Cost-Effectiveness of Icosapent Ethyl in Patients With Recent Acute Coronary Syndrome in Catalonia

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Introduction

- Established cardiovascular disease (CVD) is a leading cause of death in Spain (27.9%), with an incidence rate of 10%.[1]
- Elevated triglyceride levels in statin-treated patients, even with controlled low-density lipoprotein cholesterol levels, are linked with increased risk of future cardiovascular (CV) events and death.
- In REDUCE-IT, a phase III randomised controlled trial, icosapent ethyl has been shown to reduce the risk of CV events versus placebo by 36% in high-risk, statin-treated patients with recent acute coronary syndrome (ACS), defined as occurring within the 12 months prior to receiving icosapent ethyl or placebo (total primary CV composite outcome hazard ratio [HR] = 0.64; 95% Confidence interval 0.45–0.90, P=0.01).[2,3]

Objective

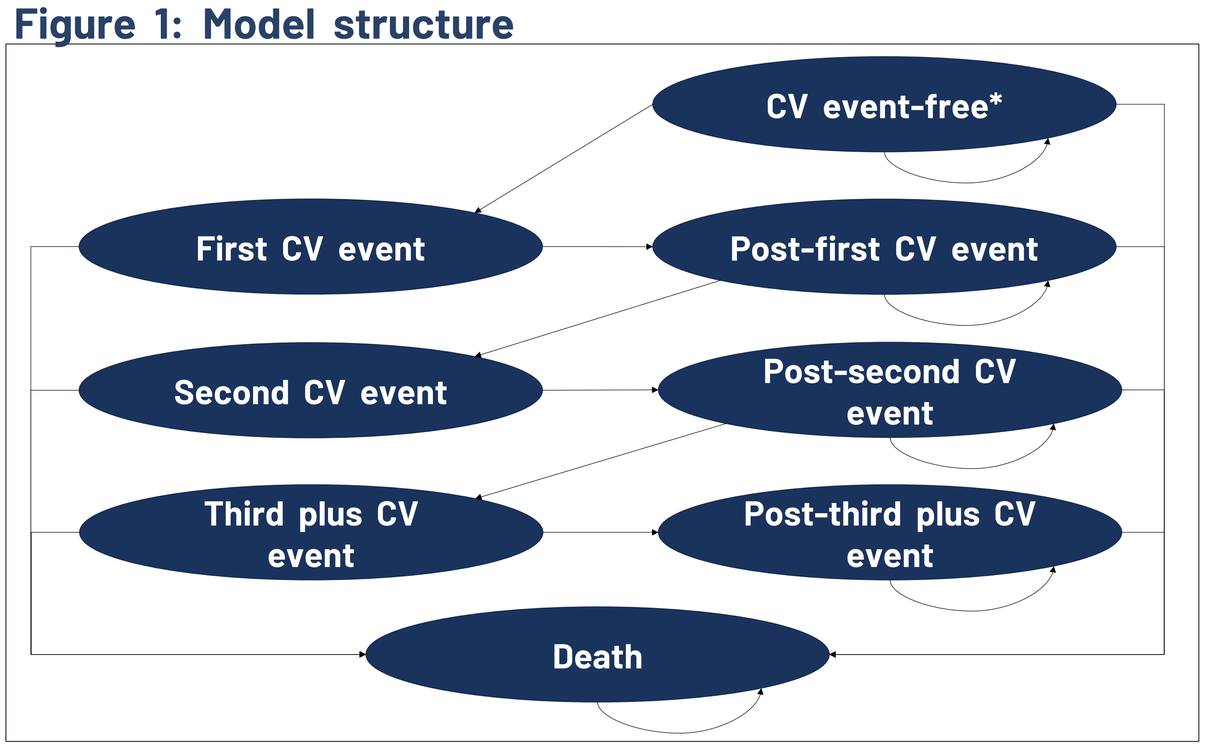
- This analysis aims to assess the cost-effectiveness of icosapent ethyl in high-risk, statin-treated patients with established CVD and recent ACS from a Catalonian healthcare perspective.

Methods

Model structure

- A partitioned survival model was developed based on an established model structure with health states based on the number of CV events to capture the long-term risk of major CV events (Figure 1).

Figure 1: Model structure



Abbreviations: CV – Cardiovascular

***CV event-free refers to patients being CV event-free during the REDUCE-IT trial period only. The same is true for first, second and third plus CV event health states.**

- The model structure includes eight different health states: CV event-free*, first CV event, post-first CV event, second CV event, post-second CV event, third or more CV events, post-third or more CV events, and death.
- Daily cycles were used to ensure all CV events from the REDUCE-IT trial were captured.
- A lifetime time-horizon with a maximum age of 100 years was considered.
- Icosapent ethyl + statins ± ezetimibe was compared to best supportive care (BSC; statins ± ezetimibe only).

References

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Methods

Model inputs and outputs

- Population characteristics (age, sex and statin intensity) were based on Martinez-Lopez et al.[4] and were validated by a Spanish clinical expert.[5]
- Clinical effectiveness/safety inputs and background ezetimibe use were based on the recent ACS subpopulation of the REDUCE-IT trial.[2]
- Costs and utilities were sourced from published literature[4, 6-9] and databases[10-12], and were validated by a Spanish clinical expert.[5]
- Costs (reported in 2023 EUR) and quality-adjusted life-years (QALYs) were discounted by 3.0% annually in line with guidance from the Catalonian Department of Health.[11]
- The probabilistic sensitivity analysis (PSA) used 5,000 iterations, and the one-way sensitivity analysis (OWSA) used confidence intervals from published standard errors where available or assumed to be equal to 10% of the mean otherwise.

Results

Base case analysis

- Icosapent ethyl was associated with €10,414 incremental costs and 0.715 incremental QALYs versus BSC, resulting in an incremental cost-effectiveness ratio (ICER) of €14,573 per QALY gained (Table 1).

Sensitivity analyses

- The PSA results were consistent with the base-case results.
- The cost-effectiveness acceptability curve showed a 73% probability that icosapent ethyl is cost-effective at a willingness-to-pay threshold of €30,000.

Table 1: Base case results

	BSC	Icosapent Ethyl	Incremental
LYs	13.378	14.045	0.668
QALYs	8.999	9.714	0.715
Cost	€56,435	€66,849	€10,414
ICER (Cost/LY)		**€15,597**	
ICER (Cost/QALY)		**€14,573**	

Abbreviations: BSC – Best supportive care; ICER – Incremental cost-effectiveness ratio; LY – Life-years, QALY – Quality-adjusted life-years

- The OWSA results demonstrated the model was most sensitive to the time-to-first event and time-to-third event efficacy curves for the icosapent ethyl arm.

Strengths and limitations

- Sources were validated by a Spanish clinical expert.
- The effectiveness of icosapent ethyl versus BSC in patients with a recent ACS was based on a post hoc analysis of the REDUCE-IT trial.

Conclusion

- **Icosapent ethyl is a cost-effective and clinically effective intervention for statin-treated adult patients with established CVD, elevated triglycerides and recent ACS from a Catalonian healthcare perspective.**

Disclosures

This study was sponsored by the Amarin Pharma Inc. CM, LT, and SG are employed by FIECON; a consultancy hired by Amarin Pharma Inc. in connection with the development of this study. GV and DJ are employees and stock shareholders of Amarin Pharma Inc. JCC received consultancy fees from Amarin Pharma Inc to validate the model inputs.

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