

Cost-Effectiveness of Endovascular Thrombectomy for Ischemic Stroke in the Japanese Setting

EE-168

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INTRODUCTION

- ✓ Endovascular thrombectomy (EVT) for ischemic stroke is highly effective.
- ✓ However, there is a time constraint for EVT, and therefore there are regional disparities in the implementation rates of EVT in Japan like other countries.
- ✓ While Increasing the implementation rates is a politically important issue, the cost-effectiveness of EVT in Japan has not been analyzed.

OBJECTIVE

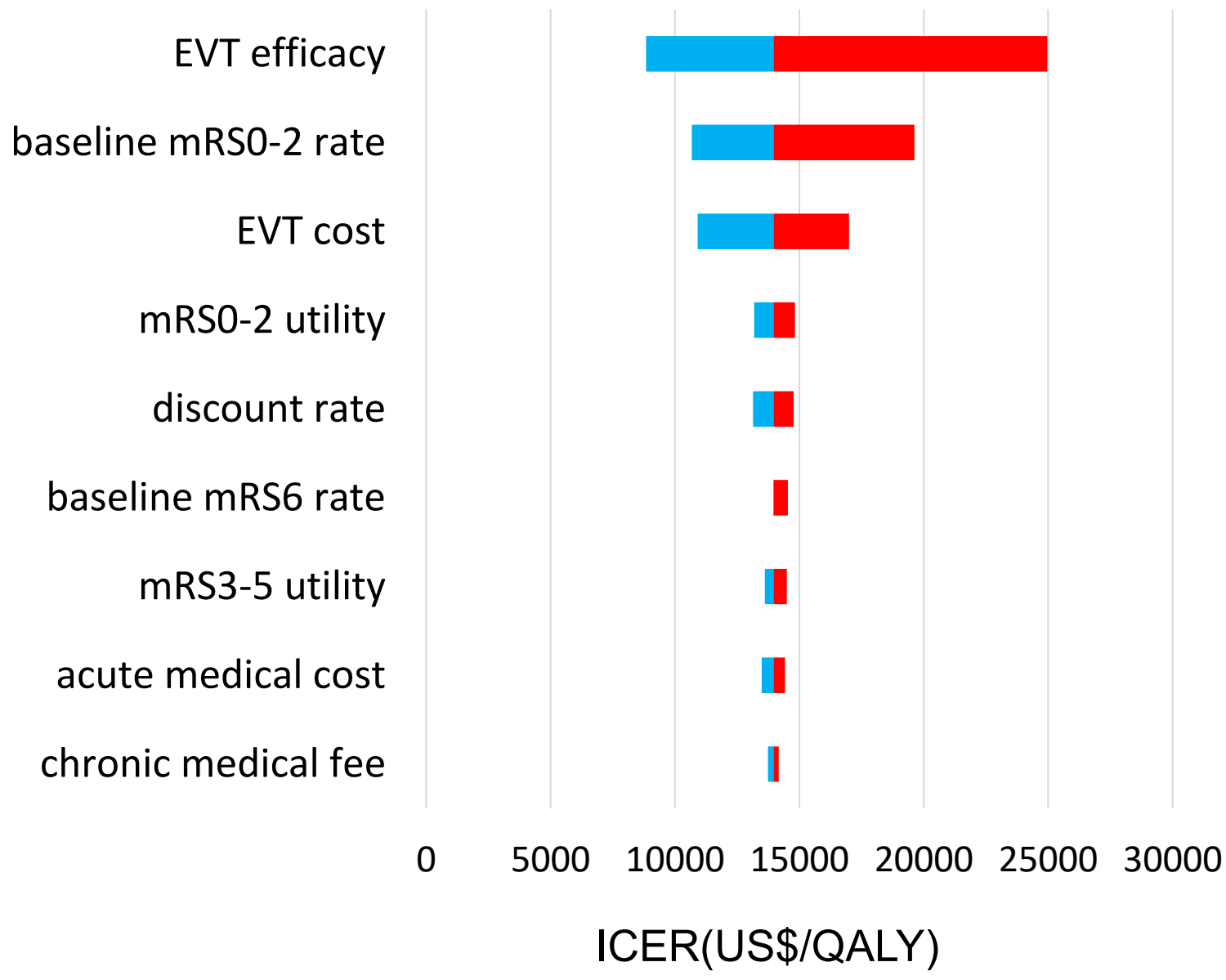
- ✓ This study analyzed the cost-effectiveness of EVT in the Japanese setting.

Results

- ✓ EVT led to additional 0.36 QALY and US\$ 5,092
- ✓ ICER was US\$13,955/QALY

Base case results

	Cost	QALY	ICER (US\$/QALY)
EVT	31,818	2.32	13,955
comparator	26,726	1.95	
Δ cost	5,092	0.36	



Results of sensitivity analysis

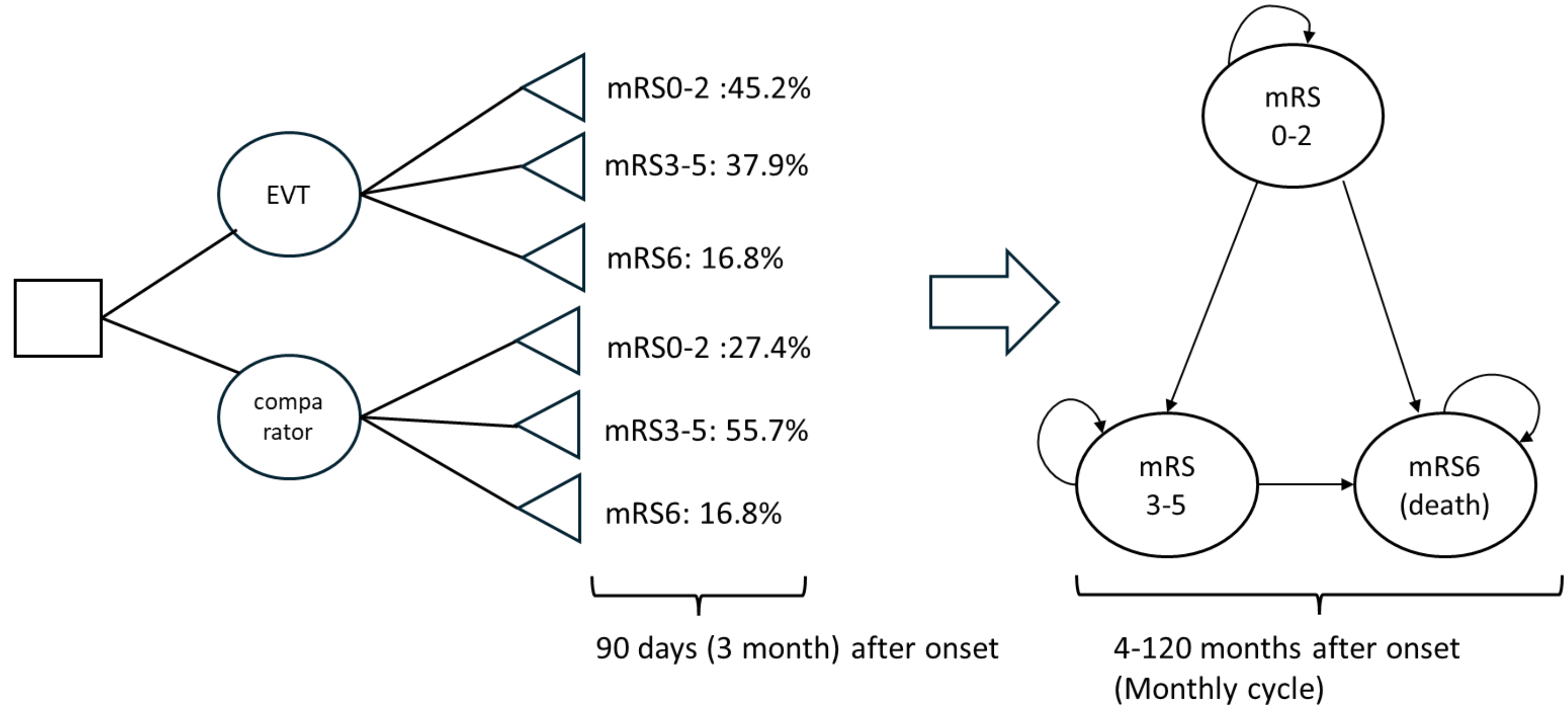
METHODS

Overview of the cost-utility analysis

Subjects	Acute ischemic stroke patients having an indication for EVT (75 years old)
Targeted technology	EVT + conventional treatment (including t-PA)
Comparator	Conventional treatment (including t-PA)
Analysis perspective	Public healthcare payer’s perspective (cost includes direct medical costs)
Setting	Japanese setting
Time horizon	10 year after onset
Indicator	ICER (USD/QALY)*
Discount rate	2% annually (range 0-4%)
Models	Decision tree model for 90 days and Markov cohort model for long-term simulation
Software	R ver 4.1.2

List of parameters

parameters	base case	range	source
Transition probability in Markov model	--	--	Morii 2023
Outcome at 90days (initial probabiliry)			
mRS0-2 at 90days at baseline	27.5%	0.15-0.4	Oliveira 2022
mRS6 at 90days at baseline	20.1%	0.1-0.3	Oliveira 2022
risk ratio of functional independence	1.81	1.47-2.22	Oliveira 2022
Utility			
mRS0-2	0.71	0.68-0.74	Xie 2016
mRS3-5	0.31	0.29-0.34	Xie 2016
Direct medical cost			
acute hospitalization cost	See the box in the right		DPC database
EVT cost	877500	± 20%	National fee table
chronic medical cost (US\$/month)	19975.25	± 20%	C2H 2020



Analysis model

- ✓ A decision tree model was used until 90 days and a Markov cohort model was used for long-term simulation. Health states of modified Rankin Scale (mRS) 0-2 (functional independence), mRS3-5 (severe), and mRS6 (death) were defined.
- ✓ The outcome at 90days was defined from a previous meta-analysis (einstein (São Paulo). 2022;20:1-12)
- ✓ Transition probabilities were obtained from Morii (2023) (Cost Eff Resour Alloc 21, 12 (2023))

Database analysis

Analysis of DPC (Diagnosis Procedure Combination / Per-Diem Payment System) data was conducted to estimate acute medical costs

- ✓ Data: data from a DPC database containing about 93% of DPC data in Aichi prefecture (7.5 million population)
- ✓ Subjects: Ischemic stroke patients (n = 2600)

Total medical costs for acute and convalescent hospitalization were aggregated for mRS0-2, mRS3-5, and mRS6 at discharge, respectively.

mRS0-2 acute cost	2,947,622
mRS3-5 acute cost	3,551,596
mRS6 acute cost	2,520,136

CONCLUSIONS

- ✓ The ICER was lower than 5 million JPY/QALY (approximately US\$ 31,631/ QALY), a reference value in Japanese cost-effectiveness analysis, indicating EVT is cost-effective in the Japanese setting. (Results were within the range of previous studies for other countries)

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