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Factors Associated with First-Line Antiretroviral Therapy Failure amongst HIV-Infected African Patients: A Case-Control Study

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ABSTRACT

Background: Since 2001, anti-retroviral therapy (ART) has been provided to over 75,000 HIV-infected patients at the USAID-Academic Model Providing Access to Healthcare (AMPATH) Partnership in western Kenya. Over 1000 of these patients have switched to second-line ART. We therefore set out to determine factors associated with first-line ART failure amongst these patients. Methods: This case controlled study matched patients (in the ratio 1:2) from the electronic AMPATH Medical Record System on the basis of age, gender, and ART initiation date. Cases were adults (⩾18 years) who initiated second-line ART between January 1, 2007 and July 31, 2011 after at least one viral load measurement >5000 copies/ml or satisfying the WHO immunological or clinical failure criteria. Controls were those on non-failing first-line ART with a CD4 count > 400 /ml within the last 12 months, at the time of case incidence. Conditional logistic regression for paired data was used to assess association. We evaluated the strength of association of risk factors using stratified Cox model. Results: Of the 1084 cases and 2149 controls included in the analysis, 62% were female. Median age was 36.5 years (IQR = 30.7 - 43.1); median baseline CD4 cell count was 161 /ml (IQR = 72 - 277); Median time to ART failure was 37 months (IQR = 24 - 47). Low baseline CD4 count < 50 /ml (H.R = 7.07, (95% CI = 4.92 - 10.15); Zidovudine based ART (H.R 1.76, 95% CI = 1.25 - 2.48) and imperfect ART adherence (H.R = 2.77, 95% CI = 2.20 - 3.49) were independently associated with treatment failure. Conclusion: In this setting, low baseline CD4 count, zidovudine-based ART and imperfect adherence are associated with first-line ART treatment failure.

KEYWORDS

HIV; Treatment; ART Failure

Cite this paper

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