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1-hour Oral Session
Challenges in HIV care in 2016

Minimum adherence threshold needed for maintenance of virologic suppression

Jenna Yager[1], Thomas Lodise[2], Nimish Patel*[1]

[1]*Albany College of Pharmacy and Health Sciences, Albany, United States*

[2]*Albany College of Pharmacy & Health Sciences, Albany, United States*

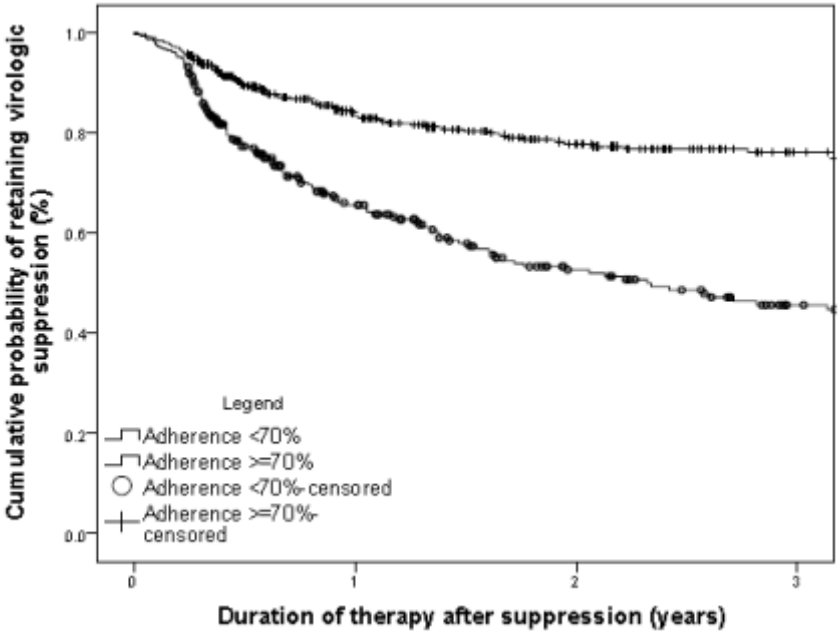
Background: While achievement of virologic suppression (VS) is one of the primary goals of antiretroviral therapy (ART), the ability to maintain VS is also important. The minimum medication adherence (ADH) threshold needed to maintain VS has not been quantified among Veterans' Affairs patients. Study were to 1) quantify the minimum ADH threshold associated with maintenance of VS and 2) determine if ADH is independently associated with VS maintenance.

Material/methods: A retrospective cohort study, with repeated subject sampling, was performed among HIV+ adults in Upstate New York Veterans' Affairs patients (2000-2013). Inclusion criteria were: 1) receipt of ≥ 3 ART for ≥ 3 months, 2) availability of pharmacy refill records, 3) ≥ 2 on-treatment (tx) HIVRNA values 4) first on-tx HIVRNA value was undetectable. ADH was determined with pharmacy refill records and defined as ≥ 3 ART agents in a patients' possession at any given time. Maintenance of VS was defined as inverse probability of losing virologic response (detectable on-tx HIVRNA after having an undetectable HIVRNA). Classification and regression tree (CART) analyses were performed to identify breakpoints in ADH associated with maintenance of VS.

Results: Of the 742 included subjects, the most common regimen types were NNRTI (41.5%), PI (34.0%), non-traditional/mixed class (21.6%) and INSTI (2.8%). Loss of VS occurred in 31.6% of subjects. Median (interquartile range, IQR) time to loss of suppression was 1.1 (0.4 – 2.8) years. Median (IQR) ADH was significantly higher for subjects maintaining VS (77.9 [64.1 – 87.0%]) compared to those who lost VS (64.7 [47.1 – 78.9%]), $p < 0.001$. The CART-derived ADH threshold associated with VS was 69.9% and was the same breakpoint when restricting analyses to contemporary, traditionally-composed regimens. No significant heterogeneity was observed between NNRTI and PI regimens and non-computable for INSTI regimens. Subjects' with ADH ≥70% were significantly more likely (79.3%) to maintain VS compared to those below (52.9%), $p < 0.001$. Kaplan Meier probability of maintaining VS, stratified by ADH of 70%, is displayed in Figure 1. Variables independently associated with maintenance of VS were: ADH ≥ 70% (hazard ratio, HR: 2.33, 95% confidence interval, CI: 1.79 – 3.03, $p < 0.001$) and use of a single tablet regimen (HR: 2.02, 95% CI: 1.25 – 3.23, $p = 0.004$).

Conclusions: ADH ≥ 70% and use of single tablet regimens were independently associated with maintaining VS.

Figure 1: Kaplan Meier plot of probability of maintaining virologic suppression, stratified by adherence ≥ 70%


Cumulative probability of retaining virologic suppression (%)
1.0
0.8
0.6
0.4
0.2
0.0
Legend
Adherence <70%
Adherence >=70%
Adherence <70%-censored
Adherence >=70%-censored
0
1
2
3
Duration of therapy after suppression (years)