Long-term cost-effectiveness of three different management strategies for type II Endoleak

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BACKGROUND:

The long-term cost effectiveness of active intervention and conservative management of Type II endoleak following endovascular repair (EVAR) of aortic aneurysm remains unclear.

Aim:

We sought to estimate the cost effectiveness of two types of active identification and intervention strategies and a conservative management strategy for patients with type II endoleak.

METHODS:

A Markov model was generated from the United Kingdom National Health Service (NHS) perspective using a 1-year cycle and a 25-year time horizon. The base-case patient was a 70-year-old patient with type II endoleak immediately diagnosed following EVAR. Three treatment strategies were analysed: active identification and treatment using trans-lumbar radiological intervention, active identification and treatment using trans-arterial intervention and a conservative management approach with long term follow up. The model parameters were selected using the published literature and NHS reference costs using the sterling value for the year 2012-2013. The main outcome measure was the incremental cost-effectiveness ratio (cost per quality-adjusted life-year gained).

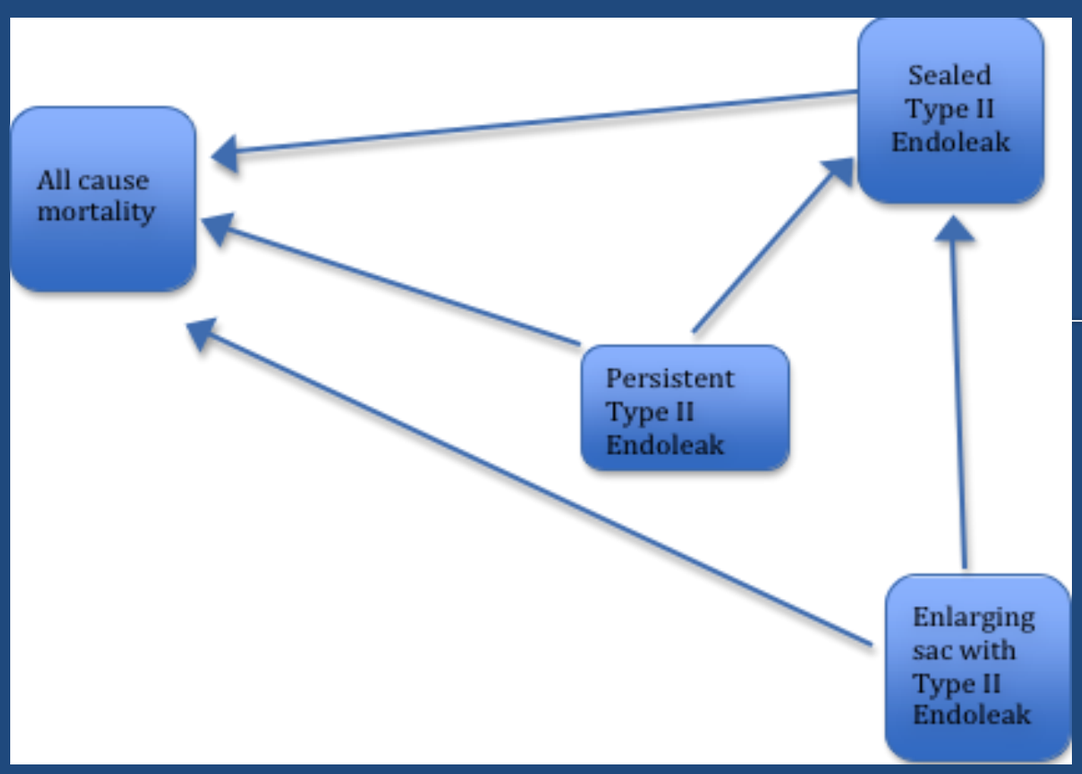

Figure 1. The health states in the Markov model

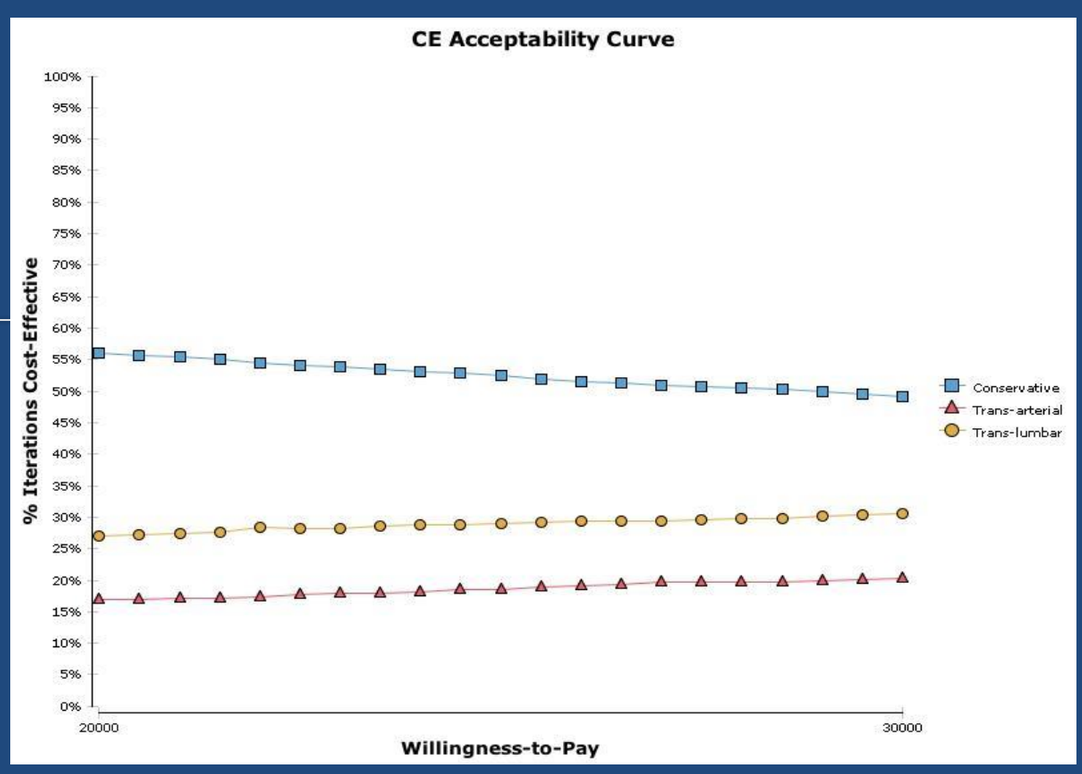

Figure 2.Cost-effectiveness acceptability curve

RESULTS:

In the base case analysis, the cost of the management using trans-lumbar radiological intervention was £ 3469.2 and quality adjusted life years (QALYs) gained were 16.29, the cost of management using trans-arterial radiological intervention was £3923.2 and the QALYs gained were 16.27. The cost of conservative management over 25 years was £1399.22 and the QALYs gained were 16.83. Comparing the trans-arterial approach to conservative management the ICER was £3249.2. Comparing the trans-arterial management to the conservative management the ICER was £3854.7. The conservative management dominated both intervention strategies.

	Conservative management	Trans-arterial	Trans-lumbar	**Conservative management Vs**	
				Trans-arterial	**Trans-lumbar**
Costs (£) Discounted	1399.22	3209.2	3469.2	-1809.78	-2069.98
QALYS Discounted	16.83	16.27	16.29	0.557	0.537
			Cost/QALY	3249.2	3854.7
				Conservative Management Dominates	Conservative Management Dominates

CONCLUSION:

The health benefits from the two interventions are undermined by the morbidity associated with these approaches. Conservative management is a cost-effective approach based on the current available evidence in the literature.