

## The Risk of Hyperglycemia Associated with Use of Dolutegravir among Adults Living with HIV in Kampala, Uganda: A Case Control Study

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**Abstract :** Emerging evidence suggests a possible association between hyperglycemia and dolutegravir (DTG), a preferred first-line antiretroviral agent in sub-Saharan Africa (SSA). There is a need for rigorous studies to validate this association in the face of increasing DTG use and the burden of non-communicable diseases among people living with HIV (PLHIV). We conducted a case-control study to assess the risk of hyperglycemia associated with the use of DTG among PLHIV attending Mulago ISS Clinic in Kampala. Cases had hyperglycemia, while controls had no hyperglycemia, as confirmed by fasting plasma glucose and oral glucose tolerance tests. Demographic, laboratory, and clinical data were collected using interviewer-administered questionnaires and medical record abstraction. The analysis compared cases and controls on DTG use prior to diagnosis of hyperglycemia while controlling for potential confounders using multivariable logistic regression. We included 204 cases and 231 controls. In multivariable analysis, patients with prior DTG use had seven times greater odds of subsequent diagnosis of hyperglycemia compared to those who had non-DTG-based regimens (adjusted odds ratio [aOR] 7.01, 95% CI 1.96-25.09). The odds of hyperglycemia also increased with age (56 years and above vs. 18-35, aOR 12.38, 95% CI 3.79-40.50) and hypertension (aOR 5.78, 95% CI 2.53-13.21). Our study demonstrates a strong association between prior DTG exposure and subsequent diagnosis of hyperglycemia. Given the benefits of DTG, wide-scale use, and the growing burden of diabetes mellitus (DM) in SSA, there is a need for systematic screening for hyperglycemia and consideration of alternate regimens for those at risk for DM.

**Keywords :** HIV, hyperglycemia, dolutegravir, diabetes

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