ECONOMIC- AND OUTCOMES-RELATED VALUE OF SOFOSBUVIR-BASED REGIMENS FOR CHRONIC HEPATITIS C IN SPAIN

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Introduction / Objective

Introduction

The introduction of direct-acting antivirals (DAA) for chronic hepatitis C virus (HCV) infection treatment and diagnostics test of HCV infection allowed World Health Organization (WHO) to set up an HCV elimination plan by 2030 [1].

Objective

The aim of this study was to evaluate the efficiency (clinical and economic outcomes) of Sofosbuvir (SOF)-based regimens as a therapy of Hepatitis C during the period between 2015 and 2019 compared to previous therapeutic strategies in Spain.

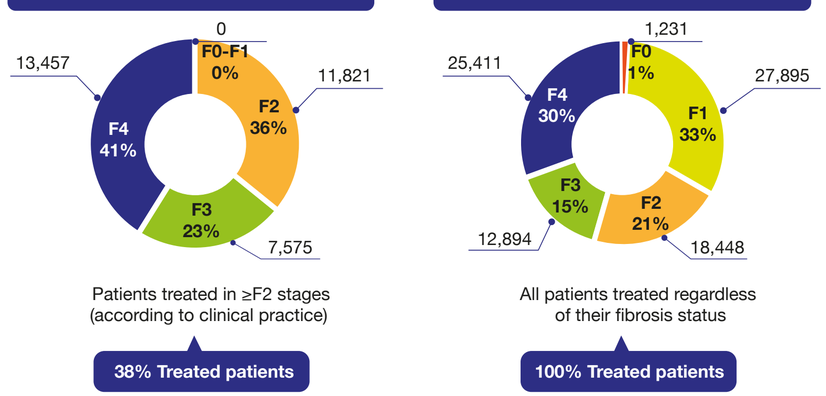
Methods

- **Design:** A previously validated lifetime Markov model [2] was used to simulate hepatitis C disease progression through different health states (fibrosis stages, sustained virological response (SVR), decompensated cirrhosis, hepatocellular carcinoma, liver transplant). HCV patients transitioned in the model in annual cycles until death. Untreated patients progressed in the simulation according to the natural history of the disease.
- **Time horizon**: Lifetime
- **Perspective**: Spanish National Health System (NHS)
- **Target population**: In Spain, a total of 85,959 HCV patients were treated with SOF-based regimens during 2015-2019 and were considered as the target population. With previous therapeutic strategies (Peginterferon and ribavirin in double o triple therapy with telaprevir or boceprevir), only ≥F2 patients were treated according to clinical practice and a maximum of 9,800 patients per year [3], therefore 38% of patients were considered treated (Figure 1).

Methods (cont.)

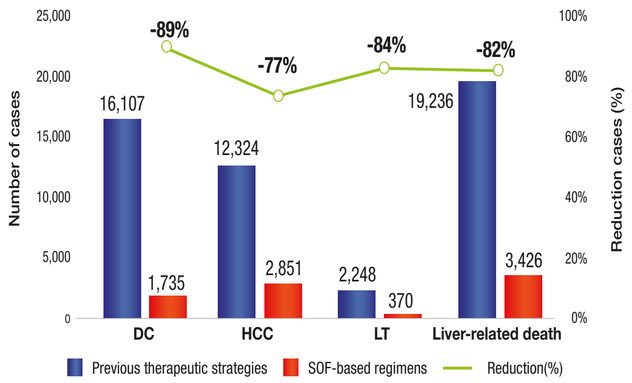
- **Parameters**:
  - The data on distribution from patients treated by fibrosis degree was obtained from Spanish real-world data [4] (Figure 1).
  - SVR to SOF-based regimens (range 93.8 – 98.5%) was obtained from real-world data [5-10] and the SVR for previous therapies (60.6-61.2%) from published literature [2].
  - The average drugs costs of SOF-based regimens (€16,023) were obtained from real-world data, the drugs costs of previous therapies (€15,003) and monitoring cost (€264 SOF-based regimens; €2,371-€2,466 previous therapies) from literature [2, 11].
  - The same parameters considered in the published model were used for this analysis: transition probabilities between health states, utility values, healthcare costs related to liver complications management and those associated with previous therapeutic strategies [2].
- **Healthcare benefits and economic outcomes**: Value was measured as clinical and economic impact in terms of avoided liver complications and mortality, total costs and quality-adjusted life years (QALYs).
- **Discount rate**: An annual 3% was applied for costs and outcomes [12].

Figure 1. Patients treated for fibrosis stages



Results

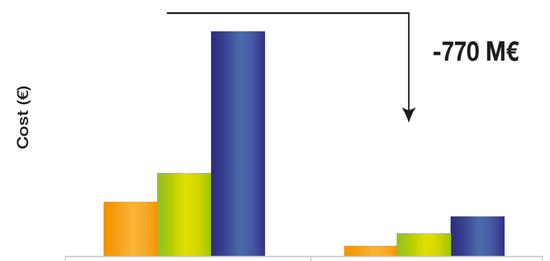
Figure 2. Number of clinical events and reduction in clinical events cases between both strategies for the total cohort



DC, decompensated cirrhosis; HCC, hepatocellular carcinoma; LT, liver transplant

Compared to previous therapeutic strategies, during lifetime, SOF-based regimens reduced liver-related mortality by 82% (-15,810). It also reduced 14,372 cases of decompensated cirrhosis (-89%), 9,473 hepatocellular carcinoma (-77%) and 1,878 liver transplants (-84%).

Figure 3. Complications cost avoided for the total cohort

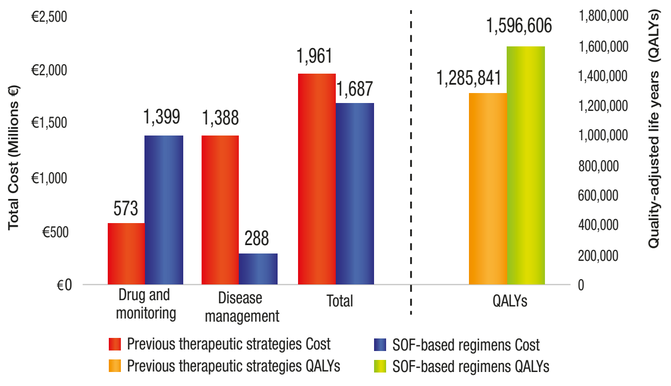


	Previous therapeutic strategies	SOF-based regimens
DC	136.5 M€	15.3 M€
HCC	215.2 M€	51.1 M€
LT	583.8 M€	99.3 M€

DC, decompensated cirrhosis; HCC, hepatocellular carcinoma; LT, liver transplant

Compared to previous therapeutic strategies, SOF-based regimens decreased the cost associated to liver complications management in €770 millions, during lifetime.

Figure 4. Cost-effectiveness results for the total cohort



QALYs, Quality-adjusted life years

Compared to previous therapeutic strategies, SOF-based regimens gained 310,765 QALYs, saving €274 millions (considering drugs, monitoring, and disease management).

Conclusions

- **Treatment with SOF-based regimens achieves a significant reduction in long-term clinical events and HCV mortality, contributing to the WHO goals of hepatitis C elimination.**
- **Treatment of HCV patients with SOF-based regimens decreases the economic disease burden and generates significant savings to the National Healthcare Services.**
- **Further works should evaluate indirect cost, such as those linked to an increase in productivity and less absence from work, in addition to direct cost savings.**

References

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