Attrition and its predictors among adults enrolled in cART programs in two referral hospitals in the northern coastal areas of Eritrea: 16-year retrospective study

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Abstract

Background: Many view attrition as one of the biggest barriers to effective delivery of cART in resource-limited settings in sub-Saharan Africa (SSA). In this study, our objective was to describe the incidence and predictors of attrition among adults enrolled in cART programs in two referral hospitals in the northern coastal areas of Eritrea. **Methods:** This was a retrospective review of patient records of 464 patients [Male: 149(35.6%) vs. Females: 269(64.4%)] aged 18 years who initiated cART between 2005 and 2021. The main outcome measures were attrition (loss-to-follow-up (LTFU) plus mortality) and associated outcomes. Kaplan-Meier statistics were used to evaluate survival probability of attrition. Independent predictors of attrition were evaluated using a multivariable Cox proportional hazard model. **Results:** A total of 418 patients [Male: 149(35.6%) vs. Female: 269 (64.4%)] were studied. At baseline, the mean (±SD) age (SD) was 34(±11.2) years; median (±IQR) CD4 $^{+}$ T-cell count was 151 (IQR: 87-257) cells/μL. After a follow-up time of 39,883 months, 127 ((30.4%), 95% CI [26-35]) attrition events were reported, translating into a cumulative incidence of 2.9/1000(2.4-3.5) per 1,000 people-months (PMs) were reported. During the same period, 97 (23.11%) patients died, 32(7.7%) were LTFU, and 47(11.2%) transferred out. In the adjusted multivariate Cox regression model, an increased risk of attrition was associated with the year of enrollment (aHR = 1.07, 95% CI 1.00-1.15, p-value = 0.04); ethnicity (Afar: aHR=3.21, 95% CI: 1.84-5.59, p value < 0.001) (Others: aHR = 2.67, 95% CI: 1.14-6.25, p value = 0.024) and cART backbone: (TDF+FTC: aHR=2, 95% CI: 1.21-3.32, p value = 0.007). On the contrary, the risk of attrition decreased per unit increase in baseline CD4 $^{+}$ T-cells/μL (uHR=0.998, 95% CI 0.996-0.999, p-value<0.001). **Conclusion**: Despite expanded treatment and decentralization of cART programs, mortality due to advanced disease at enrollment remains high in peripheral settings. A concerted effort is required to reduce late enrollment and improve the management of patients with advanced disease in decentralized programs.

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