

DETECTION OF MULTICLASS DRUG RESISTANT HIV-1 IN A PATIENT ON DOLUTEGRAVIR BASED ANTIRETROVIRAL THERAPY

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Background

The use of combination antiretroviral therapy (cART) has significantly reduced morbidity, mortality and improved quality of life for HIV infected patients. However, the development of HIV drug resistance mutations threatens the continued success of cART. We report the first case of a multiclass drug resistant HIV-1 strain in a treatment experienced patient in Botswana.

Methods

We conducted a chart review of a 51-year-old treatment experienced male patient currently on DTG-based cART with persistent virological failure. Genotypic testing for Protease, Reverse transcriptase and Integrase mutations in plasma were done and compared with the patient's previous sequences. We evaluated the patient's ART regimens in relation to clinical markers and genotypic resistance results over a 14-year period.

Results

The patient's median Viral Load over the 14 years of cART was 2,888 copies/mL and Absolute CD4 count 595 cells/ μ L. Genotypic analysis revealed major drug resistance mutations conferring resistance to; NRTI's (D67N, K70R, M184V, and K219N), NNRTI's (Y181C), PI's; (V32I, I47V, I54L, I84V) and INSTI's (Q148R, E138K, and G140A). The virus was CCR5 tropic and did not have any known mutations to Enfuvirtide (T20).

Conclusion

To our knowledge, this is the first reported case of multiclass drug resistance in a patient on DTG-based cART. This poses a major challenge to patient management with grave concerns for transmission of resistant variants into the circulating pool. Timely drug resistance genotyping and adherence counselling need to be intensified in the era of expanded cART to avoid the spread of multiclass HIV drug resistant strains.

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