	3	