HEALTHCARE RESOURCE CONSUMPTION AND RELATED COSTS IN PATIENTS UNDER ANTIRETROVIRAL THERAPIES: FINDINGS FROM REAL-WORLD DATA IN ITALY

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BACKGROUND AND OBJECTIVES

The introduction of antiretroviral therapies (ARTs) and then the availability of combination ARTs in the clinical practice has dramatically changed the course of HIV infection, from an acute to a chronic disease [1]. Among the most widely used ART combinations, Tenofovir Alafenamide (TAF) regimen has been shown to achieve a successful viral load suppression [2,3].

This real-world analysis was aimed at evaluating TAF-based regimens in terms of persistence on therapy and the resulting impact on healthcare resource consumption and related direct healthcare costs for Italian National Health Service (INHS).

METHODOLOGY

A retrospective analysis was conducted on administrative databases of Italian geographically distributed entities covering 5.52 million health-assisted individuals, during 2015-2019 (Figure 1).

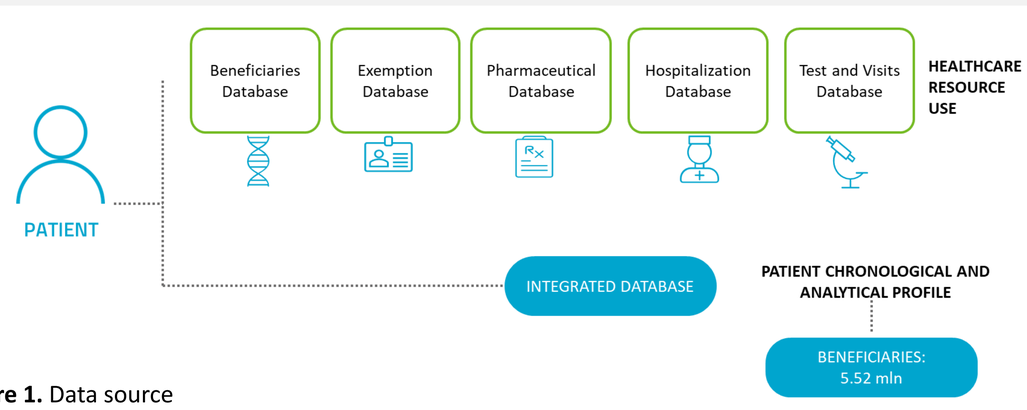

Figure 1. Data source

DESIGN OF THE ANALYSIS

Study population: between 2015 and 2019 (identification period), all adults with TAF-based therapies were identified by presence of the following drugs: TAF (ATC code J05AF13); emtricitabine and tenofovir alafenamide (ATC code J05AR17); emtricitabine, tenofovir alafenamide, elvitegravir and cobicistat (ATC code J05AR18); emtricitabine, tenofovir alafenamide and rilpivirine (ATC code J05AR19); emtricitabine, tenofovir alafenamide and bictegravir (ATC code J05AR20); emtricitabine, tenofovir alafenamide, darunavir and cobicistat (ATC code J05AR22). Patients had to be continously enrolled during study period.

The first TAF prescription was the index-date, and patients were followed-up for at least 1 year after index date.

Persistence on therapy was calculated as presence of ART prescription during last trimester of each calendar year.

Healthcare resource consumptions related to ART prescriptions, other-drugs (non-ART), HIV-related and other cause-hospitalizations, laboratory tests/outpatient visits, were calculated over one-year follow-up and reported as mean±SD. Moreover, ***direct costs*** related to healthcare resource consumptions were estimated as total costs and those related to drug consumptions, hospitalizations and test/outpatient visits. Direct healthcare costs were reported as mean annual cost/patient. A generalized linear model (GLM) was applied to evaluate predictors of non-ART total costs.

RESULTS

HEALTHCARE RESOURCE CONSUMPTIONS BETWEEN 2017 AND 2019

The analysis identified 1,198 TAF-treated patients meeting the inclusion criteria. Focusing on the last 3-year period 2017-2019, the mean number per patient of ART prescriptions decreased from 8.0 ± 2.4 to 7.7 ± 2.4, those for non-ART prescriptions from 4.4 ± 5.0 to 3.4 ± 4.0, HIV- hospitalizations from 0.2 ± 0.5 to 0.1 ± 0.4, and diagnostic tests/visit prescriptions from 8.5 ± 7.6 to 5.9 ± 7.6 (Table 1).

Table 1. Healthcare resource consumptions by year (focus in 2017-2019)

Year	2017	2018	2019
Patients, n	43	639	479
ART prescriptions	8.0 ± 2.4	7.9 ± 2.5	7.7 ± 2.4
HIV hospitalizations	0.2 ± 0.5	0.1 ± 0.3	0.1 ± 0.4
Number of other drugs	4.4 ± 5.0	3.8 ± 3.9	3.4 ± 4.0
Other hospitalizations	0.1 ± 0.5	0.1 ± 0.4	0.1 ± 0.4
Specialistic visits/diagnostic tests	8.5 ± 7.6	6.7 ± 6.7	5.9 ± 7.6

MEAN ANNUAL DIRECT COSTS IN TAF-TREATED PATIENTS

The mean annual direct costs for the INHS averaged 15,493€ (2017), 12,060€ (2018), and 10,216€ (2019). ART-related cost was the most relevant item with 10,685€, 9,474€, and 8,017€, for 2017, 2018, and 2019, respectively (Figure 2).

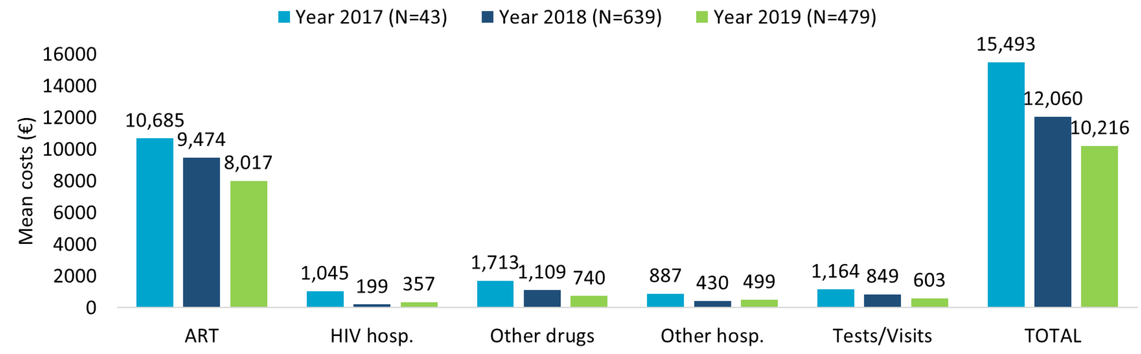

Figure 2. Mean annual health care costs (€) in patients with TAF-based regimen during first year of follow-up for the inclusion years 2017-2018-2019.

Persistence on treatment. Persistent patients were characterized by lower total costs versus non-persistent (11,106€ vs 12,380€, P=0.005), mostly due to the reduction of HIV-hospitalizations, non-ART drugs and test/visits costs (Figure 3).

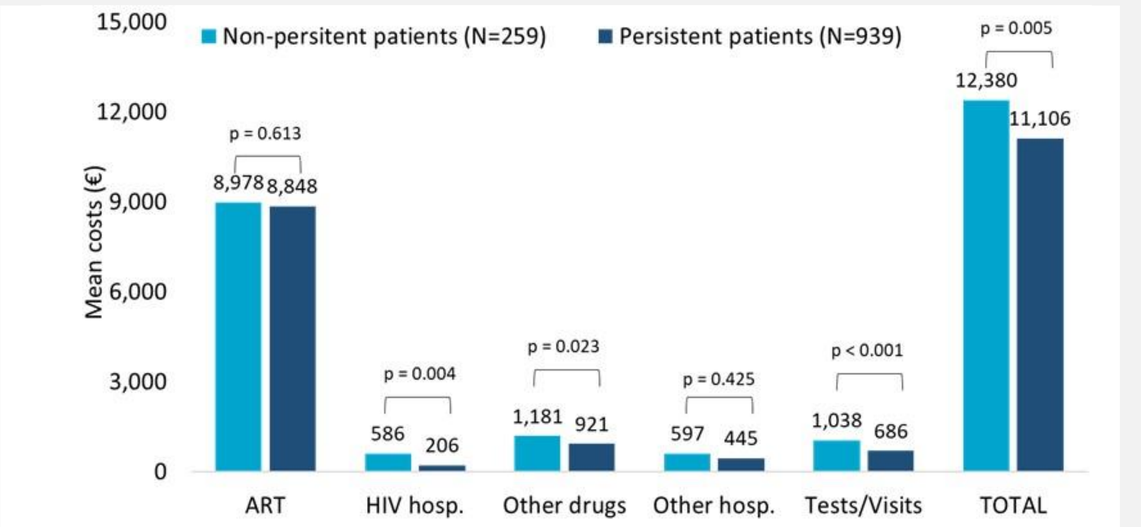

Figure 3. Mean annual health care costs (€) during first year of follow up for patients with TAF-based regimen based on persistence.

Multivariate analysis. The GLM model (Table 2) showed that non-ART costs increased with older age (patients aging 35 years as reference), +1,360€ in those ranging 51-65 years (P<0.001) and +2,264€ in >65, (P=0.079) and to the Charlson Comorbidity Index (+1,736€ for unit increment, P=0.027).

Table 2. GLM analysis	β (€)	95%CI		P value
Age 35	**REF.**			
Age 35-50 years	415.3	-291.3	1121.8	0.249
Age 51-65 years	1363.6	557.5	2169.6	**0.001**
Age >65 years	2265.2	-260.6	4791.0	0.079
Male gender	-62.0	-675.1	551.2	0.843
Year 2017	**REF.**			
Year 2018	-1229.3	-4141.3	1682.7	0.408
Year 2019	-1829.8	-4731.9	1072.3	0.217
Charlson Comorbidity Index	1733.8	195.7	3271.8	**0.027**

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CONCLUSIONS

This real-world analysis in TAF-treated patients showed that healthcare total costs were mainly driven by ART-related costs, which represent almost 70% of the total expenditure. TAF persistence was associated with cost saving, due to a reduction of total healthcare cost related to HIV- hospitalizations, non-ART drug prescriptions, outpatient visits and specialist services.