Hyponatremia, hypochloremia, and hypoalbuminemia predict an increased risk of mortality during the first year of antiretroviral therapy among HIV-infected Zambian and Kenyan women.

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Abstract:

Early mortality rates after initiating antiretroviral therapy (ART) are high in sub-Saharan Africa. We examined whether serum chemistries at ART initiation predicted mortality among HIV-infected women. From May 2005 to January 2007, we enrolled women initiating ART in a prospective cohort study in Zambia and Kenya. We used Cox proportional hazards models to identify risk factors associated with mortality. Among 661 HIV-infected women, 53 (8%) died during the first year of ART, and tuberculosis was the most common cause of death (32%). Women were more likely to die if they were both hyponatremic (sodium < 135 mmol/liter) and hypochloremic (chloride < 95 mmol/liter) (37% vs. 6%) or hypoalbuminemic (albumin < 34 g/liter, 13% vs. 4%) when initiating ART. A body mass index < 18 kg/m² [adjusted hazard ratio (aHR) 5.3, 95% confidence interval (CI) 2.6-10.6] and hyponatremia with hypochloremia (aHR 4.5, 95% CI 2.2-9.4) were associated with 1-year mortality after adjusting for country, CD4 cell count, WHO clinical stage, hemoglobin, and albumin. Among women with a CD4 cell count > 50 cells/µl, hypoalbuminemia was also a significant predictor of mortality (aHR=3.7, 95% CI 1.4-9.8).

Baseline hyponatremia with hypochloremia and hypoalbuminemia predicted mortality in the first year of initiating ART, and these abnormalities might reflect opportunistic infections (e.g., tuberculosis) or advanced HIV disease. Assessment of serum sodium, chloride, and albumin can identify HIV-infected patients at highest risk for mortality who may benefit from more intensive medical management during the first year of ART.