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## INTRODUCTION

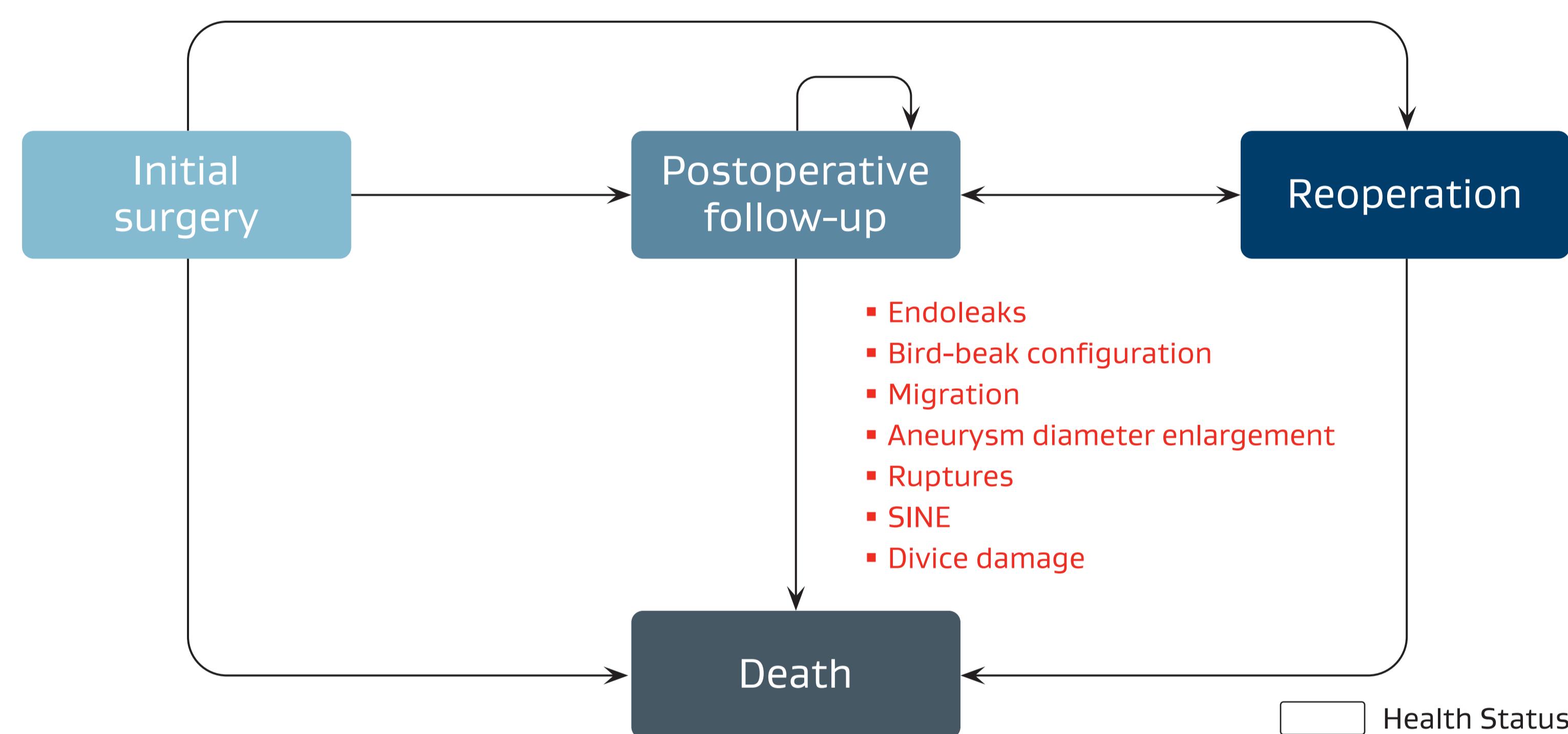
Thoracic endovascular aortic repair (TEVAR) devices have undergone continuous technological advancements. Recently, devices equipped with an active control (AC) mechanism—featuring a multi-stage deployment system that enables precise proximal positioning and minimizes the influence of blood flow during deployment—have been introduced. The clinical benefits of this technological innovation have been recognized by the Japanese Ministry of Health, Labor and Welfare, resulting in the assignment of a premium reimbursement price in 2023<sup>a</sup>.

## OBJECTIVES

This study aimed to evaluate the cost-effectiveness of TEVAR devices with active control (TEVAR-AC) compared to conventional TEVAR devices without active control (TEVAR-noAC), from the perspective of the Japanese public healthcare payer, in patients with thoracic aortic aneurysm (TAA) and Stanford type B aortic dissection (TBAD).

## METHODS

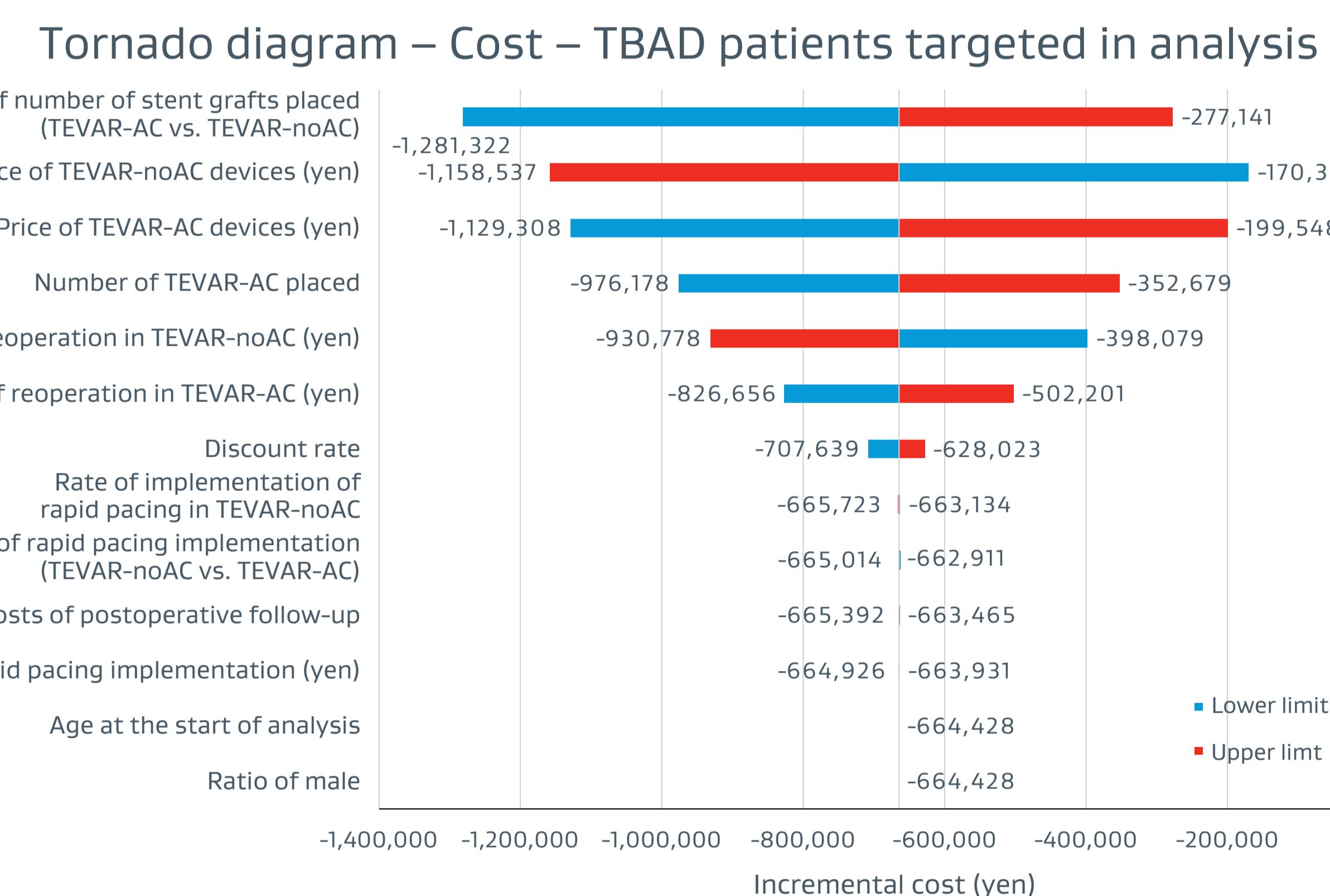
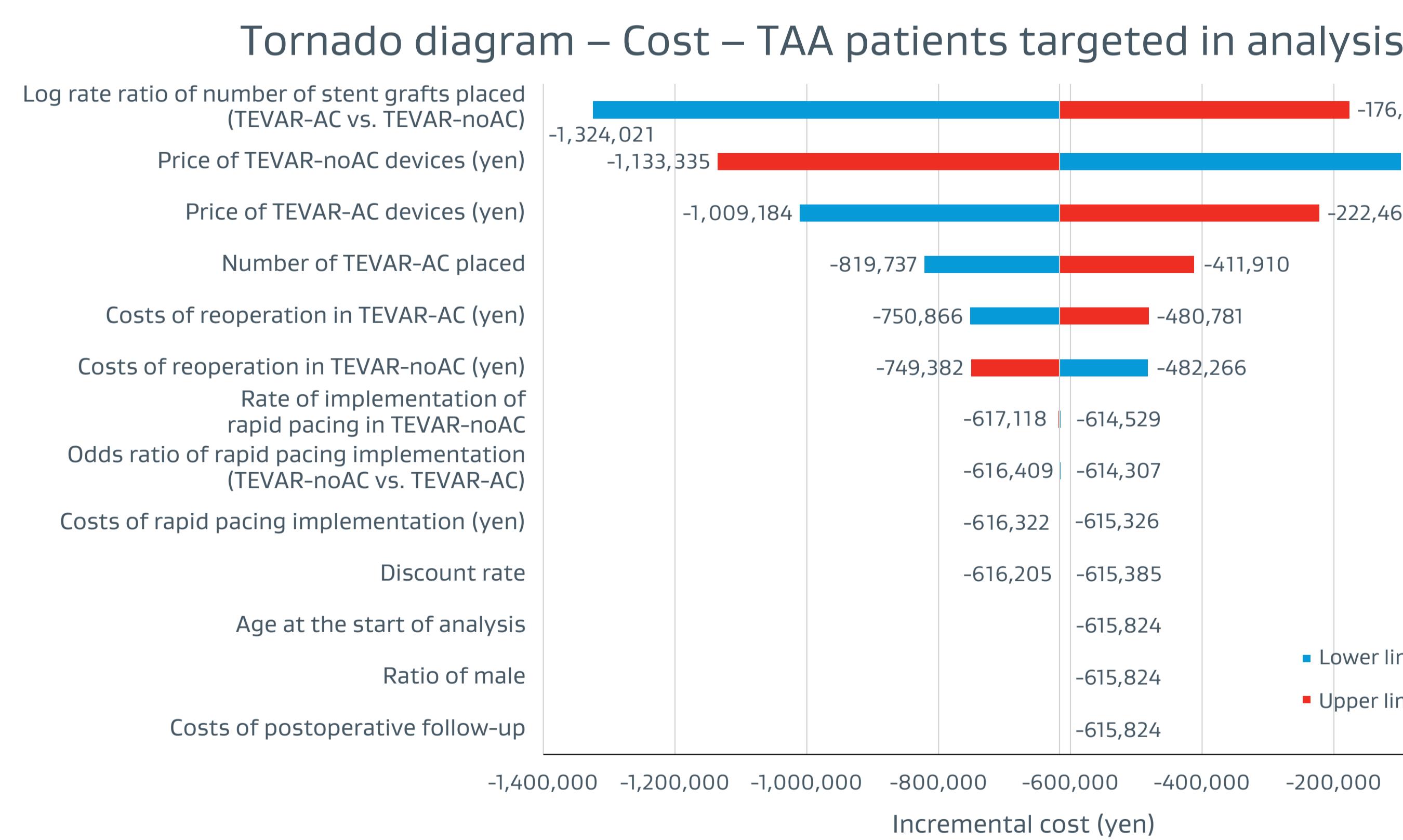
- An indirect comparison of TEVAR-AC and TEVAR-noAC was conducted using clinical outcomes derived from registry data<sup>b,c</sup> and published literature<sup>d,f</sup>.
- A lifetime Markov model with 1-year cycles was developed to assess cost-effectiveness from the perspective of the Japanese public healthcare payer (see image below).
- The analysis incorporated costs related to devices, procedures, follow-up, and reinterventions.
- Cost-effectiveness was evaluated using the incremental cost-effectiveness ratio (ICER), with a willingness-to-pay threshold set at JPY 5 million per quality-adjusted life year (QALY) gained.



## RESULTS

The main factors contributing to these results were the lower incidence of reintervention and the small number of stent grafts used during the initial procedure.

	Total cost(yen)	Incremental cost (yen)	Effectiveness (QALY)	Incremental effectiveness (QALY)	ICER (yen/QALY)
<b>TAA patients targeted in analysis</b>					
TEVAR-AC	2,760,687	-736,030	5.153	0.003	Dominant
TEVAR-noAC	3,496,718	—	5.150	—	—
<b>TBAD patients targeted in analysis</b>					
TEVAR-AC	3,433,017	-664,428	6.364	0.013	Dominant
TEVAR-noAC	4,097,445	—	6.351	—	—



## CONCLUSIONS

TEVAR-AC demonstrated to be dominant over TEVAR-noAC in the treatment of patients with TAA and TBAD, indicating a highly cost-effective therapeutic option that may contribute to healthcare cost savings.

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