

# The virological efficacy of B/F/TAF in people living with HIV who experienced treatment failure- A real world cohort

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## BACKGROUND

Some studies shows that DTG+3TC+TDF is as effective as the standard regimen for people living with HIV (PLWH) who failed from transcriptase inhibitor (NNRTI) plus nucleoside reverse transcriptase inhibitors (NRTIs), and pre-existing NRTI-related resistance-associated mutations(RAMs) did not have adverse impact on virologic outcome<sup>1,2</sup>. However, the data is limited for Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) in these patients<sup>3</sup>. In this retrospective study, we aimed to assess the virologic effectiveness of B/F/TAF for PLWH who experienced virologic failure from NNRTI or protease inhibitor (PI)+ NRTIs.

## METHOD

We retrospectively reviewed the medical records of PLWH who had **viral failure with plasma HIV RNA more than 200 copies/mL**, genotypic resistance were detected only in PLWH with viral load(VL) more than 1000 copies/ml. People could have free VL test twice yearly according to the policy, so most of PWLH had VL data at 6th month or at 1year besides baseline result. The primary end point was the proportion of PLWH who re-achieving VS (VL <50 copies/ml) within the first 48 weeks after switch. The association between NRTI-related RAMs and virologic effectiveness was planed. The survey of self report on treatment satisfaction and adherence were also collected.

## RESULT

- Baseline patients' characteristics (n =68) show in Table.1
- **The re-achieving viral suppression rate was 100%** for B/F/TAF within the first 48 weeks after ART switch. No one got viremic. The CD4 counts continuously increased from baseline 231(IQR, 167-295) to 460(IQR, 395-525) counts/mm<sup>3</sup> at 1st year(WALD square 204.987,p<0.001).
- In our study, 44 PLWH with viral load more than 1000 copies/ml performed genotypic resistance testing and **43.2% of whom had major NRTI drug related resistance mutations**(table.2). All of them successfully achieved viral suppression after switching to B/F/TAF.
- We also set an adherence survey and collect AE report post hoc to learn the reasons that might lead to virologic failure for PWLH as in undeveloped regions. PLWH proportion with **adherence rate more than 95% increased from 68.2% at baseline to 97.1% after switch(p=0.045)**. Most of them complained about pills burden. Dizzy, dyslipidemia, efficacy worry, nausea were also quite common. Which indicates that well tolerated single tablet regimen would be a choice for long term treatment success.

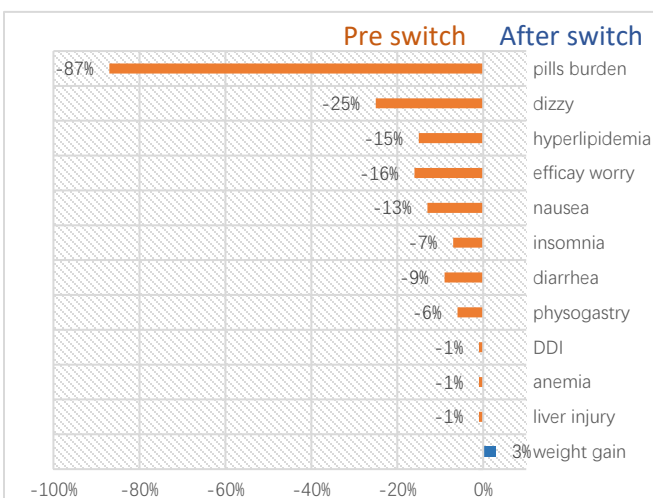
Table.1

male	42 (61.8%)
Age	54 (51-58)
Regimens pre switch	
NNRTIs+2NRTIs	61(90%)
PI+2NRTIs	7(10%)
Resistance	33 (48.5%)
Treatment duration(year)	7.7(5.0-12.9)
VL(copies/ml)	5255(678-102175)
CD4 counts/ul	199(85-347)

Table.2

ID	NRTI-related RAMs	ART before switch	PVL before switch	ID	NRTI-related RAMs	ART before switch	PVL before switch
1	None	EFV+3TC+TDF	7100	44	None	NVP+3TC+AZT	1400000
4	K65R,T69del	EFV+3TC+TDF	292000	45	None	EFV+3TC+AZT	9470
5	None	EFV+3TC+TDF	2870	46	None	NVP+3TC+D4T	1100
6	None	EFV+3TC+TDF	1040	47	None	NVP+3TC+AZT	1260
7	None	EFV+3TC+TDF	1820	48	M184V	NVP+3TC+AZT	34000
8	None	EFV+3TC+TDF	6810	49	None	NVP+3TC+D4T	1800
11	None	EFV+3TC+TDF	1080	50	None	ATV+3TC+D4T	1630
12	K70KN,L74V,M184V	EFV+3TC+TDF	3560	51	M184V	NVP+DDI+D4T	272000
13	M184V	EFV+3TC+TDF	291000	52	G190Q	NVP+3TC+AZT	231000
15	M41ML,K65R,S68G,K70T,M184V	EFV+3TC+TDF	564000	53	M184V	NVP+3TC+D4T	2800
17	None	EFV+3TC+TDF	185000	54	K65R,T69del	NVP+3TC+AZT	7900
22	None	LPV/r+3TC+TDF	7550	55	T69D,K70KQ,Y115F,M184V	NVP+3TC+AZT	48300
23	K65R,S68G,Y115YF,M184V	EFV+3TC+TDF	39200	56	None	NVP+3TC+D4T	5400
24	None	LPV/r+3TC+TDF	197000	57	T69AD,K70EQ,Y115F,M184V	LPV/r+3TC+TDF	5110
25	None	EFV+3TC+TDF	87700	58	None	NVP+3TC+AZT	24600
27	D67DN,K70E	NVP+3TC+AZT	6940	59	None	EFV+3TC+TDF	107000
29	M184MV	NVP+3TC+AZT	195000	61	T69AD,K70EQ,Y115F,M184V	EFV+3TC+TDF	995000
31	M184V	EFV+3TC+TDF	29400	62	None	EFV+3TC+TDF	520000
34	M41ML	NVP+3TC+AZT	3900	63	K70KN,L74V,M184V	LPV/r+3TC+TDF	2200
35	None	NVP+3TC+AZT	4000	64	K65R,S68SR,V75VILM,Y115YF,F116FY,M184MV	EFV+3TC+TDF	110000
38	None	NVP+3TC+AZT	3700	67	None	LPV/r+3TC+TDF	294000
42	M41L,D67N,K70R,V75VILM,M184V,T215Y,K219E	NVP+3TC+D4T	1380000	68	None	EFV+3TC+TDF	6900

Table.3



## CONCLUSION

- This preliminary retrospective study shows that B/F/TAF is high effective and well tolerated in PLWH those who failed from NNRTI or PI based regimens, no matter the NRTI resistance detected or not. A larger sample and longterm prospective trial is now needed to confirm these results.
- Limitations: retrospective observational study, with non comparative arm, and small population size with high viral suppression limiting generalizability of the results..