

Emtricitabine Triphosphate in Dried Blood Spots Predicts Current HIV Viremia in People Living with HIV and Ongoing Substance Use Disorders

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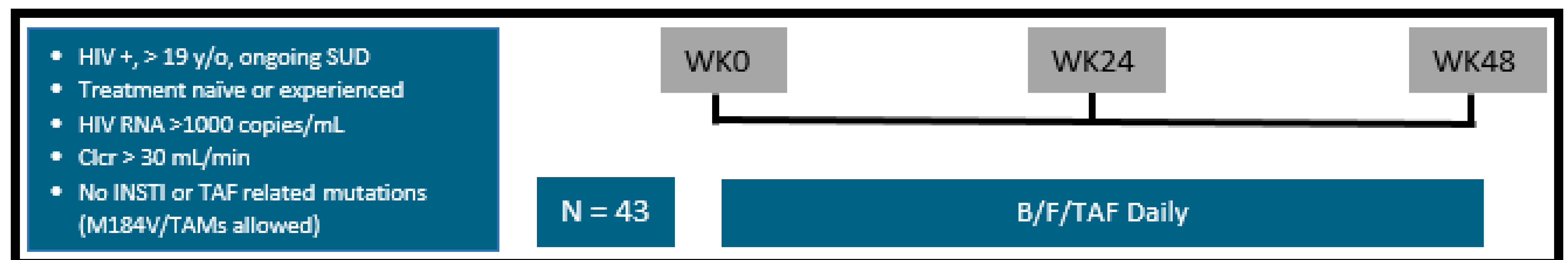
Introduction

- Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) is approved as a single tablet regimen to treat HIV infection
- B/F/TAF provides a high barrier to the development of drug resistance
- There are sparse data on virologic outcomes with B/F/TAF among people living with HIV (PLWH) and ongoing substance use disorders (SUD)
- The BASE trial (NCT03998176) is an open-label, phase IV, single-arm study evaluating B/F/TAF effectiveness and safety among PLWH and SUD

Objectives

- To evaluate how emtricitabine triphosphate (FTC-TP) and tenofovir diphosphate (TFV-DP) concentrations in dried blood spots (DBS) correlates to virologic suppression status at 24 weeks post B/F/TAF initiation.

Methods



Procedures:

- 50 microliter of whole blood spotted on Whatman 903 card; two 7mm punches analyzed by LC/MS/MS for DBS levels
- FTC-TP and TFV-DP DBS levels dichotomized by previously reported levels for 3 doses/week, 1860 and 950 fmol/punches¹, respectively

Primary Endpoint:

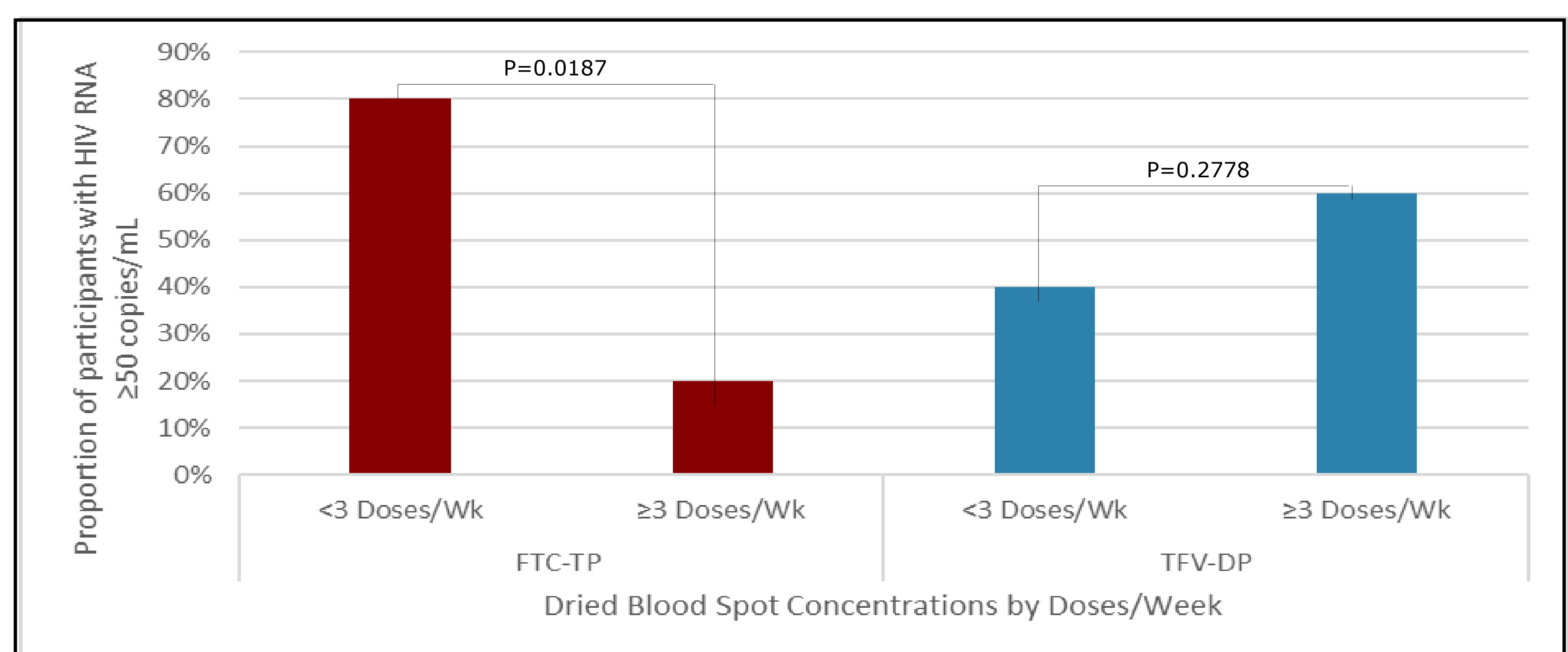
- FTC-TP and TFV-DP DBS concentrations at week 24

Analysis:

- Mann-Whitney tests comparing FTC-TP and TFV-DP levels based on HIV viremia status (HIV RNA <50 copies/mL)
- Logistic regression analysis to estimate odds ratio (OR) of viral suppression based on FTC-TP and TFV-DP DBS levels

Results

Baseline Characteristics, n (%) (Observed Population)	B/F/TAF (n=36)
Age, median (range)	41 (26-62)
Gender	
Cisgender men	28 (78)
Cisgender women	8 (22)
Race	
White	30 (83)
Black	4 (11)
Other	2 (6)
Ethnicity	
Not Hispanic	30 (83)
Hispanic	6 (17)
Week 24 Viral Suppression	
HIV RNA <50 copies/mL	31 (86)
HIV RNA ≥50 copies/mL	5 (14)
Substance Use	
Methamphetamine	36 (100)



- Participants with FTC-TP DBS levels <3 doses/week were 20 times more likely to have HIV RNA ≥50 copies/mL (aOR, 20.8; 95% CI, 1.9-227.3)
- Four participants with HIV RNA ≥50 copies/mL and FTC-TP DBS levels <3 doses/week had low, but detectable TFV-DP concentrations (median, 595.5 fmol/punches or ~2 doses/week)

Conclusions

- This is the first study evaluating the use of B/F/TAF among PLWH and SUD
- Dosing of B/F/TAF <3 days/week by FTC-TP levels in DBS were a strong predictor of current HIV viremia in PLWH and SUD
- PLWH exhibiting poor short-term adherence may benefit from adherence interventions and resistance testing

References:

Yager J, Castillo-Mancilla J, Ibrahim M, et al. Intracellular tenofovir-diphosphate and emtricitabine-triphosphate in dried blood spots following tenofovir alafenamide: The TAF-DBS Study. JAIDS Journal of Acquired Immune Deficiency Syndromes: July 1, 2020 - Volume 84 - Issue 3 - p. 323-330.