Dettaglio abstract

N. pgm: OC 17

Title: Effectiveness of bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) in real-world setting in ART-naive patients: data from the Icona cohort

Presentation type: Oral Communication

Session/Topic
Outcome in first-line regimens

Authors: A. Tavelli[1], G. Marchetti[2], A. Vergori[3], E. Quiros Roldan[4], V. Malagnino[5], F. Vichi[6], M. Lichtner[7], S. Nozza[8], R. Rossotti[9], L. Sarmati[5], F. Bai[2], A. Di Biagio[10], A. Antinori[3], A. d'Arminio Monforte[1] for the Icona Foundation Study Group

Affiliation: [1]Icona Foundation, Milan, Italy, [2]Department of Health Sciences, Unit of Infectious Diseases, ASST Santi Paolo e Carlo, 'San Paolo' Hospital, University of Milan, Milan, Italy, [3]Clinical Department, HIV/AIDS Unit, National Institute for Infectious Diseases Lazzaro Spallanzani IRCCS, Roma, Italy, [4]Department of Infectious and Tropical Diseases, University of Brescia and ASST Spedali Civili of Brescia, Brescia, Italy, [5]Unit of Clinical Infectious Disease, Department of System Medicine, Tor Vergata University, Rome, Italy, [6]Infectious Diseases Unit I, Santa Maria Annunziata Hospital, Azienda USL Toscana Centro, Florence, Italy, [7]Infectious Diseases Unit, Santa Maria Goretti Hospital, Sapienza University of Rome, Latina, Italy, [8]Infectious Diseases Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy, [9]Department of Infectious Diseases Unit, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy, [10]Ospedale Policlinico San Martino IRCCS, University of Genoa, Genoa, Italy

Abstract
Background: Use of BIC/FTC/TAF is based on several pivotal trials, but long-term real-world data, especially addressed to key-populations are still lacking. The aim of this study is to evaluate the effectiveness of BIC/FTC/TAF in ART-naïve people living with HIV (PLWH) focusing on sex, older age, late presenters and PLWH with advanced HIV disease.
Methods: Observational study including ART-naïve PLWH from Icona cohort who started BIC/FTC/TAF for the first time from Jan-2106 to Dec-2021. Primary endpoint: treatment failure 1 (TF1): virological failure (VF: 2 consecutive HIV-RNA >200 copies/ml or 1 >1000 copies/ml >6 months from initiation) or treatment discontinuation (TD) for any reason. Secondary endpoint: (i) treatment failure 2 (TF2): VF or TD only for toxicity/intolerance or for virological failure; (ii) VF ITT; (iii) VF OT.
Standard survival analysis (Kaplan–Meier curves and log-rank test) were used. Unadjusted and adjusted hazard ratios (HR) of the different endpoints were estimated by means of Cox regression models for the different exposure groups: ≥50 years old; female; late presenters (LP, CD4<350 cell/mm3 or AIDS) and advanced HIV disease (AD, CD4<200 cell/mm3 or AIDS). Sets of confounders were tailored for each of the exposure of interest.
Results: 416 ART-naïve included (17.5% female, 29.8% ≥50 years, 58.2% LP, 40.6% AD). Patients' characteristics are shown in Table1.
Over a median follow-up of 83.5 weeks (IQR 47.0-114.8), TF was observed in 81 PLWH (19.5%, 12 VF and 69 TD), TF2 in 34 (8.7%; 12 VF and 22 TD for toxicity or virological failure), VF OT in 12 (2.9%) and VF ITT analysis in 14 (4.0%) PLWH.
Reasons for TD: 16 toxicity/intolerance (3.8%), 25 simplification (6.0%), 6 virological failure (1.4%), 1 patient's decision (0.2%) and 21 other reasons for TD (2.2%). The estimated 96-week probability of TF1 by KM was 19.4% (95%CI 15.5-24.1). Probabilities of TF1, stratified by different subgroups and probabilities of TF2, VF ITT and VF OT are shown in Table2.
In the adjusted Cox regression models, only PLWH older than 50 years showed a higher risk of TF1 (vs <50 aHR=1.70, 95%CI 1.06-2.74). Also, according to the definition of TF2, the higher risk of failure was confirmed for the group >=50 years (vs. <50 yrs aHR=2.25, 95%CI 1.11-4.56). None of the other groups of interest had a higher risk of VF (Table 3).
Conclusions: BIC/FTC/TAF demonstrated high effectiveness in a real-world setting, including in

immunosupressed PLWH (LP and AD). Overall, real-world data are similar to data from randomised trials showing an 88% efficacy at 96-weeks. In contrast to RCT data, PLWH older than 50 years had a higher risk of failure both, in the primary endpoint and in the alternative definition of failure (TF2). The reasons for such discordant results need to be further investigated.
This study was funded by a Gilead Sciences Inc. unrestricted grant

Table 1. Baseline demographic and clinical characteristics of the 416 PLWH starting BIC/FTC/TAF in the Icona cohort

	ART-naïve (N=416)	
Italian, n(%)	293	70.43
Race, White, n(%)	329	79.1
Sex, Female, n(%)	73	17.5
Year of BIC start, median (IQR)	2020	2020-2021
Year HIV diagnosis, median (IQR)	2020	2019-2020
Age, years, median (IQR)	42	32-52
>50 years, n(%)	124	29.81
Italian Geo Zone, n(%)		
Northern	237	57.0
Central	123	29.6
Southern/Islands	56	13.5
Mode of HIV Transmission, n(%)		
Heterosexual	172	41.35
IVDU	19	4.57
MSM	188	45.19
Other/Unknown	37	8.89
HCV Ab positive status, n(%)	20	4.81
HBsAg positive status, n(%)	11	2.64
Smoker, Yes, n(%)	145	34.38
CDC C-stage, n(%)	59	14.18
CD4, cells/mmc, median (IQR)	280	87-495
CD4<200 cells/mm^3, n(%)	165	39.66
CD4<350 cells/mm^3, n(%)	241	57.9
HIV-RNA, log_{10} copies/mL, median (IQR)	5.02	4.39-5.60
HIV-RNA >5 log_{10} copies/mL, median (IQR)	211	50.72
Total Cholesterol, median (IQR)	160	137-187
LDL cholesterol, median (IQR)	102	80-124
HDL cholesterol, median (IQR)	40	33-49
Triglycerides, median (IQR)	95	71-139
Serum glucose, median (IQR)	87	80-93
eGFR, CKD-EPI formula, ml/min/1.73, median (IQR)	106.4	92.2-117.5
Weight, kg, median (IQR)	70	60-78
BMI, kg/m^2, median (IQR)	23	20.6-24.6
Follow-up, years, median (IQR)	1.57	0.93-2.2
At least 48-weeks follow-up	351	84.4
At least 96-weeks follow-up	205	49.3

Table 2. Kaplan-Meier estimated 48- and 96-weeks probability of TF1, TF2, and VF, overall and in the different groups for primary-endpoint (TF1) in ART-naïve starting BIC/FTC/TAF

	48-weeks probability	95%CI	96-weeks probability	95%CI
TF1 (overall)	**9.5%**	**6.9-12.8**	**19.4%**	**15.5-24.1**
<50 years	7.5%	5.0-11.3	16.8%	13.1-23.1
>=50 years	13.9%	8.7-21.7	25.3%	17.8-35.1
Female	10.5%	5.1-20.8	18.3%	9.9-32.5
Male	9.2%	6.5-12.9	19.6%	15.4-24.8
non-LP	9.0%	5.5-14.4	19.1%	14.5-26.1
LP	9.8%	6.5-14.5	19.5%	14.5-26.1
non-AD	6.8%	4.2-10.9	18.1%	13.3-24.2
AD	13.4%	8.9-19.9	21.3%	15.3-29.3
TF2 (overall)	**4.7%**	**3.0-7.3**	**9.4%**	**6.7-13.3**
VF200 ITT (overall)	**1.2%**	**0.4-3.1**	**3.7%**	**2.0-6.7**
VF200 OT (overall)	**1.20%**	**0.4-3.1**	**3.4%**	**1.8-6.3**

Table 3. Hazard ratios (HR) and Adjusted hazard ratios (AHR) of TF1, TF2, and VF from fitting different Cox regression models in the different subgroups of PLWH starting from ART-naive

	TF1 (VF or TD any reason)					
	HR	**95%CI**	**p**	**AHR**	**95%CI**	**p**
Age, >=50 years (vs <50years)[1]	1.55	0.99-2.42	0.054	1.70	1.06-2.74	0.029
Gender, Female (vs. male)[2]	0.92	0.5-1.7	0.789	0.83	0.45-1.56	0.568
Late presenters (vs. non late-presenters)[3]	0.95	0.61-1.47	0.808	0.96	0.61-1.52	0.862
Advanced HIV disease (vs. non advanced)[4]	1.20	0.77-1.87	0.423	1.27	0.8-2.03	0.316
	TF2 (VF or TD tox/intolereance or TD failure)					
	HR	**95%CI**	**p**	**AHR**	**95%CI**	**p**
Age, >=50 years (vs <50years)[1]	2.13	1.09-4.18	0.027	2.17	1.05-4.46	0.036
Gender, Female (vs. male)[2]	0.63	0.23-1.92	0.464	0.84	0.45-1.17	0.568
Late presenters (vs. non late-presenters)[3]	1.43	0.71-2.90	0.313	1.28	0.60-2.62	0.540
Advanced HIV disease (vs. non advanced)[4]	1.78	0.91-3.50	0.093	1.66	0.82-3.36	0.156
	VF ITT					
	HR	**95%CI**	**p**	**AHR**	**95%CI**	**p**
Age, >=50 years (vs <50years)[1]	2.46	0.86-7.02	0.092	2.71	0.82-8.98	0.102
Gender, Female (vs. male)[2]	0.99	0.22-4.44	0.993	0.81	0.18-3.65	0.783
Late presenters (vs. non late-presenters)[3]	2.14	0.67-6.81	0.200	2.26	0.64-7.94	0.205
Advanced HIV disease (vs. non advanced)[4]	2.25	0.78-6.49	0.134	2.38	0.75-7.61	0.142

[1] AHR adjusted for nationality and mode of HIV transmission; [2] AHR adjusted for nationality; [3] adjusted for gender, mode of HIV transmission, HIV-RNA and nationality; [4] AHR adjusted for gender, mode of HIV transmission, HIV-RNA and nationality