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Age at HIV diagnosis, Immunological recovery at cervical Cancer screening and cervical cytology outcomes among women with HIV in Jos, Nigeria

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Background

- Cervical cancer (CC) is the 2nd & 3rd most common cancer & cancer-related deaths, respectively, among women in Low- & Middle-Income Countries (LMIC)
- Increasing incidence of CC in sub Saharan Africa (SSA) since 2000s from HIV epidemics & near absence of screening
- NCI/NIH recommends pre-cancer screening to be initiated at the time of HIV diagnosis, this is however not the case in most LMICs
- Immune recovery of women with HIV from the use of ART & the natural history of cervical dysplasia is poorly understood.
- Increased acquisition & persistence of high-risk HPV by women surviving longer on ART maybe associated with cervical dysplasia.
- Immunosuppression in women with HIV may predict the occurrence & severity of cervical dysplasia

Research Objectives

- To determine cervical cytology outcomes among women by age at HIV diagnosis & viral suppression in Jos, Nigeria.

Methods

- A cross-sectional study of women who had care in three HIV/AIDS treatment facilities in Jos between June 2020 and December 2021
- Ethical approvals obtained from IRB of the collaborating Institutions
- Consent obtained, data on socio-demographics, HIV diagnosis and treatment were collected
- Pap test of the cervix was carried out and outcomes of cytology report documented.
- The dependent variable were age at HIV diagnosis, viral suppression & cervical cytology outcome.
- Univariate & multivariate analyses done to determined predictors of cervical dysplasia
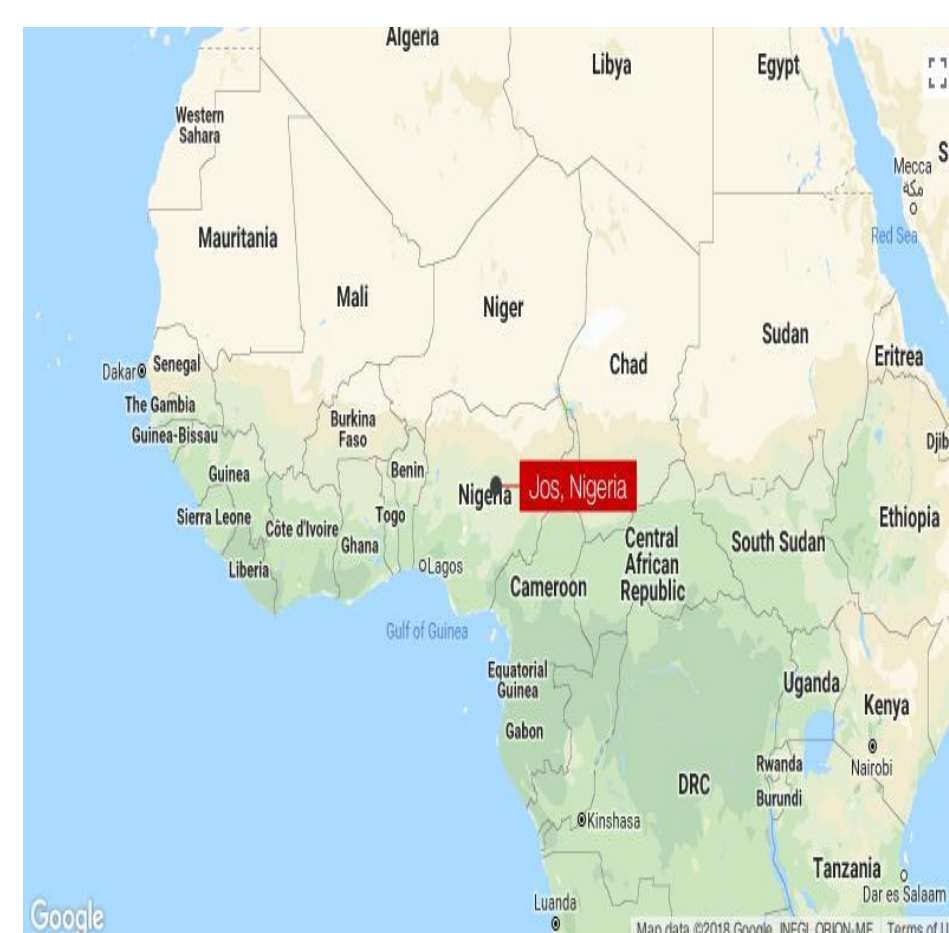- Analyses were performed using R software

Table 1. Multivariate Logistic Regression of the association of Age at HIV Diagnosis & cervical dysplasia in women with HIV in Jos, Nigeria (N=359)

Variable	OR (95%CI)	p-value	aOR (95%CI)	p-value
Educational Status				
<7	Ref			
7-12	0.42 (0.24, 0.71)	0.707	0.61 (0.26, 1.43)	0.259
≥12	0.48 (0.26, 0.85)	0.852	1.41 (0.58, 3.51)	0.452
Occupation				
Unemployed	Ref			
Employed	1.61 (1.01, 2.58)	0.044 *	-	-
Marital Status				
Unmarried	Ref			
Married	3.17 (1.71, 6.01)	0.000 *	-	-
Monogamous				
No				
Yes	0.61 (0.41, 1.00)	0.052 *	0.55 (0.26, 1.12)	0.10
History Alcohol				
No	Ref			
Yes	1.70 (1.00, 2.299)	0.056	-	-
Parity	1.27 (1.15, 1.41)	0.000 *	-	-
Awareness Pap Test				
No	Ref			
Yes	0.75 (0.48, 1.16)	0.000 *	-	-
Age at First Pap Test	1.27 (1.21, 1.34)	<0.000 *	1.57 (1.43, 1.75)	<0.000 *
Use of Condom				
No	Ref			
Yes	0.40 (0.25, 0.65)	0.000 *	-	-
Duration on ART	0.56 (0.28, 1.07)	0.089	0.60 (0.52, 0.68)	0.000 *
Cervical Cytology				
Normal	Ref			
Mild Dysplasia	1.80 (0.86, 4.04)	0.131	1.61 (0.43, 6.08)	0.478
Severe Dysplasia	4.67 (1.77, 16.07)	0.005	2.49 (0.52, 13.88)	0.271

OR: odds ratio, aOR: adjusted odds ratio, CI: Confidence Interval, %: percentage, *Significant association, Ref: Reference

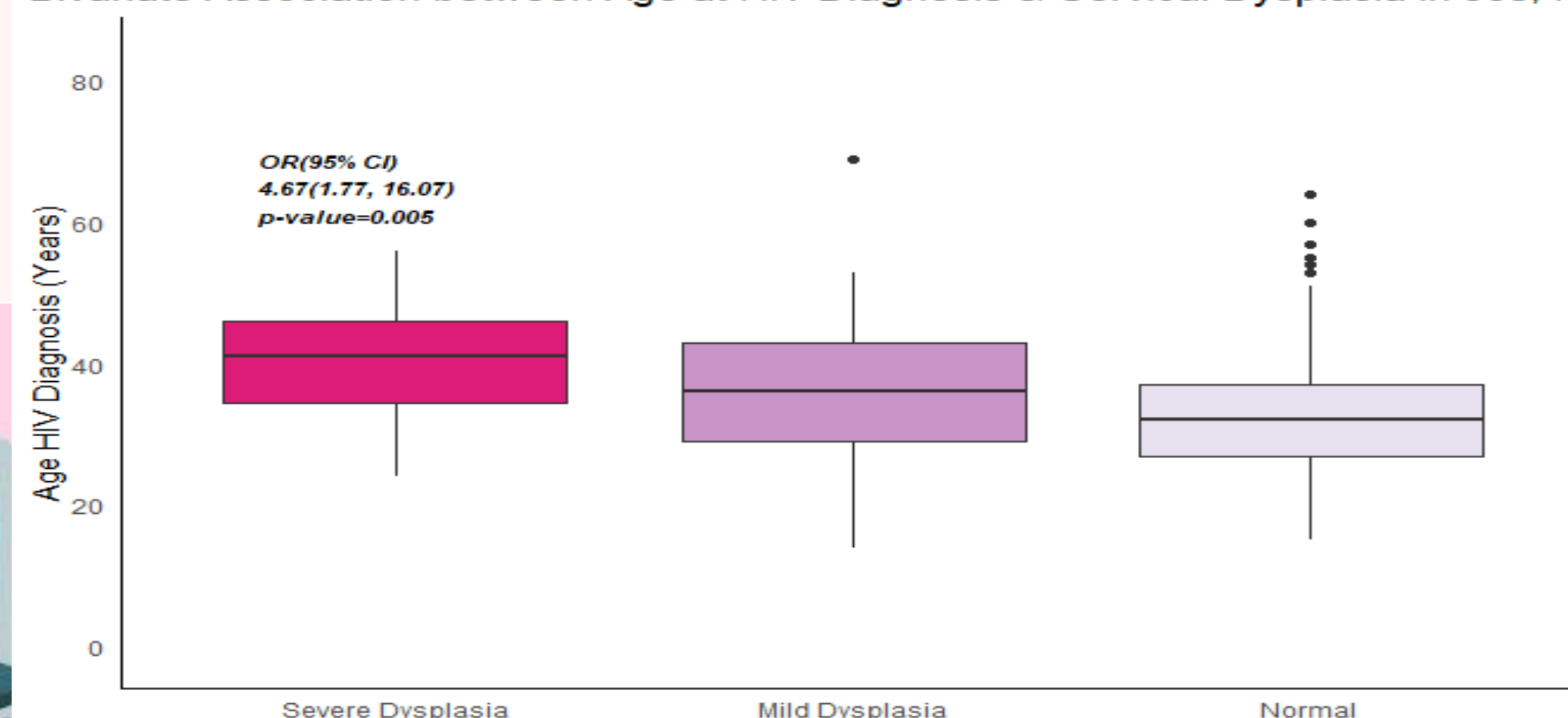Bivariate Association between Age at HIV Diagnosis & Cervical Dysplasia in Jos, Nig

OR(95% CI)
4.67(1.77, 16.07)
p-value=0.005

figure1: Boxplot with odds ratio (OR,95% CI)

Results

- Out of the 359 women studied, mean age ± SD was 43.9 ± 8.7 years, youngest & oldest were 21 and 72 years, respectively.
- The mean age ± SD at HIV diagnosis was 33.6 ± 8.5 years, the youngest & oldest was 14 & 69 years, respectively
- Pap test was the first in 325 (93%) of the women & mean ± SD duration on ART was 8.6 ± 4.0 years, minimum was 1 year and maximum 19 years
- Women with last CD4 count ≥ 500 cells/mL were 117 (32.6%) and < 500 cells/mL were 242 (67.4%), last viral load was > 20 cells in 277 (77.2%) of the studied population
- Overall, prevalence of cervical dysplasia was 19%, Mild and Severe Dysplasia were 10.3% and 8.9%, respectively,
- Age at HIV Diagnosis compared with Cervical dysplasia ($p = 0.004$), duration on ART ($P = 0.003$), age at first Pap test ($P < 0.000$), parity ($P = 0.000$), educational level ($P = 0.004$), marital status ($P = 0.000$), condom use ($P = 0.000$), & Obese status ($P = 0.021$)
- Adjusted Logistic Regression for age at first Pap test (1.57, 95% CI=1.43-1.75), duration on ART (0.60, 95% CI=0.52-0.68)

Limitations

- Temporality is not known in a cross-sectional study and no baseline cervical cytology at HIV diagnosis or ART initiation for longitudinal study
- Co-testing for high-risk HPV & Pap test would have reduced missing cases of dysplasia
- Lack of current HIV viral load and CD4 counts for determination of HIV staging

Conclusions

- The prevalence of cervical dysplasia was high among women diagnosed with HIV in advanced age and had no Pap test at initiation of ART in Jos, Nigeria

Acknowledgement