SACUBITRIL/VALSARTAN VS ENALAPRIL USE IN HOSPITALIZED PATIENTS WITH HEART FAILURE IN SPAIN

Javier Parrondo García [1], Antonio García Quintana [2]

[1] Early Products & HEOR Department, Novartis Spain, Madrid; [2] Cardiology Department, Hospital Universitario Dr. Negrin, Las Palmas de Gran Canaria, Spain;

INTRODUCTION

- Heart failure is the most common reason for admission in almost all hospitals in Spain. Heart failure admissions are related to poor outcomes.
- The use of sacubitril/valsartan (sac/val) in hospitalized patients showed a greater benefit in the PIONEER-HF trial.
- Even though sac/val has demonstrated its effectiveness among patients hospitalized with heart failure with reduced ejection fraction (HFrEF), its prescription remains restricted during hospital admissions.

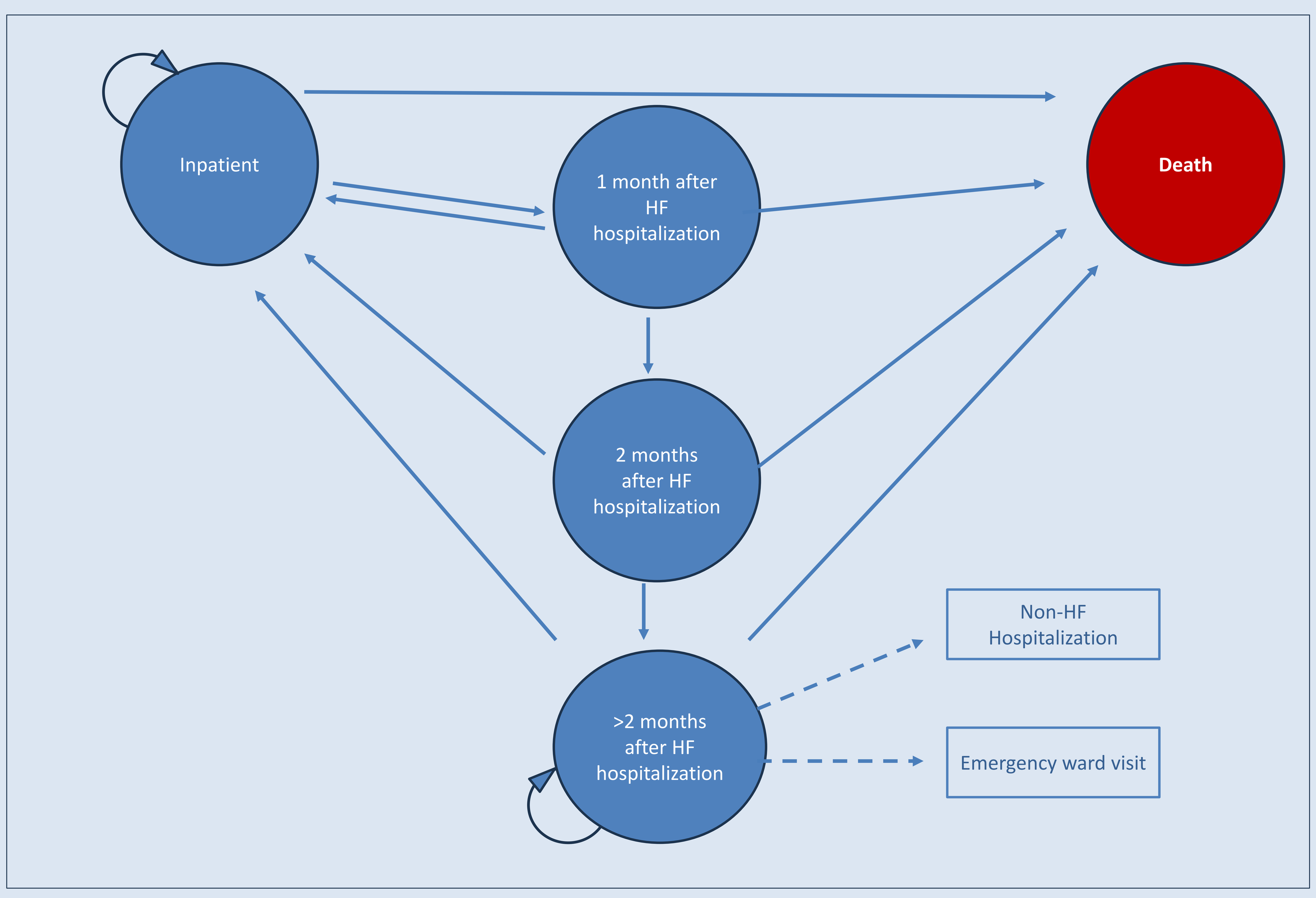
OBJECTIVE

The objective of the present study was to assess the cost-effectiveness in the inpatient settings of sacubitril/valsartan in patients with HFrEF from the Spanish Health System perspective.

METHODS

- A 5-state Markov model was used to compare the cost-effectiveness of sac/val versus enalapril in HFrEF patients over a lifetime horizon (30 years was assumed).
- Patient cohorts transition between the following health states: inpatient; 1, 2 and >2 months after HF-hospitalization and Death.
- It was also assumed that, in the >2 months after HF-hospitalization health state, patients could suffer an event that generated an emergency visit or a hospitalization due to another cause (non-HF hospitalization).

Figure 1. Markov model structure



- The two treatment alternatives compared were treating with sac/val vs. treating with enalapril.
- Transition probabilities for each 1-month cycle were obtained from PARADIGM-HF[1] and PIONEER-HF[2] studies.
- Direct health-care costs (€2022) were obtained from national databases and time-dependent utilities from a mixed model analysis of PARADIGM-HF from literature[3 & 4].
- A set of mathematical distributions were developed using these data to describe patient characteristics.
- Future costs and effects were discounted at a 3% rate.
- 9 One Way Sensitivity Analysis (OWSA) were performed to determine the model strength.
- Additionally, a Probabilistic Sensitivity Analysis (PSA) was carried out.

RESULTS

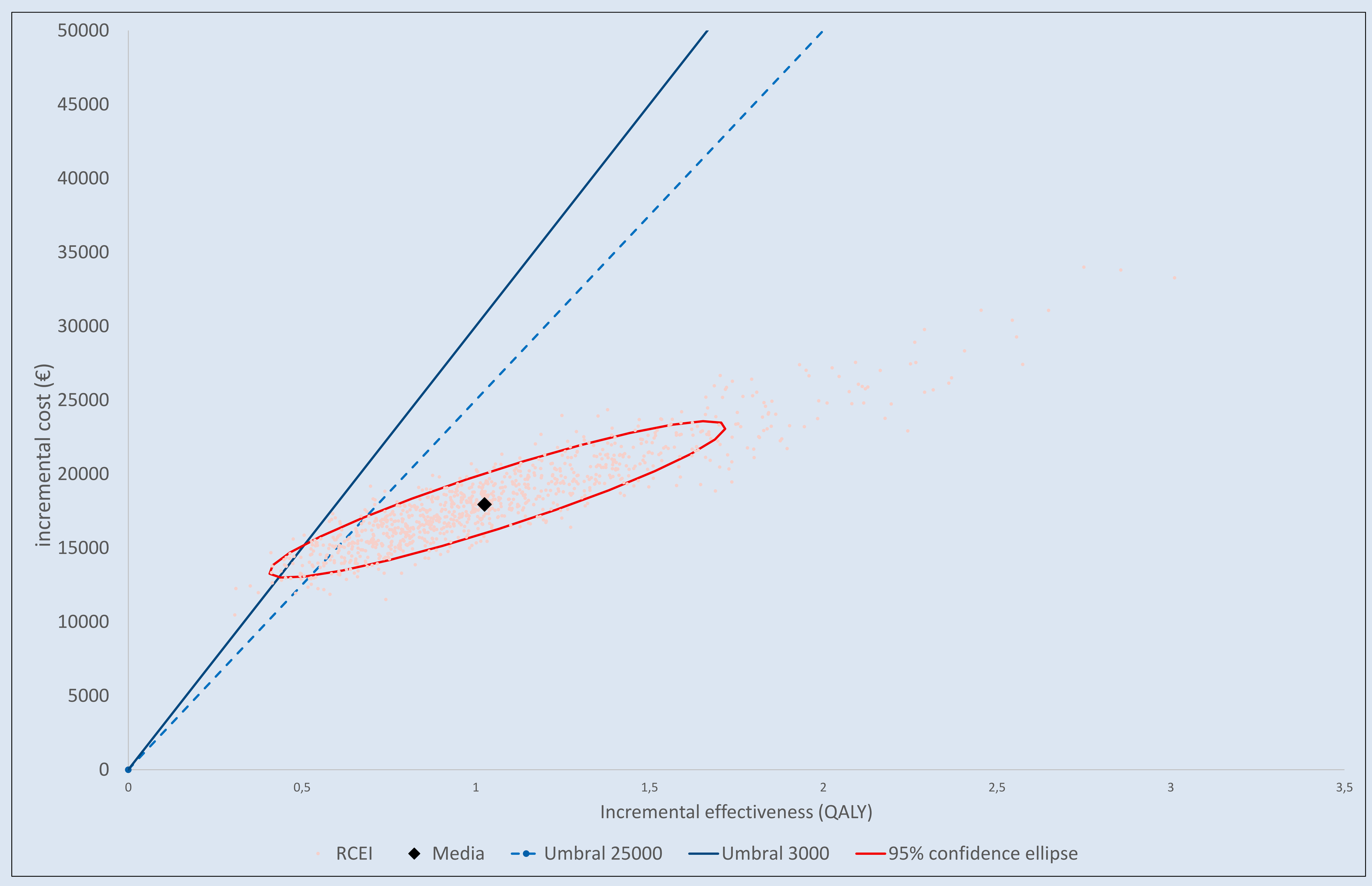
- Sac/val was associated with an average increment of 1,03 quality-adjusted life years (QALY) and an additional cost of €17,948/patient.
- The average incremental cost-utility ratio (ICUR) was 17,502 €/QALY (table 1).

Table 1. Base-case costs and effects results

	Enalapril	Sac/val	Difference
Costs per patients (€)	28,793 €	46,741 €	17,948 €
Effects			
LYG	7.06	8.31	1.26
QALY	5.56	6.58	1,03
ICER		14,244	€/LYG
ICUR		17,502	€/QALY

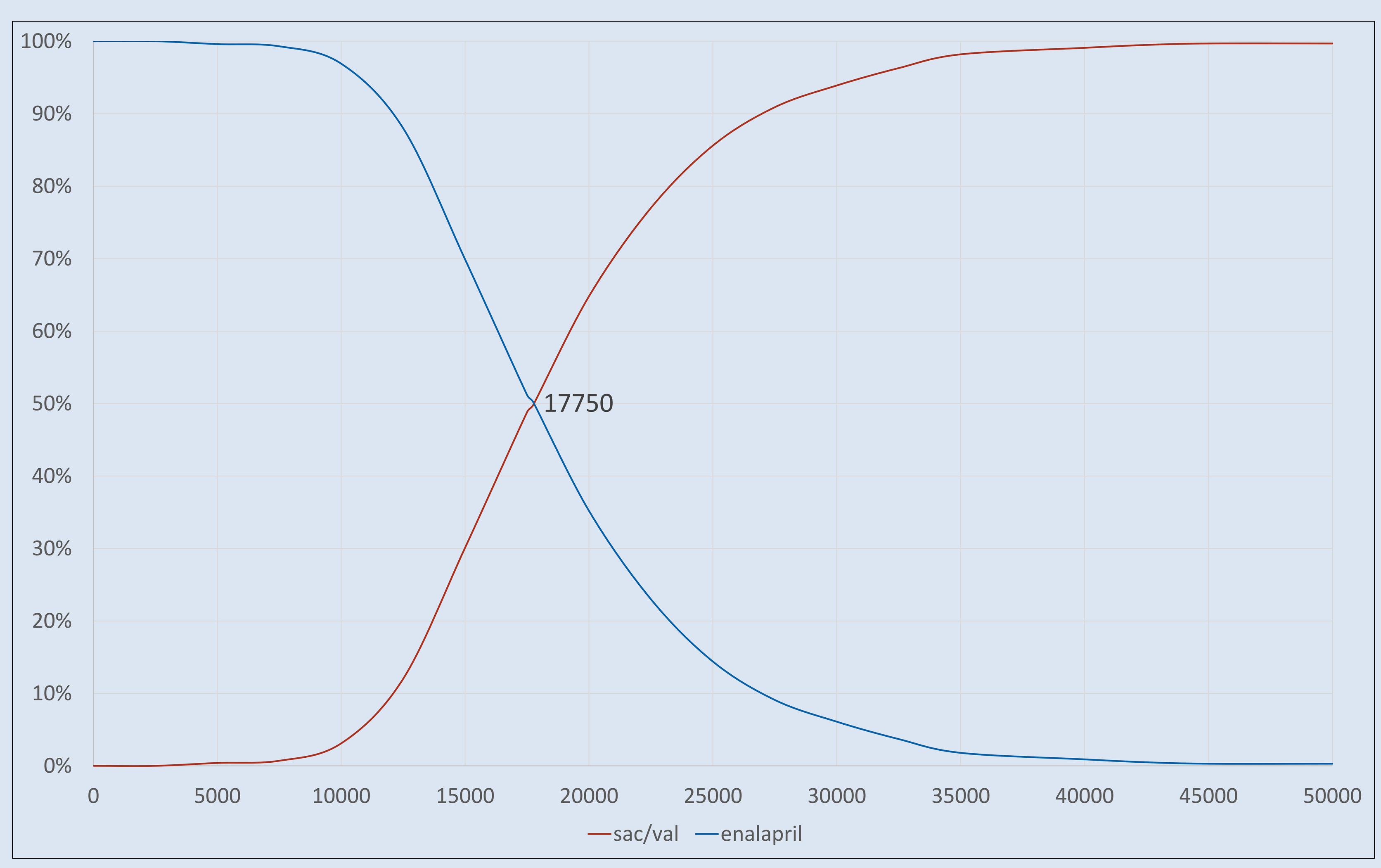
- Regarding the 9 OWSA, the model behaves in a stable way with few variations in the results (the probabilities of death before and after 2 months after admission for sac/val treatment are the variables that can produce the most variation).
- In relation to the PSA, after running a thousand simulation. Considering a €30,000 threshold, sac/val was dominant or cost-effective in 99.50% of simulations. This descends to 97.40% if the threshold considered €25,000 per QALY(Figure 2).

Figure 2. Cost-effectiveness Plot (a thousand simulations)



- The cost-effectiveness acceptability curve (CEAC) is Shown in Figure 3.

Figure 2. Cost-effectiveness acceptability curve



CONCLUSION

- **The results of this study show that the early use of sac/val during the admission of HFrEF patients could be considered cost-effective from the Spanish Health System perspective.**

REFERENCES

1. McMurray JJ et al. Angiotensin-neprilysin inhibition vs enalapril in heart failure. N Eng J Med. 2014; 371(11):993-1004.
2. Velazquez EJ et al. Angiotensin-neprilysin inhibition in acute decompensated heart failure. N Eng J Med. 2019; 380(6):538-548.
3. Gaziano TA et al. Cost-effectiveness Analysis of Sacubitril-Valsartan vs Enalapril in Patients with Heart Failure and Reduced Ejection Fraction. JAMA Cardiol. 2016; 1(6):666-672.
4. Gaziano TA et al. Cost-effectiveness of Sacubitril-Valsartan in Hospitalized Patients who have Heart Failure with Reduced Ejection Fraction. JAMA Cardiol. 2020; 5(11): 1236-1244.

ACKNOWLEDGEMENT

This study has been funded by Novartis. The presenting author, Javier Parrondo García declares the following real or perceives conflicts of interest during the last 3 years in relation to this presentation: Javier Parrondo García is an employee in Novartis Spain