TO WAIT OR NOT TO WAIT? THE EFFECT OF ARV RESISTANCE PRESENT AT BASELINE ON FIRST LINE HIV TREATMENTS.

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Background: The benefits of early antiretroviral (ARV) initiation in all HIV positive individuals include a reduction in the risk of disease progression and the risk of HIV transmission. With the push to treat as early as possible, some doctors may choose not to wait for an HIV drug resistance genotype report before initiating treatment. With levels of transmitted drug resistance (TDR) at 8-10% in newly acquired cases in Victoria, what effect do drug resistance mutations (DRMs) present at baseline have on current first line ARV regimens?

Methods: Baseline drug resistance genotyping was performed as part of standard-of-care on blood samples collected between 2011 and 2015 from 1356 Victorian patients with serological evidence of HIV infection within the last 12 months or presenting as newly HIV diagnosed. Protease and reverse-transcriptase sequences were analysed using the Stanford HIV drug resistance database. Drug resistance profiles were compared with 10 current first line treatment regimens to determine the likely level of treatment failure existing in this population. DRMs conferring intermediate level resistance or higher were considered to contribute towards a potentially failing regimen.

Results: 180 individuals (13.3%) had at least one DRM of which 46 (3.4%) harboured two or more DRMs causing some level of drug resistance. Of these, 21 (1.5%) involved some level of resistance to two drug classes. A combination of Efavirenz or Rilpivirine plus Emtricitabine and Tenofovir had the potential for failure in 62 (4.6%) and 39 (2.9%) individuals respectively. The remaining Protease and Integrase inhibitor-based regimens had the potential for failure in less than 1% of this population.

Conclusion: Current first line HIV treatments are robust enough to compensate for the presence of low levels of drug resistance present in baseline HIV drug resistance genotypes, with Protease and Integrase-inhibitor based regimens less likely to fail than Non-nucleoside Reverse-transcriptase Inhibitor-based regimens.

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