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Economic Evaluation of the Co-Formulated Antiretroviral Efavirenz 400 mg/ Lamivudine/Tenofovir Disoproxil Fumarate for the Treatment of HIV-1 Infection in Adult Patients from the Perspective of the Mexican Public Health System

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Introduction

The human immunodeficiency virus (HIV) causes the acquired immunodeficiency syndrome (AIDS), which is the last stage of the HIV infection disease. AIDS is mainly characterized by the presence of opportunistic infections and tumors, which can be deadly if untreated[1]. Currently, there is no cure for HIV infection, however, it has become a treatable chronic health condition that allows persons who have contracted the virus to live long lives in good health under antiretroviral treatment (ART)[2].

In Mexico, by 2018 reports stated that 80% of persons living with HIV had been diagnosed, and only 90% of them were receiving ART[3]. Considering this, a public health need to meet the goals for AIDS eradication in Mexico can be identified. To achieve this, the treatment with Efavirenz/Lamivudine/Tenofovir disoproxil fumarate on a single tablet formulation with a dosage of 400 mg/ 300 mg/ 300 mg (EFV400+TDF+3TC), can result in a viable alternative to complement ART options available at Mexico's General Health Council (CNIS for the Spanish abbreviation)[4].

This study aimed to evaluate the cost-savings of a co-formulated tablet containing 400 mg of Efavirenz, along with Lamivudine and Tenofovir disoproxil fumarate (referred to as EFV400/3TC/TDF), as an antiretroviral treatment (ART) for HIV-1 infections in adults. The evaluation was conducted in comparison to other ARTs used in the Mexican public health system.

Methods

A systematic review (SR) and a network meta-analysis (NMA) were performed to evaluate the efficacy and safety of EFV400/3TC/TDF and its comparators for the treatment of HIV-1 infection in adults. The comparators included were: BIC+FTC+TAF, DTG+ABC+3TC, DTG+FTC+TAF, DTG+((FTC+TAF) or (XTC+TDx)), DTG+3TC, DOR+TDx+3TC, EFV+TDx, DRV+cobi+ ((TAF+FTC) or (TDx+FTCor 3TC)), DOR+((TAF+FTC) or (TDx+XTC)), EFV+((TAF+FTC) or (TDx+XTC)), RAL+((TAF+FTC) or (TDx+XTC)), DRV+cobi+3TC. The outcomes considered for the NMA were viral suppression <50 copies/mL of HIV-1 ARN and serious adverse events.

With the information obtained, a complete economic evaluation of the cost minimization analysis (AMC) type was carried out. The AMC compared the direct medical costs associated with the use of EFV400/3TC/TDF and its comparators, contemplating a time horizon of 1 year.

A five-year (2024-2028) budget impact analysis evaluated the economic impact of EFV400/3TC/TDF as a treatment option. A market penetration rate of 50% for the first year and annual increases of 12.5% for subsequent years were considered.

Results

The SR included 18 RTCs[5-22], with efficacy data (viral suppression <50 copies/mL of HIV-1 ARN) and safety data (serious adverse events) for EFV400/3TC/TDF and its comparators. Results showed no statistically significant differences in efficacy or safety between EFV400/3TC/TDF and the compared treatments.

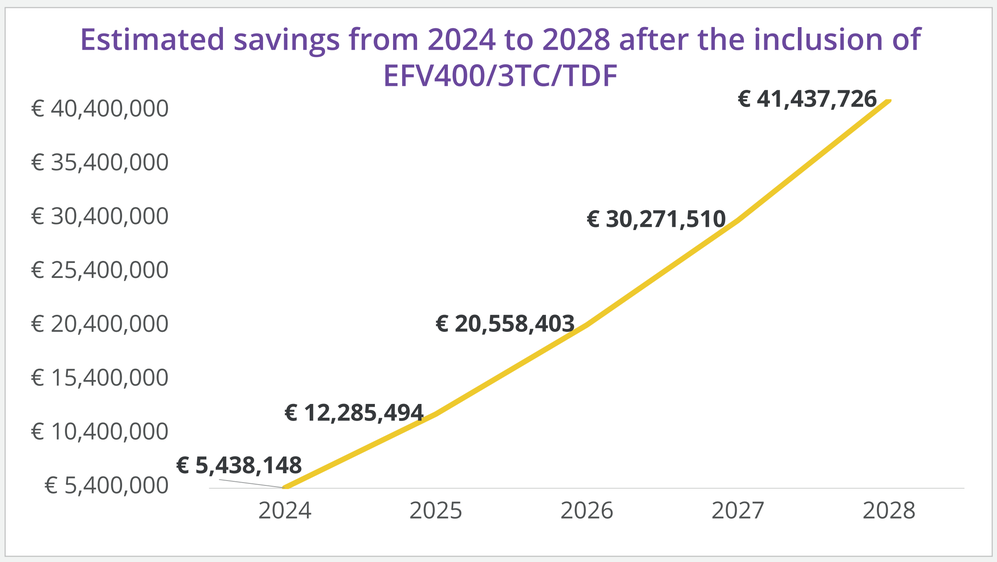
EFV400/3TC/TDF is a cost-saving option, in monetary terms, representing an average annual savings of € 1,462 per patient, which equates to a savings of 75.1% compared to all available options.

Table 1: Results of the Cost Minimization Analysis.

Treatment	Cost per treatment	Saving	Saving (%)
EFV400/3TC/TDF	€ 486	--	--
RAL+(TAF+FTC or TDx+XTC)	€ 4,459	€ 3,973	89%
DTG+FTC+TAF	€ 2,876	€ 2,390	83%
DTG+ABC+3TC	€ 2,075	€ 1,589	77%
DRV+cobi+(TAF+FTC or TDx+XTC)	€ 2,010	€ 1,524	76%
DTG+ (FTC+TAF or XTC+TDx)	€ 1,870	€ 1,384	74%
DTG+3TC	€ 1,825	€ 1,339	73%
DOR+(TAF+FTC or TDx+XTC)	€ 1,793	€ 1,307	73%
DRV+cobi+3TC	€ 1,776	€ 1,290	73%
EFV+(TAF+FTC or TDx+XTC)	€ 1,364	€ 878	64%
DOR+TDF+3TC	€ 1,169	€ 683	58%
EFV+TDx+XTC	€ 1,085	€ 600	55%
BIC+FTC+TAF	€ 1,069	€ 583	55%
	Average	**€ 1,462**	**75%**

Source: PAAASOP ISSSTE 2023, PAAASOP IMSS 2023 [23,24]

Regarding the Budget Impact Analysis, introducing EFV400/3TC/TDF over a 5-year period is an option that represents an average annual savings of €21,998,256, which in terms of percentage of the budget represents 0.314% of the NHS medicines budget.



Conclusion

EFV400/3TC/TDF shows no statistically significant differences in viral suppression and safety. It is a cost-saving option with savings of up to 75.1% compared to some of its competitors, making it a valuable option for the National Health System in Mexico for treating HIV-1 infection in adult patients.

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Abbreviations

BIC: Bictegravir; FTC: emtricitabine; TAF: tenofovir alafenamide, DTG: dolutegravir; ABC: abacavir; 3TC: Lamivudine; XTC: Lamivudine or emtricitabine; TDx: tenofovir disoproxil; DOR: doravirine; EFV: efavirenz 600 mg; EFV400: efavirenz 400 mg; DRV: darunavir; cobi: cobicistat; RAL: raltegravir.

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