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ABSTRACT

Title of Abstract : Factors Influencing Mortality Among HIV Patients Undergoing Antiretroviral Therapy (ART): A Narrative Review
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Background : The World Health Organization reported that global coverage of antiretroviral therapy (ART) reached 77% in 2024; however, mortality among people living with HIV remains relatively high. Various clinical, immunological, and social factors influence treatment success and patient survival outcomes.

Objective : This study aims to narratively analyze the factors associated with mortality among HIV patients receiving ART.

Research Methods/ Implementation Methods : This narrative review identified relevant literature published between January 2020 and June 2025 through four electronic databases: PubMed, Scopus, Google Scholar, and ScienceDirect. The search used combinations of keywords and Boolean operators (“AND,” “OR”): “HIV” OR “Human Immunodeficiency Virus” AND “mortality” OR “death” AND “antiretroviral therapy” OR “ART” AND “survival analysis” OR “Cox regression” OR “Kaplan–Meier” AND “cohort study.” Only peer-reviewed, full-text articles in English were included. Eligible studies employed prospective or retrospective cohort designs, involved adult HIV patients receiving ART, and reported mortality outcomes analyzed using Kaplan–Meier or Cox proportional hazards models. Review articles, case reports, and studies without relevant survival or mortality data were excluded. A total of 12 studies met the inclusion criteria, primarily conducted in Sub-Saharan Africa, the Caribbean, and Latin America.

Results : Mortality rates ranged from 4.2 to 11.7 per 100 person-years, with a 5-year survival rate of 81.7–88.5%. Approximately 60–70% of deaths occurred within the first year of therapy. The most consistent mortality risk factors included CD4 count <200 cells/ μ L (AHR 2.3–6.6), severe anemia or hemoglobin <10 g/dL (AHR 2.2–5.2), WHO clinical stage III/IV (AHR 4.3–15.0), poor functional status (bedridden/ambulatory) (AHR 3.0–9.5), tuberculosis co-infection (AHR 1.9–4.1), and poor ART adherence (AHR 3.3–9.6). Sociodemographic factors such as being unmarried, low education, and poverty also increased mortality risk (AHR 1.6–3.7). Conversely, good ART adherence, cotrimoxazole prophylaxis (CPT) use, adequate nutritional status (BMI ≥ 18.5 kg/m²), and CD4 ≥ 200 cells/ μ L were significant protective factors.

Conclusion/Lesson Learned : Mortality among adult HIV patients in developing countries remains high, particularly within the first year of ART and among individuals with low immunity, anemia, or tuberculosis co-infection. Strengthening anemia and TB screening, optimizing ART adherence, and early identification of patients with low CD4 counts should be prioritized to reduce mortality rates.

Keyword : HIV/AIDS, mortality, antiretroviral therapy, survival analysis, developing countries