Switching to B/F/TAF in a Real-World Cohort of Older People With HIV and a High Burden of Non–AIDS-Related Comorbidities

BICSTaR

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Conclusions

- In this large, real-world cohort of people with HIV aged ≥ 50 years who had a high prevalence of comorbidities at baseline, switching to B/F/TAF maintained high levels of effectiveness and was generally well tolerated through 24 months
  - High rates of treatment persistence were maintained at 24 months
  - Treatment satisfaction at 12 months improved after switching to B/F/TAF
  - Lipid, weight, liver, and renal parameters remained stable
- Collectively, these data support the safety of B/F/TAF in older people with HIV and a high prevalence of age-related comorbidities

Plain Language Summary

- People aged 50 years or older who have human immunodeficiency virus (HIV) are more likely to have other medical conditions and often must take lots of different medicines
- The BICSTaR study provides data about an HIV treatment called B/F/TAF when it is used in daily life, which may be different from data collected during a clinical trial
- B/F/TAF is a single pill to treat HIV that combines three drugs: bictegravir (B), emtricitabine (F), and tenofovir alafenamide (TAF)
- This summary looks at how B/F/TAF works in people aged 50 years or older and who have one or more other medical conditions
- After 2 years of the study, most people:
  - Were still taking B/F/TAF
  - Had amounts of virus in their blood at levels that are too low to be seen on tests ('undetectable')
  - Were satisfied with their HIV treatment
  - Did not have side effects that led to them stopping B/F/TAF

Introduction

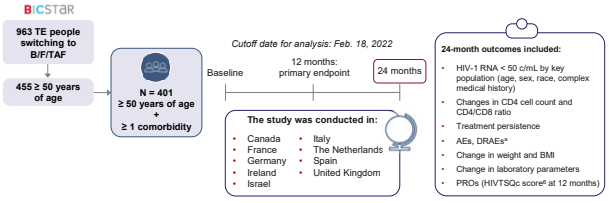
- Older people with HIV have an increased prevalence of age-related comorbidities and polypharmacy[1-3]
- Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) is a single tablet regimen for the treatment of HIV-1 that is widely used in clinical practice and has been shown to be effective in a broad range of people with HIV[1]
- BICSTaR (**BIC**tegravir **S**ingle **Ta**blet **R**egimen) is a large, multinational, prospective, observational cohort evaluating real-world effectiveness and safety of B/F/TAF in people with HIV[4,5]
- This pooled analysis of the BICSTaR study included treatment-experienced (TE) people aged ≥ 50 years with a high burden of comorbidities and polypharmacy at baseline who switched to B/F/TAF

Objective

- To evaluate the 24-month effectiveness and tolerability of switching to B/F/TAF in people aged ≥ 50 years with (or history of) ≥ 1 comorbidity at baseline

Methods

Study Design



[a]Any HIV AE considered by the investigator to be related to B/F/TAF and occurring within 24 months after B/F/TAF initiation.
AE, adverse event; B/F/TAF, bictegravir/emtricitabine/tenofovir alafenamide; BICSTaR, BICtegravir Single Tablet Regimen; c, copies; DRAE, drug-related adverse event; HIVTSQc, HIV Treatment Satisfaction Questionnaire change version; PRO, patient-reported outcome; TE, treatment-experienced.

Comorbidities at Baseline

- Information on comorbidities was collected using predefined categories (see **Table** below) and "Other" as free text
  - The "Other" category was used to report comorbidities as free text using the Medical Dictionary for Regulatory Activities (MedDRA), Version 24.1, coding system[7]
- The information collected by the predefined comorbidity categories had varying degrees of granularity – eg, for neuropsychiatric, cardiovascular, and osteopathic disorders, no detail was collected on specific disorders
  - All predefined comorbidity categories were mapped to MedDRA's Highest Level Term 1, System Organ Class (SOC), to harmonise the information collected at MedDRA Lowest Level Term (LLT) with those collected at SOC level as well as the information in the "Other" category

eCRF Comorbidity Categories	MedDRA Level of eCRF Comorbidity Categories[7]	Mapping	MedDRA SOC Term 1
Asthma	Lowest Level Term	→	Respiratory, thoracic, and mediastinal disorders
Chronic hepatitis B	Lowest Level Term	→	Infections and infestations
Chronic hepatitis C	Lowest Level Term	→	Infections and infestations
COPD	Lowest Level Term	→	Respiratory, thoracic, and mediastinal disorders
Diabetes mellitus	Lowest Level Term	→	Metabolism and nutrition disorders
Hyperlipidemia	Lowest Level Term	→	Metabolism and nutrition disorders
Hypertension	Lowest Level Term	→	Vascular disorders[b]
Renal insufficiency	Lowest Level Term	→	Renal and urinary disorders
Cardiovascular	System Organ Class	→	Cardiac disorders[b]
Neuropsychiatric disorder	System Organ Class	→	Psychiatric disorders
Osteopathic disorder[a]	System Organ Class	→	Musculoskeletal and connective tissue disorders

[a]Not available on MedDRA classification system, so mapping term has been inferred.
[b]Cardiac and vascular disorders were combined into "Cardiovascular disorder" since these are not distinguished in the baseline comorbidity existing categories.
eCRF, electronic case report form; MedDRA, Medical Dictionary for Regulatory Activities; SOC, System Organ Class.

Results

Participant Characteristics at Baseline

	N = 401
Sex at birth, n (%) Male / Female	344 (86) / 57 (14)
Race, n (%) White / Black / Other[a]	326 (81) / 49 (12) / 26 (6)
Age at B/F/TAF initiation, years, median (Q1, Q3) Age ≥ 65 years, n (%)	**56 (53, 62)** 74 (18)
HIV-1 RNA < 50 c/mL, n/N (%)	335/356 (94)
CD4 count, cells/µL, n (%) < 350 / < 200	53 (16) / 11 (3)
Prior ART, n (%) INSTI / PI / NNRTI / TDF	261 (65) / 65 (16) / 84 (21) / 140 (35)
HIVTSQs score,[b] median (range)	57 (17-60) [n = 129]

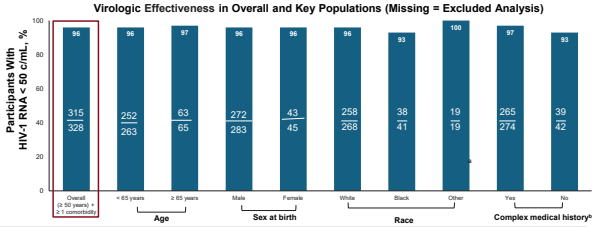
[a]American Indian or Alaska Native (1 [< 1%]), Asian (7 [2%]), Not Permitted (9 [2%]), and Other (9 [2%]). [b]HIVTSQs score ranges from 0 to 60; higher scores indicate greater satisfaction with treatment. B/F/TAF, bictegravir/emtricitabine/tenofovir alafenamide; c, copies; HIVTSQs, HIV Treatment Satisfaction Questionnaire status version; INSTI, integrase strange transfer inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor; PI, protease inhibitor; PWH, people with HIV; Q, quartile; TDF, tenofovir disoproil fumarate.

Participant Comorbidities and Polypharmacy at Baseline

	TE (N = 401)
Complex medical history,[a] n (%)	335 (84)
Comorbidities, n (%) ≤ 2 / > 2 / > 3 / > 4	142 (35) / 259 (65) / 186 (46) / 131 (33)
Comorbidities across multiple SOCs, n (%) ≤ 2 / > 2 / > 3 / > 4	173 (43) / 228 (57) / 136 (40) / 86 (17)
Most frequent comorbidities by SOC (≥ 30%), n (%)	
Cardiovascular disorders	193 (48)
Metabolism and nutrition disorders	191 (48)
Infections and infestations	138 (34)
Psychiatric disorders	136 (34)
Polypharmacy (≥ 5 comedications), n (%)	87 (22)
Number of comedications per person, median (Q1, Q3)	2 (1, 4)
Most frequent comedications by pharmacological or therapeutic subgroup[b] (≥ 5%), n (%)	
Analgesics	141 (8)
Lipid-modifying agents	126 (7)
Agents acting on the renin-angiotensin system	114 (6)
Vitamins	110 (6)
Psycholeptics	98 (5)

[a]CD4 count < 200 cells/µL or ≥ 2 comorbidities or ≥ 5 concomitant medications at switch to B/F/TAF. [b]Anatomical Therapeutic Council 2nd-level classification.[6]
B/F/TAF, bictegravir/emtricitabine/tenofovir alafenamide; Q, quartile; SOC, System Organ Class; TE, treatment-experienced.

Virologic Effectiveness Through 24 Months



	Overall (≥ 50 years) + ≥ 1 comorbidity	< 65 years	≥ 65 years	Male	Female	White	Black	Other	Yes	No
D = F analysis	315/364 (87%)	252/294 (86%)	63/70 (90%)	272/314 (87%)	43/50 (86%)	258/300 (86%)	38/44 (86%)	19/20 (95%)	265/303 (87%)	39/47 (83%)

- Of participants who were not virologically suppressed at baseline (n = 16),[c] 81% (n = 13) achieved HIV-1 RNA < 50 c/mL at 24 months after switching to B/F/TAF

Denominator = number of participants in each subgroup with data available at 24 months. [a]Includes American Indian or Alaska Native, Asian, Not Permitted, and Other. [b]CD4 count < 200 cells/µL or ≥ 2 comorbidities or ≥ 5 concomitant medications at switch to B/F/TAF. [c]Only 16 of the people with viral load ≥ 50 c/mL at baseline had available data. B/F/TAF, bictegravir/emtricitabine/tenofovir alafenamide; c, copies; D = F, discontinuation = failure.

Overall effectiveness (96%) in this older population with comorbidities was consistent with that observed in the larger pooled analysis of the BICSTaR study at 24 months (TE: 96%, n/N = 713/745)[2]

No treatment-emergent resistance to the components of B/F/TAF was reported

Immunologic Outcomes at 24 Months

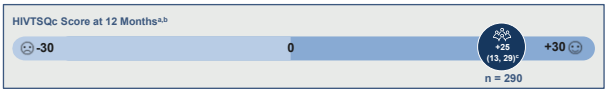
	Median (Q1, Q3)	Baseline	Median (Q1, Q3) change at 24 months
CD4 count, cells/µL	n = 252	**622** (449, 864)	**+40** (-66, 150)
CD4/CD8 ratio	n = 266	**0.9** (0.6, 1.2)	**0.0** (-0.1, 0.1)

n = number of participants with data available at both baseline and 24 months. Q, quartile.

Treatment Persistence and Satisfaction Outcomes

90% **of people were still taking B/F/TAF at 24 months (359/401)[a]**

[a]Reasons for discontinuation, n (%): adverse event, 28 (7); death, 8 (2); investigator's discretion, 4 (1); lack of efficacy, 2 (1); new treatment available, 1 (< 1); participant's decision, 3 (1). B/F/TAF, bictegravir/emtricitabine/tenofovir alafenamide.



[a]HIVTSQc score ranges from -30 to 30; the higher the score, the greater the improvement in satisfaction with treatment; [b]12 months is recommended as the latest timepoint for the assessment of change, as later assessments may be subject to participant recall bias[5]; [c]Median (Q1, Q3).
HIVTSQc, HIV Treatment Satisfaction Questionnaire change version; Q, quartile.

Adverse Events at 24 Months

	N = 401
Participants with any AE, n (%)	250 (62)
Participants with any serious AE, n (%)	51 (13)
Participants with any DRAE, n (%)	54 (13)
Participants with any DRSAE, n (%)	1 (< 1)
Most common types of DRAE, n (%)[a]	
Weight increased	17 (22)
Headache[a]	6 (8)
Sleep disorder	4 (5)
Participants with any DRAE leading to B/F/TAF discontinuation, n (%)	27 (7)
Most common DRAEs leading to B/F/TAF discontinuation, n (%)[a]	
Weight increased	8 (22)
Headache	3 (8)
Sleep disorder	3 (8)

Weight and BMI Increases at 24 Months in Participants With DRAE of "Weight Increased" and Available Data (n = 6)

	Median (Q1, Q3) Change at 24 Months
Weight, kg	**5 (1, 10)**
Action taken with B/F/TAF: Dose not changed (n = 5)	2 (1, 10)
Drug withdrawn (n = 1)	7
BMI, kg/m²	**2 (< 1, 3)**
Action taken with B/F/TAF: Dose not changed (n = 5)	1 (< 1, 3)
Drug withdrawn (n = 1)	3

[a]Total number of DRAE reports: n = 76; [b]2/6 in single participant; [c]Total number of DRAEs leading to discontinuation: n = 37.
AE, adverse event; B/F/TAF, bictegravir/emtricitabine/ tenofovir alafenamide; DRAE, drug-related adverse event; DRSAE, drug-related serious adverse event; HIVTSQc, HIV Treatment Satisfaction Questionnaire change version; Q, quartile.

Clinical Changes at 24 Months

	Median (Q1, Q3)	Baseline	Median (Q1, Q3) change at 24 months
eGFR, mL/min	n = 204	**85** (74, 102)	**-5.0** (-13.7, 1.8)
ALT, U/L	n = 263	**24** (19, 32)	**+1.0** (-4.0, 7.4)
AST, U/L	n = 220	**25** (21, 31)	**+1.0** (-4.0, 5.0)
TC, mmol/L	n = 197	**5** (4, 6)	**-0.0** (-0.7, 0.5)
TC:HDL ratio	n = 173	**4** (3, 5)	**-0.1** (-0.6, 0.5)
LDL, mmol/L	n = 167	**3** (2, 3)	**0.0** (-0.5, 0.5)
Weight, kg	n = 229	**76** (66, 86)	**+1.0** (-1.3, 3.2)
BMI, kg/m²	n = 229	**25** (23, 28)	**+0.3** (-0.5, 1.2)

n = number of participants with data available at both baseline and 24 months.
eGFR, estimated glomerular filtration rate; HDL, high-density lipoprotein cholesterol; Q, quartile; TC, total cholesterol.

Limitations

- The information on comorbidities at baseline was collected using predefined categories with varying degrees of granularity that correspond to a mixture of MedDRA LLTs and SOCs

References: **1.** Kasaie P, et al. Oral 102 presented at: CROI; March 6-10, 2021; Virtual. **2.** McNicholl IR, et al. *Pharmacotherapy*. 2017;37:1498-506. **3.** Pelchen-Matthews A, et al. *AIDS*. 2018;32:2405-16. **4.** Esser S, et al. *HIV Med*. 2024;25:440-53. **5.** Garcia-Deltoro M, et al. Poster 180 presented at: GeSIDA; November 27-30, 2022; Sitges, Spain. **6.** Health Psychology Research Unit, Royal Holloway, University of London. https://healthpsychologyresearch.com/wp-content/uploads/2008/05/HIVTSQ-Summary_rev.11.8.15.pdf (accessed May 21, 2024). **7.** MedDRA. https://www.meddra.org (accessed June 6, 2024). **8.** World Health Organization. https://www.who.int/tools/atc-ddd-toolkit/atc-classification (accessed June 6, 2024).

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