

# COST EFFECTIVENESS OF TICAGRELOR FOR CARDIOVASCULAR PREVENTION IN PATIENTS WITH ACUTE CORONARY SYNDROMES AND LOW DOSE ASPIRIN IN SPAIN

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## Background

The efficacy and safety of ticagrelor versus clopidogrel in patients with acute coronary syndromes (ACS) are well documented in the PLATO trial. Ticagrelor has been associated to better outcomes in patients taking low dose of acetylsalicylic acid (ASA) (75-150mg).

## Purpose

The aim of this study was to assess the long-term cost-effectiveness of treating ACS patients for 12 months with ticagrelor compared with clopidogrel in a low-dose ASA cohort in Spain.

## Material and Method

Event rates and health-related quality of life during 12 months of therapy were estimated from PLATO in a low-dose ASA cohort ( $\leq 150$ mg) for all ACS patients with either ticagrelor or clopidogrel. Health-related costs were obtained from Spanish published literature. Beyond 12 months, quality-adjusted survival and costs were estimated conditional on whether a non-fatal myocardial infarction (MI), non-fatal stroke, no MI or stroke occurred during the 12 months of therapy. Lifetime costs, life years gained (LYG), and quality-adjusted life years (QALYs) were estimated for both treatment strategies. Incremental cost-effectiveness ratios were presented from the Spanish health system perspective in 2013 Euros applying a macro-costing approach based on published literature and life tables from a Spanish setting.

## RESULTS

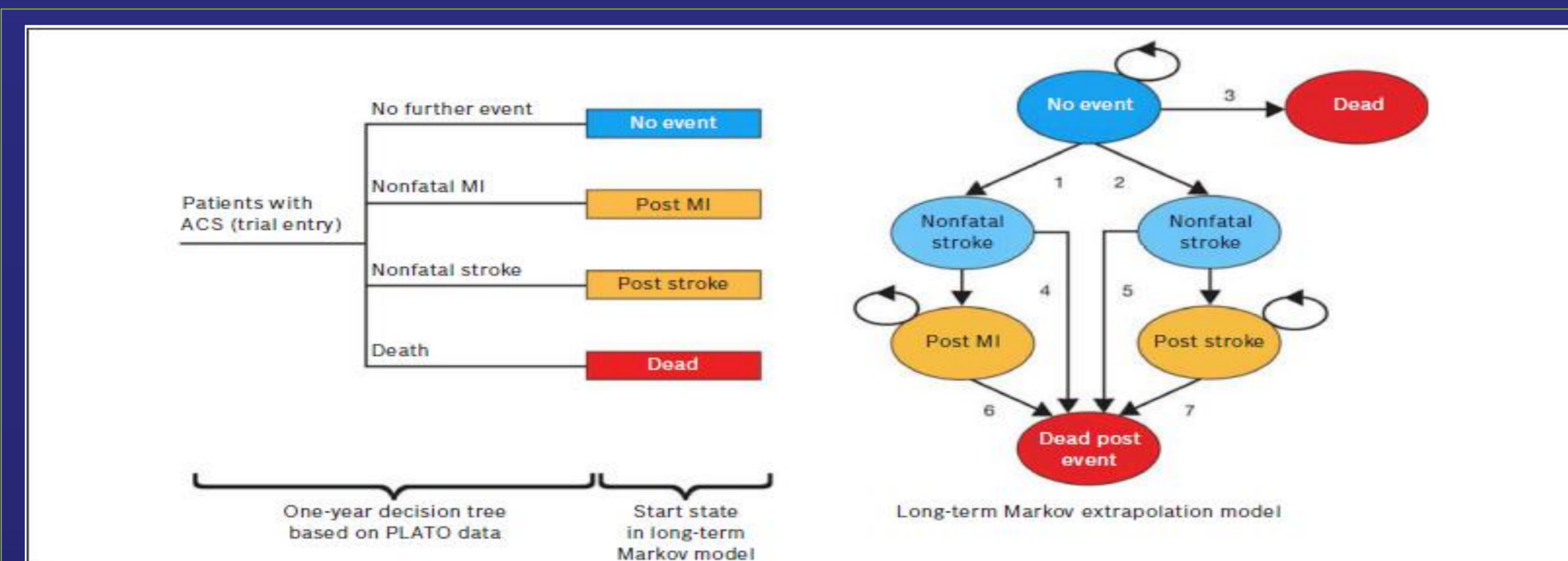


Fig. 1 Model structure consists of two parts. The first part is a simple decision tree representing the four primary outcomes of the PLATO trial over the one-year trial period: no event, nonfatal myocardial infarction (MI), nonfatal stroke or death. The second part is a Markov model, which simulates outcomes after the first year. As denoted by the numbers, individuals can remain event-free until they have an MI (1), a stroke (2), or die without a stroke or MI event (3); if they incur an event, they can experience an early death (4 or 5), or late death (6 or 7). This model structure was developed by Nikolic et al, and used with permission from European Heart Journal.<sup>105</sup> ACS: acute coronary syndromes

### Model input parameters-initial one-year model dose $\leq 150$ mg aas

$\leq 150$ mg aas	Ticagrelor	Clopidogrel	Data
Probability			
No further Events	0,915	0,893	PLATO
Non fatal MI	0,041	0,049	PLATO
Non fatal Stroke	0,008	0,008	PLATO
Death	0,036	0,050	PLATO
QALY			
No further Events	0,875	0,878	PLATO
Non fatal MI	0,017	0,017	PLATO
Non fatal Stroke	0,748	0,720	PLATO
Death	0,259	0,249	PLATO

### Model input parameters-initial one-year model dose $\leq 150$ mg aas

Parameter	Ticagrelor	Clopidogrel	Source
<b>Cost (Euros)</b>			
Death	8091	7142	RECH
Non Fatal MI	14155	13206	Sicras-Mainar A et al.
Non Fatal Stroke	9174	8225	Navarrete-Navarro P et al
No further Event	4214	3265	Assumption
Cost/day Ticagrelor	3,2	Not applicable	Spanish Ministry of Health
Cost/day Clopidogrel	Not applicable	0,6	Spanish Ministry of Health

### Model input parameters-Markov model

Parameter	Baseline Value	Source
Annual risk MI in no-event state	0,019	PLATO
Annual risk Stroke in No Event State	0,003	PLATO
Increased risk of death in No Event State *	2,00	Norhammar et al
Increased risk of death in Nonfatal MI State *	6,00	PLATO
Increased risk of death in post MI State *	3,00	PLATO
Increased risk of death in Nonfatal Stroke State *	7,43	Dennis et al
Increased risk of death in post Stroke State *	3,00	Dennis et al <sup>1</sup> Olai et al
Annual cost no Event State(€)	3046	Assumption
Annual cost non Fatal MI State(€)	12987	Sicras-Mainar
Annual cost post MI State(€)	3046	Sicras-Mainar
Annual cost non Fatal Stroke State(€)	8006	Navarrete-Navarro
Annual cost post Stroke State(€)	3224	Navarrete-Navarro
Annual QALY weight in the no Event State <69	0,8748	PLATO
Annual QALY weight in the no Event State 70-79	0,8430	Burstrom
Annual QALY weight in the no Event State 70-79	0,7814	Burstrom
Annual QALY decrement in Nonfatal MI state	0,0627	PLATO
Annual QALY decrement in post MI state	0,0627	PLATO
Annual QALY decrement in Nonfatal Stroke state	0,1384	PLATO
Annual QALY decrement in post Stroke state	0,1384	PLATO

\*Hazard ratio over standard mortality in Spain  
MI: Myocardial Infarction; QALY: quality adjusted life years

### Results of baseline lifetime cost-effectiveness analysis

	Ticagrelor	Clopidogrel	Ticagrelor-Clopidogrel	ICER
ACS y $\leq 150$ mg aas				
Cost (€)/patient	39172	37904	1268	
LYG(patient)	11,6165	11,4293	0,1871	6774
QALY (patient)	9,7420	9,6071	0,1504	8428

## CONCLUSION

✓Based on clinical and health-economic evidence from PLATO study, treating patients with ticagrelor for 12 months is associated with a cost per QALY below generally accepted thresholds for cost-effectiveness in Spain.

There is not any conflict of interest at all.

