Real-World Effectiveness and Tolerability of Bictegravir/Emtricitabine/Tenofovir Alafenamide (BIC/FTC/TAF) in Treatment-Experienced (TE) People With HIV With a History of CKD

Poster TH-PO1072

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Key Findings

- Median eGFR was stable through 24 months for people with HIV (PWH) who were receiving BIC/FTC/TAF, including participants with an eGFR < 50 mL/min/1.73 m², many of whom had baseline characteristics associated with an increased risk of renal AEs (e.g., diabetes and hypertension)
- Overall, 95% of participants were virologically suppressed at 24 months (HIV-1 RNA < 50 c/mL); all those with baseline CKD achieved or maintained virologic suppression at 24 months
- Overall, renal or urinary drug-related adverse events (DRAEs) occurred in 3% of participants; there were no renal or urinary drug-related serious adverse events (SAEs) in participants with a history of CKD
- There were no BIC/FTC/TAF discontinuations due to renal or urinary DRAEs

Conclusions

- BIC/FTC/TAF was effective and well tolerated with respect to renal outcomes in this real-world study in treatment-experienced (TE) people with HIV and CKD switching to BIC/FTC/TAF
- In people with CKD and risk factors for worsening renal function (e.g., diabetes, hypertension), these data support the safe use of TAF-based regimens in people with an eGFR as low as 30 mL/min/1.73 m²

Introduction

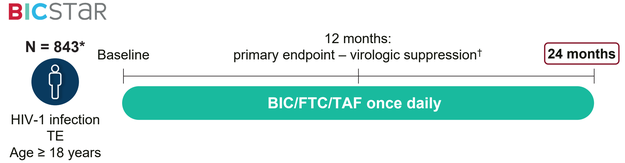
- TAF-based regimens are recommended in the DHHS clinical guidelines and are FDA-approved for PWH and ongoing CKD (estimated CrCl 30–60 mL/min*)[1,2]
- In an integrated analysis of clinical trial data for 9,322 adults and children with HIV, there were no cases of proximal renal tubulopathy in participants receiving TAF-based regimens and significantly fewer individuals on TAF-based regimens discontinued due to renal AEs than those on non–TAF-based regimens ($P < 0.001$)[3]
- There are limited real-world data on the efficacy and safety of TAF-based regimens in people with HIV and CKD
- The ongoing, international (E.U./U.K., Israel, Asia, Canada) BICSTaR cohort study is investigating the real-world effectiveness and safety of BIC/FTC/TAF, a once-daily, TAF-based single tablet regimen, in treatment-naïve (TN) and TE PWH
  - While BIC/FTC/TAF has been shown to increase serum creatinine levels due to inhibition of tubular secretion of creatinine, this does not affect actual renal glomerular function[1]

Using data from BICSTaR, we evaluated the renal safety profile and effectiveness of BIC/FTC/TAF in TE PWH and a history of CKD

*TAF-containing regimens are not recommended in the DHHS clinical guidelines for individuals with estimated CrCl < 30 mL/min unless receiving chronic hemodialysis.

Methods

Study Design



*Participants with baseline and Month 24 data or who had discontinued BIC/FTC/TAF and/or study prior to the cutoff date for analysis (February 2022) and who had eGFR data at baseline; †HIV-1 RNA < 50 c/mL.

Study Assessments

- Renal outcomes: median eGFR through 24 months using the MDRD[4] and CKD-EPI[5] formulas
- Effectiveness (virologic outcomes): plasma HIV-1 RNA at 24 months
- Safety and tolerability: AEs, SAEs, renal or urinary AEs, DRAEs, and renal or urinary DRAEs through 24 months

Results

Demographic and Baseline Characteristics

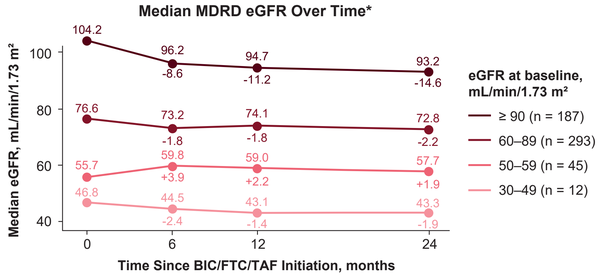
Characteristic	Baseline MDRD eGFR range,* mL/min/1.73 m²				
	< 50 n = 18	50–59 n = 72	60–89 n = 451	≥ 90 n = 302	Total N = 843
Male sex, n (%)	16 (89)	61 (85)	396 (88)	229 (76)	702 (83)
Age ≥ 50 years at BIC/FTC/TAF initiation, n (%)	17 (95)	54 (75)	234 (52)	90 (30)	395 (47)
White race, n (%)	17 (94)	66 (92)	379 (84)	190 (63)	652 (77)
HIV-1 RNA < 50 c/mL, n (%)†	16 (89)	64 (94)	423 (95)	253 (87)	756 (92)
MDRD eGFR, mL/min/1.73 m² (numeric), median (Q1, Q3)	44.4 (40.2, 47.8)	56.0 (53.9, 57.9)	76.9 (70.4, 82.4)	104.2 (96.0, 116.5)	82.2 (70.8, 97.6)
Coexisting conditions at BIC/FTC/TAF initiation, n (%) ≥ 1 CVD‡ Diabetes mellitus Hypertension Renal and urinary disorder	14 (78) 6 (33) 10 (56) 2 (11)	35 (49) 5 (7) 30 (42) 1 (1)	113 (25) 26 (6) 89 (20) 15 (3)	40 (13) 20 (7) 32 (11) 4 (1)	202 (24) 57 (7) 161 (19) 22 (3)
Number of previous regimens, median (Q1, Q3)	4.0 (2.0, 6.0)	3.0 (2.0, 5.0)	2.0 (2.0, 4.0)	2.0 (1.0, 3.0)	2.0 (1.0, 4.0)
Regimen backbone prior to BIC/FTC/TAF initiation, n (%) TDF-based TAF-based Other	5 (28) 5 (28) 8 (44)	26 (36) 31 (43) 15 (21)	153 (34) 222 (49) 75 (17)	111 (37) 134 (45) 55 (18)	295 (35) 392 (47) 153 (18)
History of virologic failure on any regimen, n (%)	5 (28)	9 (13)	55 (12)	26 (9)	95 (11)
Time from HIV diagnosis to BIC/FTC/TAF, years, median (Q1, Q3)§	14.5 (11.2, 26.8)	14.0 (7.0, 21.2)	11.0 (5.0, 18.0)	9.0 (4.0, 17.0)	11.0 (5.0, 18.0)

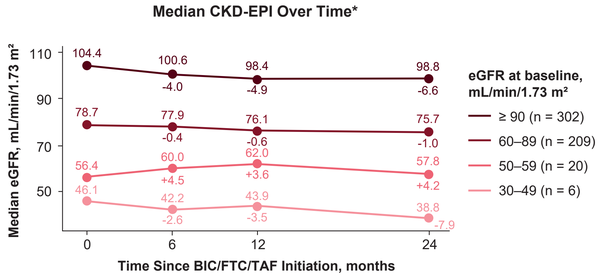
Data shown for TE participants with baseline eGFR data.
*Calculated using the MDRD formula; †Missing = excluded analysis; ‡IA7 definition; §TE participants.

Results (continued)

- Of 843 participants who had baseline eGFR data available, 90 (11%) had CKD (defined as MDRD eGFR < 60 mL/min/1.73 m²)
- In participants with baseline CKD versus those without, more participants were > 50 years old, had a comorbidity (hypertension, diabetes, CVD) and had been living with HIV for longer

Renal Outcomes Through 24 Months

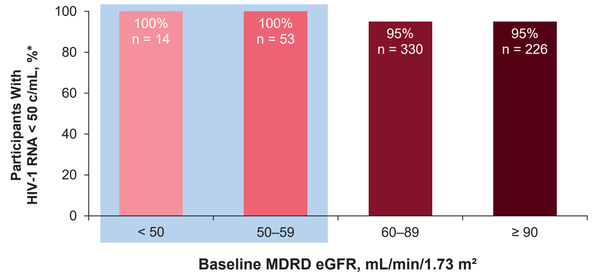




*For participants with results at all timepoints.

- Median eGFR was stable through 24 months for people with baseline CKD
- Overall median changes (Q1, Q3) from baseline to 24 months in eGFR were similar when using MDRD and CKD-EPI formulas: -4.8 (-14.0, 2.6) mL/min/1.73 m² and -4.3 (-12.8, 1.5) mL/min/1.73 m², respectively

Effectiveness at 24 Months



*Missing = excluded analysis.

- Overall, 95% of all participants had virologic suppression (HIV-1 RNA < 50 c/mL) at 24 months
- All participants with baseline CKD were virologically suppressed at 24 months
- No cases of treatment-emergent resistance to any of the components of BIC/FTC/TAF were observed

Overall Safety Through 24 Months

	Baseline MDRD eGFR range,* mL/min/1.73 m²					
	< 50 n = 18	50–59 n = 72	60–89 n = 451	≥ 90 n = 302	Total N = 843	*P*-value†
Any AE, n (%)	8 (44)	53 (74)	318 (71)	171 (57)	550 (65)	< 0.001
Any SAE, n (%)	2 (11)	8 (11)	45 (10)	27 (9)	82 (10)	0.932
Any renal or urinary AE, n (%)	1 (6)	7 (10)	22 (5)	5 (2)	35 (4)	0.012
DRAE, n (%)	1 (6)	13 (18)	81 (18)	30 (10)	125 (15)	0.011
Renal or urinary DRAE, n (%)	0 (0)	1 (14)	0 (0)	0 (0)	1 (3)	0.392
Discontinuation due to any DRAE	1 (6)	4 (6)	41 (9)	17 (6)	63 (8)	0.299

*Calculated using the MDRD formula; †*P*-values presented are calculated using the chi-square test for categorical variables and the Kruskal-Wallis test for numerical variables.

- A single renal or urinary DRAE (proteinuria) was reported in one participant with baseline CKD and did not result in BIC/FTC/TAF discontinuation
- There were no BIC/FTC/TAF discontinuations due to renal or urinary DRAEs

References: **1.** Biktarvy USPI, Gilead Sciences, October 2022. **2.** DHHS. https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv (accessed Sep. 18, 2023). **3.** Gupta SK, et al. AIDS 2019;33:1455-1465. **4.** National Kidney Foundation. MDRD Study Equation (accessed Sep. 22, 2023). **5.** National Kidney Foundation. CKD-EPI Creatinine Equation (2021) (accessed Sep. 22, 2023).

Abbreviations: AE, adverse event; BICSTaR, Bictegravir Single Tablet Regimen; BIC/FTC/TAF, bictegravir/emtricitabine/tenofovir alafenamide; c, copies; CKD, chronic kidney disease; CKD-EPI, Chronic Kidney Disease Epidemiology Collaboration; CrCl, creatinine clearance; CVD, cardiovascular disease; DHHS, Department of Health and Human Services; DRAE, drug-related adverse event; eGFR, estimated glomerular filtration rate; MDRD, Modification of Diet in Renal Disease; PWH, people with HIV; Q, quartile; SAE, serious adverse event; TAF, tenofovir alafenamide; TDF, tenofovir disoproxil fumarate; TE, treatment-experienced; TN, treatment-naïve.

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