

A PHARMACOECONOMIC ANALYSIS OF PHOSPHATE BINDERS COST-EFFECTIVENESS IN THE RISCAVID STUDY.

Massimiliano Migliori, Adriana Di Giorgio, Alessia Scatena, Sabrina Paoletti, Vincenzo Panichi.

Versilia Hospital, Lido di Camaiore, Lucca, Italy

OBJECTIVES

Calcium-based phosphate binders are now known to increase serum calcium levels, and ultimately CV mortality and enhancing arterial calcification in HD patients. Sevelamer hydrochloride is able to lower serum phosphorus without promoting arterial calcification.

In previous multicenter observational prospective study, the RISCAVID, we reported that among different pharmacological treatments, Sevelamer was independently associated with lower mortality at two years.

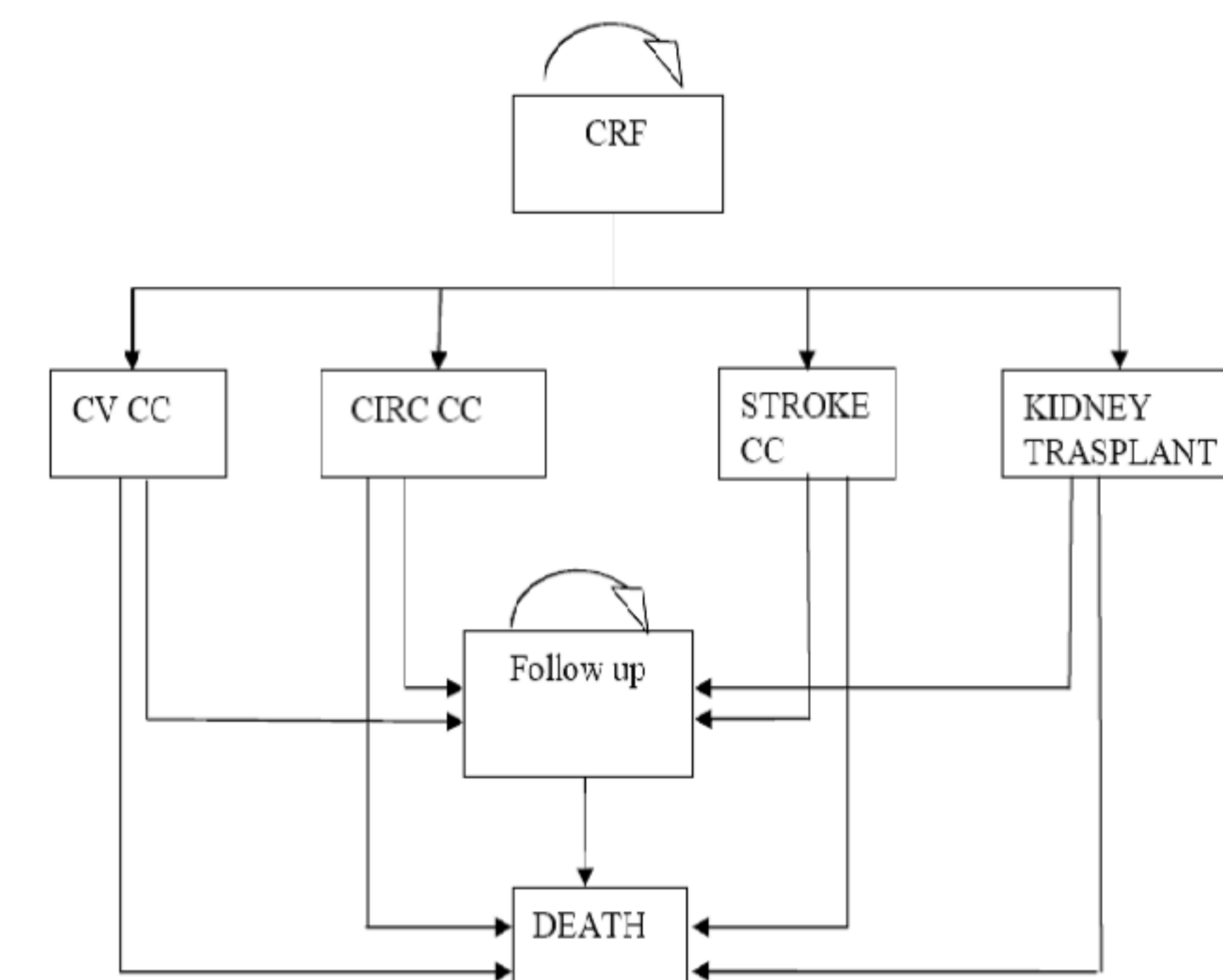
Here we present the results of a pharmacoeconomic analysis of the RISCAVID database aimed at assessing the cost effectiveness of phosphate binders during an extended follow-up period of 7 years.

METHODS

Morbid or fatal event rates occurring in the 750 chronic HD patients enrolled in the RISCAVID study were recorded every 6 months from June 2004 until June 2011. Deaths and major non-fatal events were classified as CVD or non-CVD. Patients were being treated either with Sevelamer, Vitamin D and calcium supplements.

Pharmacoeconomic evaluation

The cost effectiveness analysis was performed using a probabilistic decision model based on a Markov chain. For each of the transition states we estimated the costs incurred by the NHS. The results were then subjected to deterministic and probabilistic sensitivity analysis. We simulated a cost effectiveness acceptability curve (CEAC) to estimate the probability of sevelamer to be considered cost effective under a threshold of EUR 40,000 for Life Year Gained (LYG)



RESULTS

Analysis show a statistically significant reduced mortality in the sevelamer treated group.

In absence of co-morbidities, the incremental cost of treatment with sevelamer for patients on haemodialysis is EUR 30,144,638 per patient compared to an overall gain of 1300 years of life for the RISCAVID population. These results produce an ICER of EUR 23,272/LYG.

In the case of co-morbidities incremental costs of haemodialysis patients treated with sevelamer amounted to EUR 18,424,129, compared to a gain of 552 years of life. The ICER is equal to EUR 28,257/LYG.

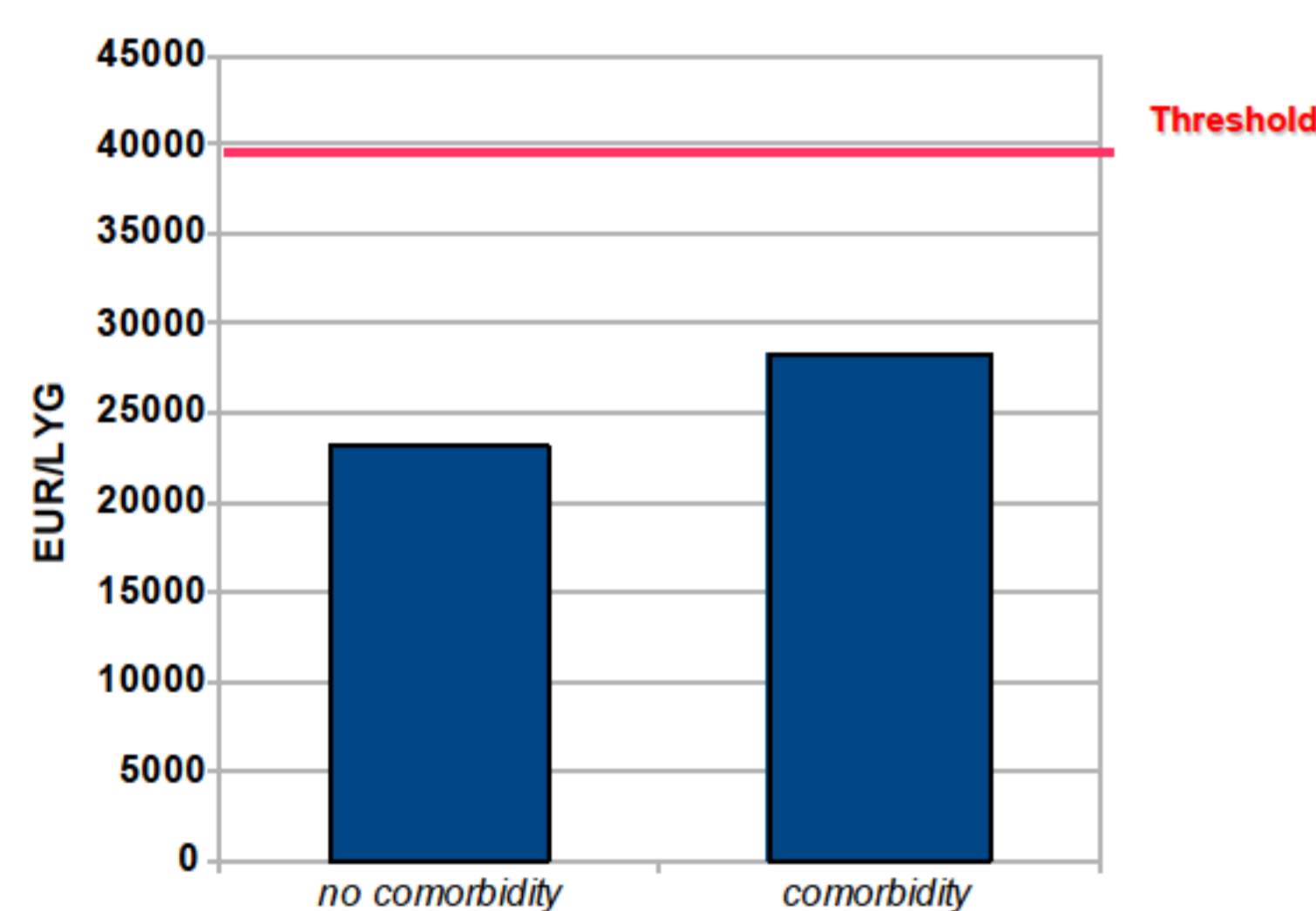
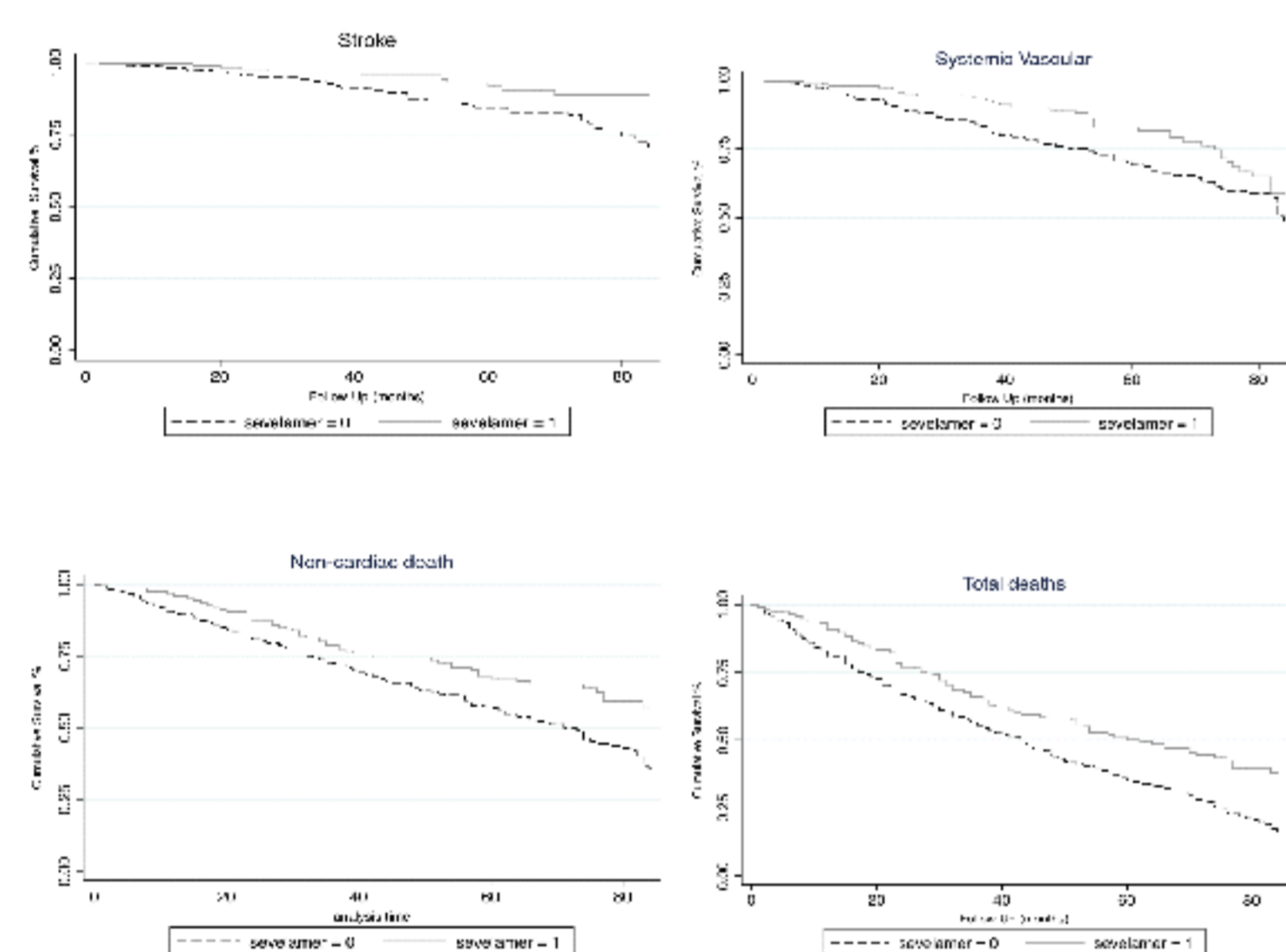
In general, one-way sensitivity analysis showed how the maximum ICER varies between EUR 20,000 and EUR 36,600 in consequence of the methods used to estimate transition probabilities. In the case of variation of the other parameters subjected to sensitivity analysis (probability of death, costs of sevelamer and calcium carbonate, haemodialysis and other costs) changes of the ICER are always within these intervals. The acceptability curves (Fig. 3) illustrate the difference between patients with and without co-morbidities.

In general, 94% of the simulations were below the critical threshold of EUR 40,000/LYG.

CONCLUSIONS

Results from the 7-year follow up of the RISCAVID trial confirm the association of sevelamer with a lower risk of stroke; however, the RISCAVID is an observational study and we account for the limitation due to lack of randomization and the unbalanced number and comorbidity conditions of patients in the different groups.

Economical analysis confirm the cost effectiveness of sevelamer in patients with and without comorbidities. Probabilistic sensitivity analysis associated to our results a probability of 94% of being below EUR 40,000/LYG. This result allows to assume a high probability for a cost/QALY to be under EUR 30,000 which is an implicit threshold used by several HTA agencies (i.e. NICE) for a new technology to be considered cost effective.



Cost effectiveness acceptability curve (CEAC)

