Incidence of lactic acidosis toxicity among patients on stavudine or zidovudine containing antiretroviral therapy at Lighthouse clinics

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Although stavudine and zidovudine remain frequently used in low-income countries in Africa, they are associated with long-term toxicities. Lactic acidosis is one of the most serious toxicities in antiretroviral treatment (ART) and occurs predominantly in regimens containing stavudine (D4T) or zidovudine (AZT). We conducted this study to determine the incidence and risk factors for lactic acidosis among HIV-positive patients that have been on ART for at least 6 months. This study will bridge the gap that exists due to scarcity of data on the extent of toxicities due to long-term use of D4T and AZT. We conducted a retrospective cohort study using routine clinic data from the Lighthouse and Martin Preuss Centre electronic data systems. We used the clinic data collected between 1st January 2004 and 31st December 2011. We included into the analysis all patients that have been on D4T- or AZT-containing ARV drugs for at least 6 months. We analysed the data using Poisson regression of the number of cases of lactic acidosis (LA) on gender, age at ART initiation, baseline BMI, and lipodystrophy in order to determine the incidence and risk factors for lactic acidosis. All statistical analyses were done at 5% significance level. We identified 14,854 patients that have ever been on D4T- or AZT-containing ARV drugs for longer than 5 months. Of these, 43% were male and median age was 34 years. The total number of cases of confirmed LA was 342 with observed mortality rate 40% more than the patients without confirmed LA. There were 23.02 cases of LA for every 1000 patient-years on D4T- or AZT-containing ART regimens. The strongest risk factor identified for developing LA was having a baseline BMI >25 with incidence rate ratio (IRR) 3.11 (95% CI: 2.49, 3.88). The IRR for patients with a diagnosis of lipodystrophy was 1.77 (95% CI: 1.35, 2.32). Patients aged <30 years at ART initiation had 31% reduced risk of developing LA as compared to patients aged ≥39 years at ART initiation. We were unable to detect any increased risk associated with gender. Clinicians should always have significantly higher index of suspicion of LA in patients with established lipodystrophy, aged more than 30 years at ART initiation and patients with higher baseline BMIs. The number of cases of fatal lactic acidosis that did not present to the clinic is unknown but is likely to be significant.