ASSESSING HIV MOLECULAR GENOTYPING PROFILES TO IDENTIFY POTENTIAL RESISTANCE TO LONG ACTING ANTIRETROVIRAL THERAPY (LAART).

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Background:
Advancements in HIV antiretroviral therapy (ART) over the past few decades have rendered HIV from being a fatal disease to a chronic disease, improving the life expectancy of patients. Current first line therapy included a three drug formulation in a daily fixed dose pill however the success of treatment relies on patient adherence to therapy. One of the major factors contributing to HIV drug resistance is suboptimal adherence to ART. Long acting antiretroviral therapy (LAART) such as cabotegravir/rilpivirine co-formulation could overcome suboptimal adherence as they are administered via injection. The aim for this study was to screen our HIV genotyping repository to identify patients ineligible for this co-formulation LAART.

Methods:
We interrogated historical reverse transcriptase (2000-2019) and integrase (2012-2020) sequence data on treatment naïve and treatment experienced patients for HIV drug resistant sites known to impact on drug susceptibility to rilpivirine and cabotegravir.

Results:
We assessed 718 individual integrase sequences (575 baseline-naïve and 143 treatment experienced) and 1706 individual reverse transcriptase sequences (1119 baseline-naïve and 587 treatment experienced) for drug resistant mutation (DRM) sites associated with potential cabotegravir/rilpivirine LAART co-formulation reduced susceptibility. Results indicate approximately 9% of the sequences analysed showed high levels of resistance to rilpivirine, including ~7% in all baseline sequences and ~11% in treatment experienced patients. Those DRMs identified include; L101I, K101P/E, E138A/G/K/Q (63%), Y181C/I, Y188L, G190E and DRMs weakly associated with reduced susceptibility include V90I, A98G, V179D and G190A/S. Although rare (~3%) the majority of DRM associated with resistance to cabotegravir were identified in treatment experienced patients and included Q148R/H, N155H, E138K or G140R, with two patients identified with multiple DRM to CAB.

Conclusion:
We found utilising this screening approach useful in identifying patients requiring careful consideration before initiating long acting antiretroviral therapy.

Disclosure of Interest Statement: None