Predicting 2-drug antiretroviral regimen efficacy by genotypic susceptibility score: results from a cohort study

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BACKGROUND AND OBJECTIVE

HIV drug resistance has a deleterious effect on the virological outcome of antiretroviral therapy (ART). The aim of the study is to evaluate the ability of genotypic susceptibility score (GSS) to predict virological outcome following an ART switch to a 2-drug regimen in pretreated HIV-1 infected patients.

METHODS

From the ARCA database we selected HIV-1 infected treatment-experienced patients switching to 2-drug ART (2007-2017, time of switch=baseline), with pre-baseline resistance genotype and at least one HIV-1 RNA determination during follow up. Primary endpoint was virological failure (VF, defined as an HIV-1 RNA, VL, >400 copies/mL). Survival analysis was used to investigate predictors of VF. The genotypic susceptibility score (GSS) predicted by the latest and the cumulative genotype (CGSS, summing all the historical resistance mutations) was calculated using the Stanford hivdb (v.8.5) interpretation with respect to the 2-drug regimen started. Pre-baseline viremia copy-years (VCY) were calculated using the trapezoidal rule on the VL log10 scale using all the available VL results.

RESULTS

Fig.1 Previous antiretroviral classes used

Fig.2 Two-drug antiretroviral regimens

Fig.3 Strata of GSS and CGSS

Fig.4 Reported reasons for 2-drug regimens discontinuation

CONCLUSIONS

Higher viral load at switch and the presence of less than 1 fully active drug strongly influence the virological outcome of 2-drug regimens in treatment experienced HIV-1 infected patients. The most recent GSS seems more predictive of the outcome as compared to the cumulative GSS of these switch regimens.