

Cost-effectiveness of tenecteplase versus alteplase for acute ischemic stroke

Chi Phuong Nguyen^{1,2,3}, Maarten M H Lahr², Durk-Jouke van der Zee^{1,2}, Henk van Voorst^{4,5},
Yvo B.W.E.M. Roos⁶, Maarten Uyttenboogaart^{7,8}, Erik Buskens^{1,2}, on behalf of the CONTRAST consortium

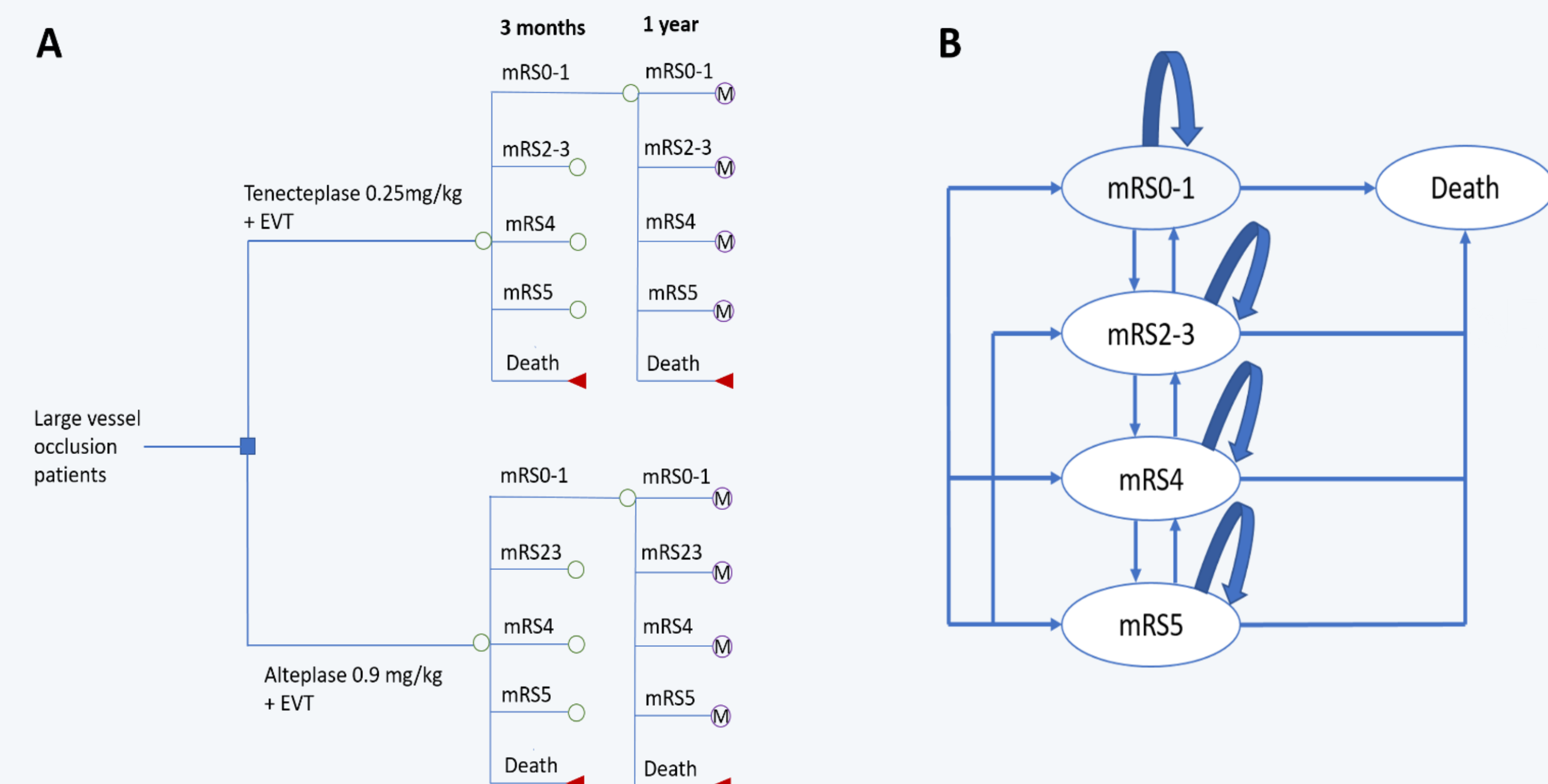
¹ Department of Operations, Faculty of Economics and Business, University of Groningen, the Netherlands; ² Health Technology Assessment, Department of Epidemiology, University Medical Center Groningen, the Netherlands; ³ Department of Pharmaceutical Administration and Economics, Hanoi University of Pharmacy, Vietnam; ⁴ Department of Radiology and Nuclear Medicine, Amsterdam University Medical Center, the Netherlands; ⁵ Department of Biomedical Engineering and Physics, Amsterdam University Medical Center, the Netherlands; ⁶ Department of Neurology, Amsterdam University Medical Centers, location University of Amsterdam, the Netherlands; ⁷ Department of Neurology, University Medical Center Groningen, the Netherlands; ⁸ Department of Radiology, Medical Imaging Center, University Medical Center Groningen, the Netherlands

Introduction

- Intravenous alteplase is widely used as a treatment for acute ischemic stroke (AIS).
- Recently, tenecteplase has been shown to result in higher recanalization rates, improved functional outcome and a similar safety profile in AIS patients with large vessel occlusion (LVO) compared to alteplase.
- This study aims to evaluate the cost-effectiveness of 0.25mg/kg tenecteplase versus 0.9mg/kg alteplase for thrombolysis in LVO.

Methods

Figure 1 A. Decision tree model; B. Markov model



EVT: endovascular thrombectomy; M: Markov model; mRS: modified Rankin score

- A 10-year Markov decision-analytic model was constructed to assess total costs, total quality-adjusted life year (QALY), and an incremental cost-effectiveness ratio (ICER) of tenecteplase and alteplase in LVO.
- We applied two willingness-to-pay thresholds of €50,000/QALY and €80,000/QALY.
- We used clinical data from large randomized controlled trials and real-world data.
- The robustness of our results was checked by using one-way sensitivity analysis, probabilistic sensitivity analysis and scenario analysis.

Conclusions

- Tenecteplase was cost-effective compared to alteplase in base case and all scenarios.
- Tenecteplase could be considered as a replacement for alteplase in LVO patients to reduce stroke burden.

Results

Table 1 Cost-effectiveness results in base case and scenarios

Treatment	Cost (€)	Increment cost (€)	QALY	Increment QALY	ICER (€/QALY)
Base case: AIS patients with LVO					
Alteplase	115,818	-	3.88	-	-
Tenecteplase	120,904	5,086	4.50	0.62	8,151
Scenario 1: AIS patients with LVO > 80 years					
Alteplase	74,642	-	1.26	-	-
Tenecteplase	77,472	2,830	1.74	0.48	5,864
Scenario 2: AIS patients					
Alteplase	107,990	-	4.03	-	-
Tenecteplase	107,981	-9	4.08	0.05	dominant
Scenario 3: real-world data for AIS patients					
Alteplase	102,907	-	4.16	-	-
Tenecteplase	102,980	73	4.27	0.11	699

Figure 2 One-way sensitivity results

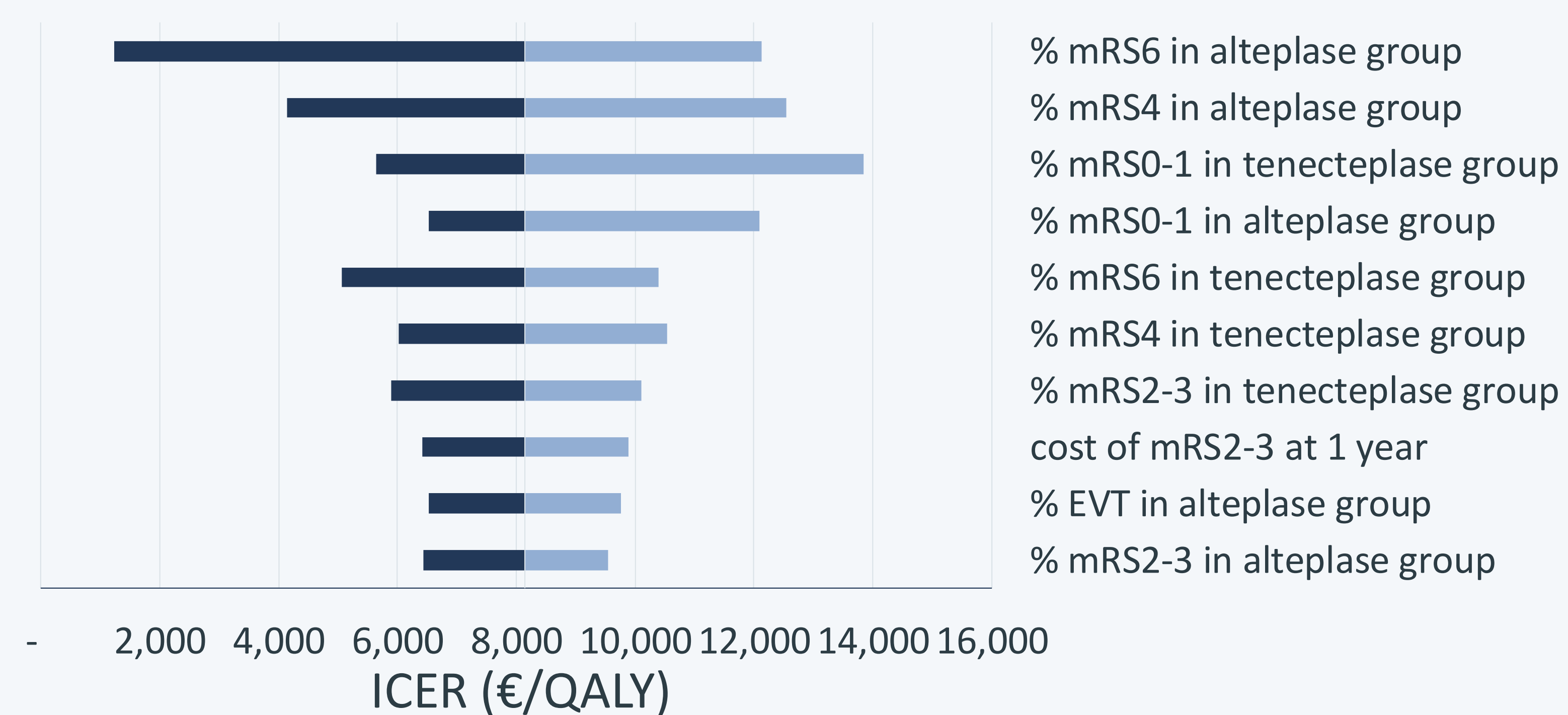
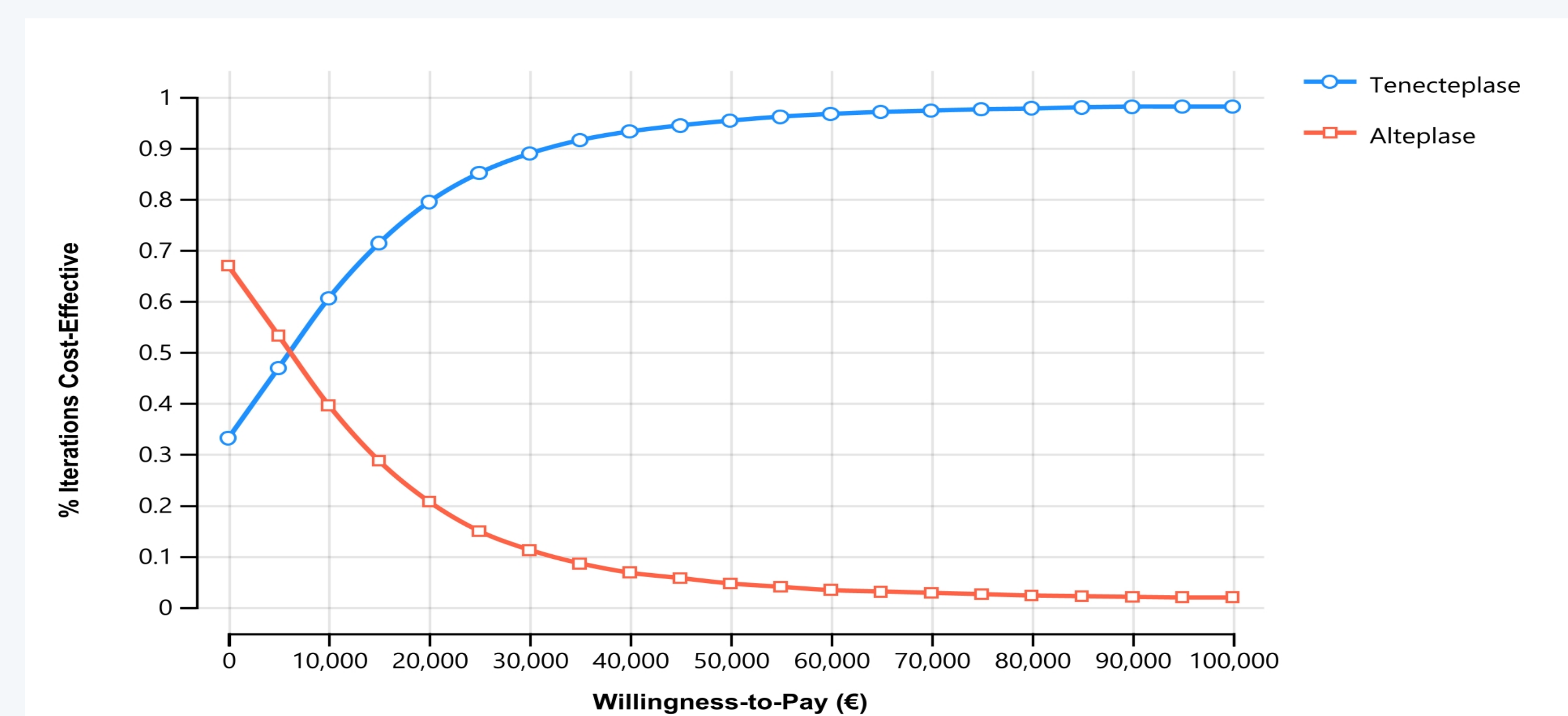


Figure 3 Cost-effectiveness acceptability curve in base case



p.nguyen@umcg.nl

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