

Cost-Effectiveness of Mechanical Thrombectomy using Solitaire Stent Retriever in combination with Intravenous Tissue Plasminogen Activator (IV-tPA) versus IV-tPA alone for the treatment of Acute Ischemic Stroke due to large vessel occlusion in Colombia

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BACKGROUND

Recent progress toward reducing the long-term impact of Acute Ischemic Stroke (AIS) caused by large-vessel occlusion through improved new-generation stent retrievers has the potential to lessen the economic impact of acute ischemic stroke by reducing nursing home and other types of custodial care.

Two published cost-utility analyses made in United States show that the use of Stent retriever + tPA is cost-effectiveness in short term^{1,2}.

By adapting an economic model to Colombian costs, we took the clinical data from the SWIFT PRIME clinical trial. A lifetime Markov state transition model defined by the modified Rankin Scale score was developed to estimate costs and healthcare outcomes (life years gained and quality adjusted life years) and we want to prove that the use of both stent retriever + tPA is more cost-effectiveness or cost-saving than the use tPA alone in AIS patients caused by Large Vessel Occlusion (LVO).

OBJECTIVE

To assess the cost-effectiveness of stent retriever mechanical thrombectomy in combination with Intravenous Tissue Plasminogen Activator (IV-tPA) versus IV-tPA alone for the Treatment of AIS in Colombia.

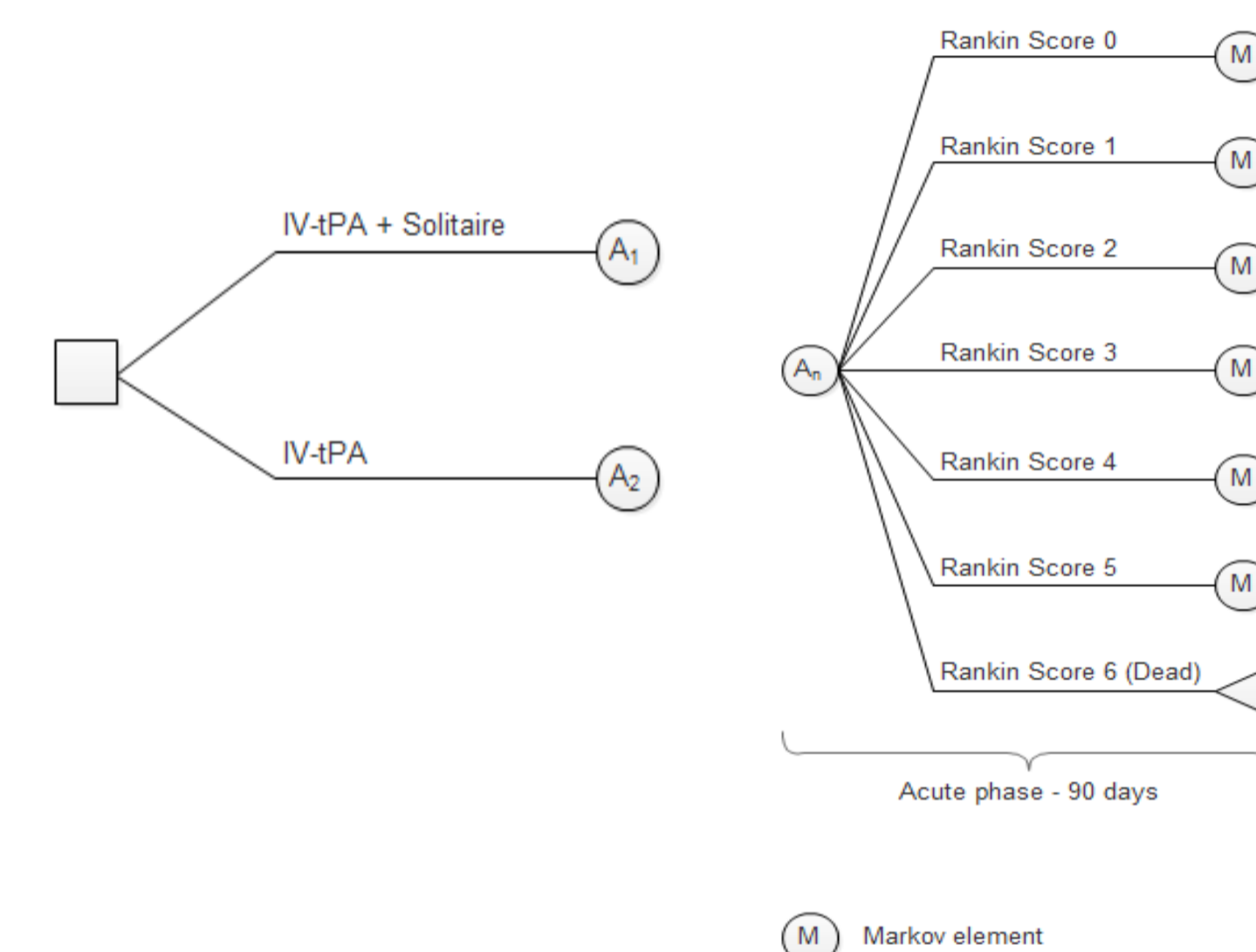
METHODS

Clinical data were taken from the SWIFT PRIME clinical trial³. A lifetime Markov state transition model defined by the modified Rankin Scale score was developed to estimate costs and health outcomes (life years gained and quality adjusted life years). A Colombian National Health System perspective (direct medical costs) was considered. Resource utilization was extracted from National Payment Manuals and databases of open access⁴. Costs were expressed in Colombian Pesos (COP). Deterministic and probabilistic sensitivity analyses were performed.

THE SOLITAIRE™ MODEL EVALUATES PATIENTS FROM THE TIME OF STROKE OVER THE REST OF THEIR LIFE TIME.

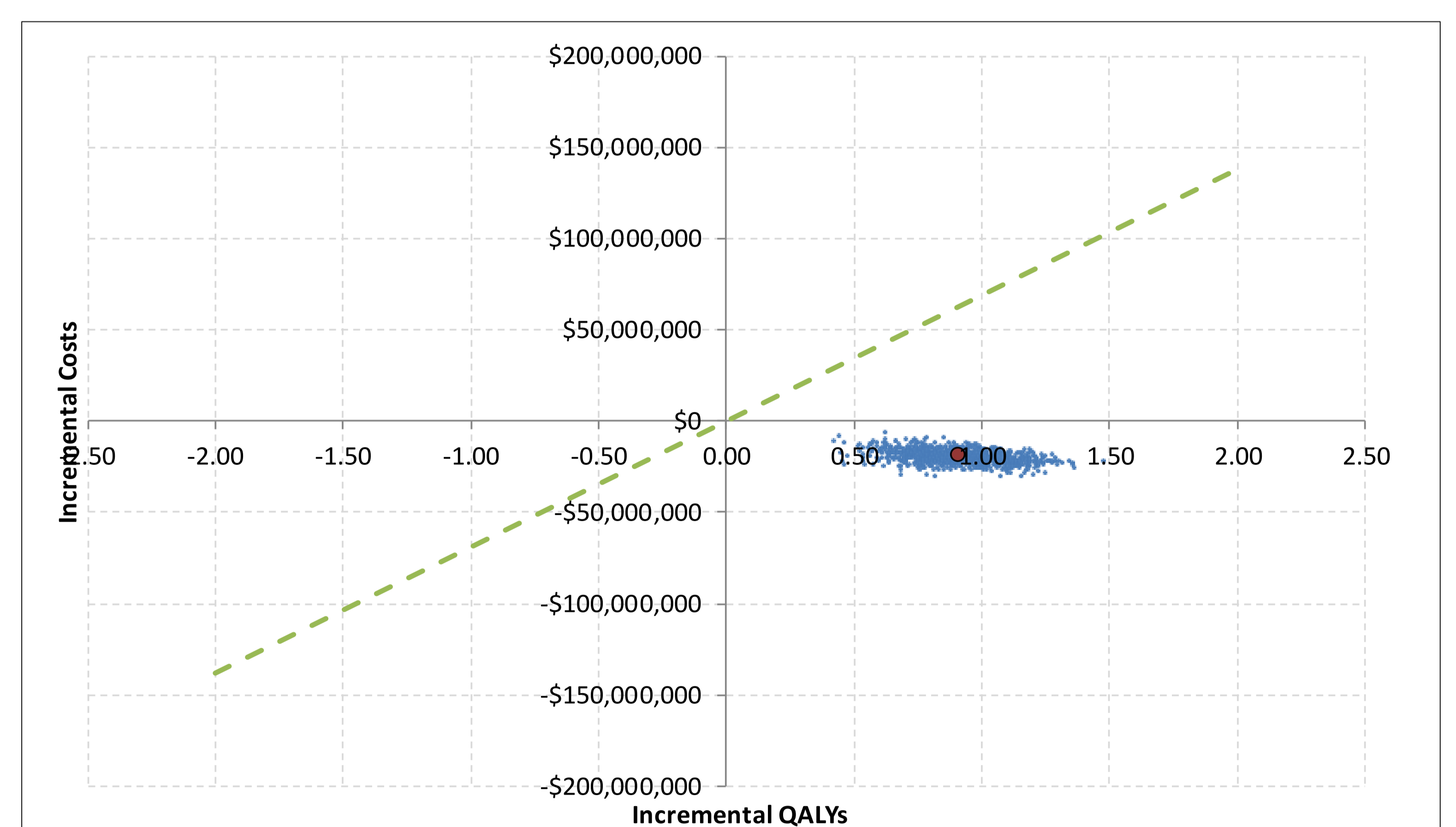


The two model phases were chosen to represent the true clinical pathway of patients experiencing AIS with confirmed LVO as accurately as possible - i.e. an acute phase immediately after stroke onset and the longer-term rehabilitative phase



RESULTS

Stent retriever thrombectomy with IV-tPA was associated with better outcomes (4.38 life years gained and 2.96 quality adjusted life years gained) and savings of COP \$1,824,733 resulting in a dominant therapy over IV-tPA alone. A net monetary benefit of COP \$66,005,604 during lifetime was obtained.



CONCLUSIONS

Solitaire™ Stent retriever thrombectomy in combination with IV-tPA is a dominant alternative over intravenous tissue plasminogen activator alone (more effective and less costly) for the treatment of AIS patients with LVO in Colombia.

Acknowledgement

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References

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