LOSS-TO-FOLLOW-UP RISK FACTORS AFTER ANTIRETROVIRAL THERAPY INITIATION IN UGANDA

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BACKGROUND

Retention in HIV care is an important indicator for quality of healthcare services and should be measured against the UNAIDS 90-90-90 targets.

In sub-Saharan Africa some groups of adult patients have been reported to be a higher risk of dropping out of care, particularly young adults as compared to elder patients (Kenya paper) and male patients as compared to females (1)

High proportion of lost to follow up (LTFU) have also been reported in in women started on ART while pregnant (2) representing a missed opportunity for prevention of vertical transmission and attaining an HIV free generation.

We conducted this study to describe the proportion of LTFU by age and gender and explored gender differences in different age groups identified risk factors for in patients on antiretroviral therapy (ART) in urban Uganda.

METHODS

Setting

VL monitoring was introduced in Uganda at the end of 2014. The Infectious Diseases Institute (IDI), Makerere University was one of the first sites to have access to VL testing. All viral load tests are performed centrally at the Ministry of Health Central Public Health Laboratory.

The IDI clinic, located within Mulago National Referral Hospital is a center of excellence for HIV care and treatment. Following the availability of VL tests in Uganda, plans were made to test all patients on ART on their first visit following VL implementation (i.e. within 6 months), and therefore to continue monitoring patients on ART according to the WHO algorithm (see Figure 1).

In order to ensure optimal coverage of VL monitoring, the following activities were carried out: development of Standard Operating Procedures, staff training, supervision by a physician, and daily quality assurance checks by a quality officer.

Patients

We included all adult patients (aged ≥18 years) who initiated ART in 6 clinics in Kampala (2005–June 2018). Patients were considered LTFU if they did not return to the clinic for >3 months and did not transfer. Confirmed deaths and transfers were not included.

Young women initiating ART through PMTCT programs and clients who recently started treatment face barriers to retention in care probably due to lack of disclosure

Data analysis

We compared LTFU by gender, age groups (young adults [YA], 15–25 years; adults [AD], 26–50 years; and older adults [OA], >50 years), point of entry into HIV care, and year of ART initiation. We used Cox proportional hazards models to determine factors associated (P<0.05) with LTFU. We imputed missing (33%) CD4 count using multiple imputation chained equation with 30 imputations.

RESULTS

Patients characteristics

We included 56,304 patients enrolled in 6 clinics:

- 41,847 (74.3%) were women
- median age was 30 years (interquartile range [IQR], 25–36 years)
- 17.2% had WHO stage 3/4 disease
- median CD4 count at ART start was 271 cells/μL (IQR, 147–426 cells/μL)
- 80.3% were started on efavirenz-based first-line ART.

Lost to follow up by age and gender

Overall, 20,203 (35.9%) were LTFU

- LTFU was higher in women (36.6%) than men (34.5%; P<0.001).
- LTFU declined across age groups: 45.8% in YA, 33.1% in AD, and 31.4% in OA.
- In YA, LTFU was higher among women (46.5%) than men (37.9%), whereas LTFU was lower in female AD (32.6% vs 34.3%) and OA (29.9% vs 33.0%; all P<0.001) then men.
- Most women entered care through prevention of mother-to-child transmission (PMTCT) programs; LTFU rates among pregnant women were 55.2% among YA, 45.1% among AD, and 35.7% among OA (P<0.001).

Risk factors for lost to follow up

LFTU rates were higher among recent ART initiators.

On multivariate analysis, we found that women who entered care through PMTCT services were at higher risk of being LTFU OA and AD were less likely to be LFTU than YA. The strongest risk factor for LTFU was recent ART initiation. Other factors are shown in Table 1.

Characteristics at ART start	Unadjusted HR (95% CI)	P value	Adjusted HR (95% CI)	P value
Gender				
Female	1.00		1.00	
Male	1.00 (0.97–1.04)	0.84	1.12 (1.1–1.17)	<0.001
Age group, years				
Young adults (15–25)	1.00	<0.001	1.00	
Adults (26–50)	0.61 (0.59–0.63)		0.71 (0.68–0.73)	<0.001
Older adults (>50)	0.56 (0.54–0.63)		0.70 (0.64–0.77)	<0.001
Entry point				
Medical in and outpatients	1.00		1.00	
PMTCT	2.49 (2.38–2.61)	<0.001	1.68 (1.61–1.75)	<0.001
Baseline WHO stage				
1/2	1.00		1.00	
3/4	0.89 (0.85–0.93)	<0.001	1.22 (1.17–1.29)	<0.001
Baseline CD4 count (cells/μL)				
<200	1.00		1.00	
200–350	1.06 (1.02–1.11)	0.005	0.88 (0.84–0.93)	<0.001
≥350	1.41(1.35–1.47)	<0.001	0.85 (0.81–0.90)	<0.001
Year of ART start				
2005–2009	1.00		1.00	
2010–2014	3.33 (3.12–3.60)	<0.001	3.61 (3.31–3.92)	<0.001
2015–2018	6.30 (5.84–6.74)	<0.001	6.58 (6.00–7.21)	<0.001
ART initial regimen				
Efavirenz-based	1.00		1.00	
Nevirapine-based	0.55 (0.53–0.57)	<0.001	0.77 (0.73–0.81)	<0.001

Abbreviations: HR, hazards ratio; CI, confidence interval; PMCTC, prevention of mother-to-child transmission; WHO, World Health Organization.

CONCLUSIONS

Young women initiating ART through PMTCT programs and clients who recently started treatment face barriers to retention in care probably due to lack of disclosure. Our findings of high LTFU rates may partially be driven by mortality rates and silent transfers, as suggested by an increased risk in patients at advanced stage of disease.

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