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Efficacy and safety of switch to bictegravir/emtricitabine/tenofovir alafenamide from dolutegravir/abacavir/lamivudine: Results from an open-label extension of a phase 3 randomized, double-blind, multicenter, active-controlled, non-inferiority study

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Abstract

Background: The phase 3 randomized, active-controlled GS-US-380-1844 (NCT02603120) study evaluated switching to the single-tablet regimen bictegravir, emtricitabine, and tenofovir alafenamide (B/F/TAF) from dolutegravir (DTG), abacavir (ABC), and lamivudine (3TC) among people with HIV-1. Previously, results from the 48-week double-blind phase showed that switching to B/F/TAF was noninferior to remaining on DTG/ABC/3TC and that B/F/TAF was well tolerated. Here, we show the long-term safety and efficacy of switching to B/F/TAF from DTG/ABC/3TC among people with HIV-1.

Methods: Participants were virologically suppressed people with HIV-1 (HIV-1 RNA <50 copies/mL for ≥ 3 months prior to screening) receiving DTG/ABC/3TC at baseline. Participants were randomized 1:1 to switch to B/F/TAF or remain on DTG/ABC/3TC. Following 48 weeks of treatment with B/F/TAF or DTG/ABC/3TC in the double-blind phase, participants had the option to enter an open-label extension phase, during which they received B/F/TAF. Virologic, immunologic, and safety outcomes during treatment with B/F/TAF through the open-label extension up to 168 weeks, including preexisting and treatment-emergent resistance, were analyzed.

Results: Among 547 participants in the all-B/F/TAF analysis set, virologic suppression (HIV-1 RNA < 50 copies/mL) was maintained in 99% to 100% of participants up to 168 weeks into B/F/TAF treatment, including in those with preexisting resistance; no treatment-emergent resistance was detected. CD4 cell counts remained stable during B/F/TAF treatment, with median (interquartile range) changes from baseline of –17 (–120, 65) cells/μL at week 48 and –9 (–100, 108) cells/μL at week 96. Safety and tolerability findings were consistent with previously reported findings up to week 48; most drug-related adverse events were grade 1 or 2 in severity; no new safety signals were identified.

Conclusion: Switching to B/F/TAF from DTG/ABC/3TC was associated with continued high rates of virologic suppression up to week 168, with no treatment-emergent resistance. B/F/TAF was well tolerated throughout the study period.

Abbreviations: 3TC = lamivudine, ABC = abacavir, AE = adverse event, B = bictegravir, DTG = dolutegravir, $eGFR_{CG}$ = estimated glomerular filtration rate by Cockcroft–Gault formula, F = emtricitabine, IQR = interquartile range, OLE = open-label extension, TAF = tenofovir alafenamide.

Keywords: antiretroviral therapy, bictegravir, efficacy, HIV-1, safety

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1. Introduction

In the modern landscape of HIV treatment, antiretroviral regimens provide high rates of HIV suppression, enabling successful long-term disease management.[1,2] In the setting of virologic suppression, guidelines recognize the potential for treatment switches to address tolerability concerns, drug–drug interactions, pill burden, and regimen simplification.[3–5]

The single-tablet regimen B/F/TAF, comprising bictegravir (B), emtricitabine (F), and tenofovir alafenamide (TAF), is indicated for the treatment of HIV-1 infection[6] and recommended by treatment guidelines, including those from the European AIDS Clinical Society, International Antiviral Society-USA, and U.S. Department of Health and Human Services.[3–5] B/F/TAF has demonstrated efficacy and safety in treatment-naïve people with HIV and those with virologic suppression and switching from another antiretroviral regimen.[7–14] It also has a high barrier to resistance.[7–14]

The phase 3 GS-US-380-1844 (NCT02603120) trial investigated switching to B/F/TAF from dolutegravir (DTG), abacavir (ABC), and lamivudine (3TC) in virologically suppressed adults with HIV-1.[15] Results from the previously reported 48-week double-blind phase of the study showed that switching to B/F/TAF was noninferior to continuing DTG/ABC/3TC.[15] Additionally, B/F/TAF was well tolerated, with no treatment-emergent resistance observed.[15] Here, we report long-term efficacy and safety data from the open-label extension (OLE) phase of the study, encompassing participants who received B/F/TAF for ≤ 168 weeks of follow-up.

2. Methods

2.1. Study design and participants

GS-US-380-1844 (NCT02603120) was a phase 3, randomized, double-blind, multicenter, active-controlled trial conducted in Australia, Europe, and North America, with full study design details published previously.[15] The study protocol is available via the ClinicalTrials.gov record: clinicaltrials.gov/study/NCT02603120.

Eligible participants were adults (aged ≥ 18 years) with virologic suppression (plasma HIV-1 RNA < 50 copies/mL for ≥ 3 months prior to screening) and receiving a stable regimen of once-daily DTG plus co-formulated ABC/3TC, or a fixed-dose regimen of co-formulated DTG/ABC/3TC.[15] Participants were required to have an estimated glomerular filtration rate by Cockcroft–Gault formula ($eGFR_{CG}$) of ≥ 50 mL/min and were excluded if they had chronic hepatitis B infection.[15]

During the 48-week double-blind phase, participants were randomized 1:1 to switch to the fixed-dose combination of B/F/TAF (B 50 mg, F 200 mg, TAF 25 mg) once daily or continue DTG (50 mg), ABC (600 mg), and 3TC (300 mg) once daily as a fixed-dose combination.[15] Participants in countries where B/F/TAF was not yet commercially available, and who completed the week 48 visit, were invited to participate in an OLE phase, during which they received B/F/TAF.[15] Participants returned for study visits every 12 weeks, either for ≤ 144 weeks or until B/F/TAF became available (commercially or through an access program).

The study was undertaken in accordance with the Declaration of Helsinki and approved by central or site-specific review boards/ethics committees (see Table S1, Supplemental Digital Content, http://links.lww.com/MD/O358 which lists review boards and ethics committees). All participants provided written informed consent.

2.2. Study outcomes and assessments

Detailed study procedures have been reported previously.[15] Here, we examined virologic, immunologic, and safety outcomes during B/F/TAF treatment through to the end of the OLE to supplement the previously published primary study outcomes.[15] Specifically, we evaluated the proportion of participants with plasma HIV-1 RNA < 50 copies/mL (missing = excluded analysis and missing = failure analysis), changes from baseline in CD4 cell count, incidence of adverse events (AEs) and laboratory abnormalities, and changes from baseline in renal function, fasting lipid parameters, and bodyweight.

We also assessed preexisting and treatment-emergent resistance. Preexisting resistance in HIV-1 protease, reverse transcriptase, and integrase was evaluated using cumulative historical genotypes and/or retrospective proviral DNA genotyping of day 1 samples for both B/F/TAF-treated and DTG/ABC/3TC-treated participants.

For treatment-emergent resistance, testing was conducted for participants with HIV-1 RNA ≥ 200 copies/mL at either week 48, discontinuation, or confirmed virologic failure (HIV-1 RNA ≥ 50 copies/mL at 2 consecutive visits).

2.3. Statistical analyses

All participants who received ≥ 1 dose of B/F/TAF (either in the randomized or OLE phase) were included in the analyses (all-B/F/TAF analysis set); analyses were summarized for the all-B/F/TAF set unless otherwise indicated. For participants who were randomized to DTG/ABC/3TC and subsequently switched to B/F/TAF in the OLE, baseline was the start of open-label B/F/TAF.

Demographic and baseline characteristics were summarized using standard descriptive methods. The proportion of participants with plasma HIV-1 RNA < 50 copies/mL was assessed overall, with missing data excluded, and within subgroups defined by resistance at baseline using last observation carried forward imputation.

Changes from baseline in CD4 cell count and safety parameters were summarized using descriptive statistics.

3. Results

3.1. Participant characteristics and study treatment

The study was conducted from November 2015 to October 2019. Overall, 567 participants were randomized to B/F/TAF or DTG/ABC/3TC; 563 participants received study treatment (see Figure S1, Supplemental Digital Content, http://links.lww.com/MD/O358, which shows participant disposition). Among the 284 participants randomized to B/F/TAF, 282 received B/F/TAF, 260 continued B/F/TAF up to week 48, and 259 continued B/F/TAF in the OLE through week 168. Of the 283 participants randomized to DTG/ABC/3TC, 281 received DTG/ABC/3TC, 266 continued DTG/ABC/3TC up to week 48, and 265 entered the OLE and switched to B/F/TAF. Genotype data were available for 93.8% (528/563) of the randomized and treated participants.

The all-B/F/TAF analysis set included 547 participants (282 initially randomized to B/F/TAF plus 265 initially randomized to DTG/ABC/3TC then switched to B/F/TAF in the OLE). Participant characteristics at B/F/TAF initiation are presented in Table S2, Supplemental Digital Content, http://links.lww.com/MD/O358, showing baseline characteristics of participants in the all-B/F/TAF analysis set. The median (interquartile range [IQR]) duration of exposure to B/F/TAF was 96 (49, 119) weeks; the minimum and maximum durations of exposure were 0.1 and 169 weeks, respectively, and 5 participants received B/F/TAF for ≥168 weeks.

3.2. Efficacy data and resistance analysis

Virologic suppression (defined as HIV-1 RNA < 50 copies/mL; missing = excluded analyses) was maintained for 99% to 100% of participants over a median of 96 (up to 168) weeks

of B/F/TAF treatment (Fig. 1A). In a missing = failure analysis, 89% (488/547) of participants had virologic suppression at week 48 after B/F/TAF treatment (data missing for 56 [10%] participants). In participants randomized to B/F/TAF at study start, 89% (251/282) had virologic suppression at week 96 (data missing for 31 [11%] participants). During B/F/TAF treatment, 4 participants (0.7%) met criteria for resistance testing, and among these, no treatment-emergent resistance to B/F/TAF was detected. Of the 547 participants who received B/F/TAF, 522 had preswitch protease/reverse transcriptase genotypic data and 502 had preswitch integrase genotypic data. Approximately one-third of participants had a preexisting primary resistance mutation (Fig. 1B). High virologic suppression was maintained in participants with preexisting resistance (Fig. 1B).

Baseline CD4 cell counts remained stable during B/F/TAF treatment: the median (IQR) baseline CD4 count was 709 (536, 905) cells/μL, and median (IQR) changes from baseline were −17 (−120, 65) cells/μL at week 48 (n = 476) and −9 (−100, 108) cells/μL at week 96 (n = 279) (see Figure S2, Supplemental Digital Content, http://links.lww.com/MD/O358, which illustrates changes from baseline in CD4 cell count in participants in the all-B/F/TAF analysis set).

3.3. Safety data

Table S3, Supplemental Digital Content, http://links.lww.com/MD/O358, shows AEs and laboratory abnormalities during B/F/TAF treatment in participants in the all-B/F/TAF analysis set. Study drug-related treatment-emergent AEs are detailed in Table 1. The majority of drug-related AEs were grade 1 or grade 2 in severity, and the most common treatment-emergent drug-related AEs were headache (1.6%), diarrhea (0.9%), fatigue (0.5%), and nausea (0.5%). During the OLE,

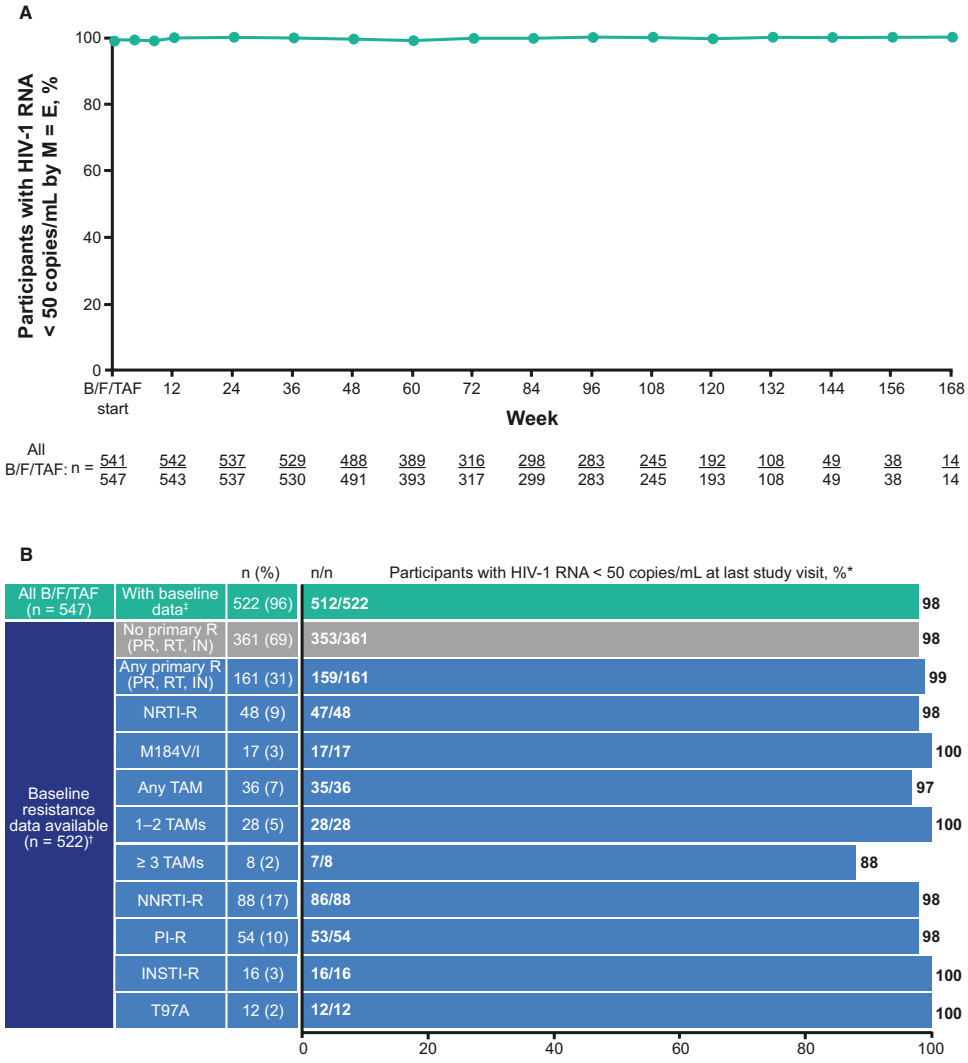

Figure 1. Virologic outcomes in participants in the all-B/F/TAF analysis set: (A) overall (M = E); (B) by archived resistance. (A) The denominator is the number of participants in the all-B/F/TAF analysis set with non-missing HIV-1 RNA value at each visit. Data are presented from the start of B/F/TAF treatment. (B) Median (interquartile range) B/F/TAF treatment duration in the all-B/F/TAF set was 96 (49, 119) weeks. *One participant with ≥ 3 TAMs (also counted in the NRTI-R and any TAM categories) had HIV-1 RNA 56 copies/mL at last visit and resuppressed on commercial B/F/TAF; outcomes determined by last on-treatment observation carried forward analysis through end of study; IN data were missing for 20 participants, and they were imputed as having no INSTI-R substitutions. †Derived from cumulative historical and/or proviral genotypes. ‡Baseline data derived from proviral DNA genotypes (n = 499) and/or historical genotypes (n = 271). Resistance substitutions were detected in 155 participants by proviral genotype (NRTI-R: n = 47 [M184V/I: n = 17; any TAMs: n = 35], NNRTI-R: n = 84, PI-R: n = 52, INSTI-R: n = 16 [T97A: n = 12]) and 39 participants by historical genotype (NRTI-R: n = 6 [M184V/I: n = 0; any TAMs: n = 6], NNRTI-R: n = 25, PI-R: n = 11, INSTI-R: n = 1 [T97A: n = 1]). B/F/TAF = bictegravir/emtricitabine/tenofovir alafenamide, IN = integrase, INSTI = integrase strand transfer inhibitor, M = E = missing = excluded, NNRTI = non-nucleoside reverse transcriptase inhibitor, NRTI = nucleoside/nucleotide reverse transcriptase inhibitor, PI = protease inhibitor, PR = protease, R = resistance, RT = reverse transcriptase, TAM = thymidine analog mutation.

1 participant discontinued due to an AE (grade 2 headache assessed as treatment related), and 1 death occurred (due to hypertensive cardiovascular disease not considered treatment related).

Clinically relevant changes from baseline in $eGFR_{CG}$ were not observed (see Figure S3, Supplemental Digital Content, http://links.lww.com/MD/O358, which illustrates change from baseline in $eGFR_{CG}$ in participants in the all-B/F/TAF analysis set). There were no discontinuations due to renal-related AEs and no reports of renal proximal tubulopathy. Quantitative measures of proteinuria and biomarkers of renal tubular dysfunction showed no clinically relevant changes at weeks 24, 48, or 72 (see Figure S4, Supplemental Digital Content, http://links.lww.com/MD/O358, which shows changes in quantitative measures of proteinuria at weeks 24, 48, and 72 in participants in the all-B/F/TAF analysis set). During B/F/TAF treatment, fasting lipid parameters remained generally stable, with slight increases in low-density lipoprotein cholesterol levels at later timepoints (see Figure S5, Supplemental Digital Content, http://links.lww.com/MD/O358, which shows changes from baseline in fasting lipid parameters up to week 144 in participants in the all-B/F/TAF analysis set); 17 participants (3%) initiated lipid-modifying agents. Whilst receiving B/F/TAF, 30/547 (5.5%) participants initiated hypertensives (9/265 [3.4%] after switching) and 3/547 (0.5%) participants initiated anti-diabetes medication (1/265 [0.4%] after switching). One participant had incident HIV/HBV coinfection while receiving DTG/ABC/3TC during the blinded 48-week phase; no participants had an HIV/HBV coinfection during the OLE phase.

During the 48-week randomized phase, there was a trend towards an increase in median bodyweight in participants switching to B/F/TAF versus those continuing DTG/ABC/3TC (see Figure S6, Supplemental Digital Content, http://links.lww.com/MD/O358, which shows changes from baseline in bodyweight in participants in the all-B/F/TAF analysis set). In the all-B/F/TAF analysis set including the OLE, median bodyweight increased from baseline (the timepoint at which participants switched from DTG/ABC/3TC to B/F/TAF) to week 36 and appeared to have stabilized to week 168.

Table 1

Treatment-emergent study drug-related adverse events occurring in > 1 participant during B/F/TAF treatment in the all-B/F/TAF analysis set.

	All B/F/TAF (n = 547)
Any drug-related TEAE, n (%)	39 (7.1)
Participants experiencing drug-related TEAE, n (%)	
Headache	9 (1.6)
Diarrhea	5 (0.9)
Fatigue	3 (0.5)
Nausea	3 (0.5)
Dry skin	2 (0.4)
Vomiting	2 (0.4)
Any grade 3 or 4 drug-related TEAE, n (%)	2 (0.4)
Grade 3 suicidal ideation*	1 (0.2)
Grade 4 cerebrovascular accident	1 (0.2)
Any serious drug-related TEAE, n (%)	1 (0.2)
Study drug-related treatment-emergent deaths†, n (%)	0

B/F/TAF = bictegravir/emtricitabine/tenofovir alafenamide, TEAE = treatment-emergent adverse event.

*Occurred in a participant with preexisting depression, anxiety, and emotional instability.

†Treatment-emergent deaths: 2 occurred up to week 48 and were not considered related to treatment by the investigator (previously reported [15]); 1 occurred during the open-label extension phase (hypertensive cardiovascular disease in a participant with a medical history) and was not considered related to treatment.

4. Discussion

With a median treatment duration of 96 weeks, our report provides extended follow-up data for people receiving B/F/TAF. Both the randomized and OLE phases of this phase 3 study demonstrated that people with HIV who switched to B/F/TAF from DTG/ABC/3TC (including those with preexisting resistance) maintained high rates of virologic suppression for ≤ 168 weeks. No new treatment-emergent resistance was detected.

The high rates of suppression during B/F/TAF treatment in this study align with those observed in other phase 3 trials following the switch to B/F/TAF from other antiretroviral regimens in virologically suppressed adults.[7–12] The results are also consistent with those from observational studies, where B/F/TAF was effective in maintaining virologic suppression in people with HIV who switched to B/F/TAF.[16–18]

The absence of treatment-emergent resistance with B/F/TAF in this study is consistent with results from other clinical trials investigating the switch to B/F/TAF[7–12] and aligns with in vitro data that suggest B/F/TAF has a high barrier to resistance.[19,20] CD4 cell counts remained stable during B/F/TAF treatment. This is consistent with previous observations that in virologically suppressed people with high baseline CD4 cell counts, further increases may not occur,[21] particularly in an aging population.[22]

B/F/TAF was well tolerated, as reflected by only 1 discontinuation due to treatment-related AEs and the high percentage of participants on B/F/TAF treatment who completed the randomized phase (94.0%) and elected to participate in the OLE (99.6%). The AEs observed were consistent with the known safety profile of the regimen.[6] Furthermore, there were no discontinuations due to renal-related AEs and no cases of renal proximal tubulopathy, in agreement with other studies of B/F/TAF.[23,24]

An increase in bodyweight was observed during B/F/TAF treatment in our study. However, this reflects expected weight change patterns in a population on a weight-neutral antiretroviral regimen.[25] A previous study reported no difference in weight gain in those taking DTG/ABC/3TC versus B/F/TAF through 144 weeks of follow-up,[26] despite higher rates of nausea with DTG/ABC/3TC than with B/F/TAF.[14,26] Thus, the mechanisms driving weight gain remain unclear, and gastrointestinal tolerability may not necessarily play a role in weight gain. During the randomized phase of the study, the mean percentage changes in bone mineral density at the hip or spine from baseline were comparable between the treatment groups.[15]

The limitations of ABC use include requirements for HLA-B*5701, resistance, and HBsAg testing before starting antiretroviral therapy (preventing its use in a rapid-start regimen), increased risk of cardiovascular AEs, and hypersensitivity.[3,5] International Antiviral Society-USA no longer recommends ABC as initial therapy for most people with HIV,[3] and the 2023 European AIDS Clinical Society guidelines reclassified ABC-based regimens from "recommended" to "alternative" for treating pregnant women or women considering pregnancy.[5]

Limitations of our study include the open-label design of the OLE phase, which may have introduced bias, and the fact that most outcome findings were descriptive in nature. As previously noted,[15] women were under-represented in the study population, and participants represented a generally healthy population, with only a small proportion having advanced HIV disease or hepatitis C coinfection. In addition, this study may not reflect how people choose to switch regimens in real life and cannot infer efficacy and safety in the real world.

5. Conclusions

Data from the randomized and OLE phases of this phase 3 study demonstrated that people with HIV-1 who switched to

B/F/TAF from DTG/ABC/3TC maintained high rates of virologic suppression after extended follow-up, including those with preexisting resistance. B/F/TAF was well tolerated, with no new safety concerns identified with up to 168 weeks of treatment, and there were no instances of treatment-emergent resistance to B/F/TAF.

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References

[1] Thoueille P, Choong E, Cavassini M, Buclin T, Decosterd LA. Long-acting antiretrovirals: a new era for the management and prevention of HIV infection. J Antimicrob Chemother. 2022;77:290–302.
[2] Colvin CJ. HIV/AIDS, chronic diseases and globalisation. Global Health. 2011;7:31.
[3] Gandhi RT, Bedimo R, Hoy JF, et al. Antiretroviral drugs for treatment and prevention of HIV infection in adults: 2022 recommendations of the International Antiviral Society-USA Panel. JAMA. 2023;329:63–84.
[4] Department of Health and Human Services. Panel on antiretroviral guidelines for adults and adolescents. Guidelines for the use of antiretroviral agents in adults and adolescents with HIV. Available at: https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv [access date July 20, 2023].
[5] European AIDS Clinical Society. EACS guidelines (version 12.0), October 2023. Available at: https://www.eacsociety.org/guidelines/eacs-guidelines [access date November 6, 2023].
[6] Gilead Sciences, Inc. Biktarvy: prescribing information. Available at: https://www.gilead.com/~/media/files/pdfs/medicines/hiv/biktarvy/biktarvy_pi.pdf [access date July 19, 2023].
[7] Daar ES, DeJesus E, Ruane P, et al. Efficacy and safety of switching to fixed-dose bictegravir, emtricitabine, and tenofovir alafenamide from boosted protease inhibitor-based regimens in virologically suppressed adults with HIV-1: 48 week results of a randomised, open-label, multicentre, phase 3, non-inferiority trial. Lancet HIV. 2018;5:e347–56.
[8] Maggiolo F, Rizzardini G, Molina JM, et al. Bictegravir/emtricitabine/tenofovir alafenamide in virologically suppressed people with HIV aged ≥65 years: week 48 results of a phase 3b, open-label trial. Infect Dis Ther. 2021;10:775–88.
[9] Sax PE, Rockstroh JK, Luetkemeyer AF, et al. Switching to bictegravir, emtricitabine, and tenofovir alafenamide in virologically suppressed adults with human immunodeficiency virus. Clin Infect Dis. 2021;73:e485–93.
[10] Kityo C, Hagins D, Koenig E, et al. Switching to fixed-dose bictegravir, emtricitabine, and tenofovir alafenamide (B/F/TAF) in virologically suppressed HIV-1 infected women: a randomized, open-label, multicenter, active-controlled, phase 3, noninferiority trial. J Acquir Immune Defic Syndr. 2019;82:321–8.
[11] Maggiolo F, Rizzardini G, Molina JM, et al. Bictegravir/emtricitabine/tenofovir alafenamide in older individuals with HIV: results of a 96-week, phase 3b, open-label, switch trial in virologically suppressed people ≥65 years of age. HIV Med. 2023;24:27–36.
[12] Hagins D, Kumar P, Saag M, et al. Switching to bictegravir/emtricitabine/tenofovir alafenamide in Black Americans with HIV-1: a randomized phase 3b, multicenter, open-label study. J Acquir Immune Defic Syndr. 2021;88:86–95.
[13] Stellbrink HJ, Arribas JR, Stephens JL, et al. Co-formulated bictegravir, emtricitabine, and tenofovir alafenamide versus dolutegravir with emtricitabine and tenofovir alafenamide for initial treatment of HIV-1 infection: week 96 results from a randomised, double-blind, multicentre, phase 3, non-inferiority trial. Lancet HIV. 2019;6:e364–72.
[14] Wohl DA, Yazdanpanah Y, Baumgarten A, et al. Bictegravir combined with emtricitabine and tenofovir alafenamide versus dolutegravir, abacavir, and lamivudine for initial treatment of HIV-1 infection: week 96 results from a randomised, double-blind, multicentre, phase 3, non-inferiority trial. Lancet HIV. 2019;6:e355–63.
[15] Molina JM, Ward D, Brar I, et al. Switching to fixed-dose bictegravir, emtricitabine, and tenofovir alafenamide from dolutegravir plus abacavir and lamivudine in virologically suppressed adults with HIV-1: 48 week results of a randomised, double-blind, multicentre, active-controlled, phase 3, non-inferiority trial. Lancet HIV. 2018;5:e357–65.
[16] Armenia D, Forbici F, Bertoli A, et al. Bictegravir/emtricitabine/tenofovir alafenamide ensures high rates of virological suppression maintenance despite previous resistance in PLWH who optimize treatment in clinical practice. J Glob Antimicrob Resist. 2022;30:326–34.
[17] Micán R, de Gea Grela A, Cadinanos J, et al. Impact of preexisting nucleos(t)ide reverse transcriptase inhibitor resistance on the effectiveness of bictegravir/emtricitabine/tenofovir alafenamide in treatment experience patients. AIDS. 2022;36:1941–7.
[18] Rolle CP, Nguyen V, Patel K, Cruz D, DeJesus E, Hinestrosa F. Real-world efficacy and safety of switching to bictegravir/emtricitabine/tenofovir alafenamide in older people living with HIV. Medicine (Baltimore). 2021;100:e27330.
[19] Tsiang M, Jones GS, Goldsmith J, et al. Antiviral activity of bictegravir (GS-9883), a novel potent HIV-1 integrase strand transfer inhibitor with an improved resistance profile. Antimicrob Agents Chemother. 2016;60:7086–97.
[20] White KL, Osman N, Cuadra-Foy E, et al. Long dissociation of bictegravir from HIV-1 integrase-DNA complexes. Antimicrob Agents Chemother. 2023;65:e02406–02420.
[21] Lok JJ, Bosch RJ, Benson CA, et al.; ALLRT team. Long-term increase in CD4+ T-cell counts during combination antiretroviral therapy for HIV-1 infection. AIDS. 2010;24:1867–76.
[22] Chen J, Titanji K, Sheth AN, et al. The effect of age on CD4+ T-cell recovery in HIV-suppressed adult participants: a sub-study from AIDS Clinical Trial Group (ACTG) A5321 and the Bone Loss and Immune Reconstitution (BLIR) study. Immun Ageing. 2022;19:4.
[23] Gallant J, Lazzarin A, Mills A, et al. Bictegravir, emtricitabine, and tenofovir alafenamide versus dolutegravir, abacavir, and lamivudine for initial treatment of HIV-1 infection (GS-US-380-1489): a double-blind, multicentre, phase 3, randomised controlled non-inferiority trial. Lancet. 2017;390:2063–72.
[24] Sax PE, Pozniak A, Montes ML, et al. Coformulated bictegravir, emtricitabine, and tenofovir alafenamide versus dolutegravir with emtricitabine and tenofovir alafenamide, for initial treatment of HIV-1 infection (GS-US-380-1490): a randomised, double-blind, multicentre, phase 3, non-inferiority trial. Lancet. 2017;390:2073–82.
[25] Wohl DA, Koethe JR, Sax PE, et al. Antiretrovirals and weight change: weighing the evidence. Clin Infect Dis. 2024;79:999–1005.
[26] Orkin C, DeJesus E, Sax PE, et al. Fixed-dose combination bictegravir, emtricitabine, and tenofovir alafenamide versus dolutegravir-containing regimens for initial treatment of HIV-1 infection: week 144 results from two randomised, double-blind, multicentre, phase 3, non-inferiority trials. Lancet HIV. 2020;7:e389–400.