

# Letter to the Editor

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## Letter by Kunz et al Regarding Article, “Systematic Review of the Cost and Cost- Effectiveness of Rapid Endovascular Therapy for Acute Ischemic Stroke”

To the Editor:

We read with great interest the article by Sevick et al<sup>1</sup> that systematically reviewed and synthesized the literature on cost-effectiveness of endovascular therapy combined with standard care (EVT+SC) in acute ischemic large-vessel occlusion stroke. The authors conclude that EVT+SC is a cost-effective intervention when adopting willingness-to-pay thresholds of \$50 000 per quality-adjusted life year compared with SC alone. Sevick et al also demonstrate the applicability of this conclusion across several different healthcare systems in Europe and North America.

We would like to highlight and add an important recent aspect about the source of cost data in the United States to this review. In the recently published cost-effectiveness analysis by Shireman et al,<sup>2</sup> the decision analytic model made use of contemporary cost data based on the actual acute costs within the first 90 days on the patient level within the SWIFT-PRIME trial (solitaire with the intention for thrombectomy as primary endovascular treatment for acute ischemic stroke). Moreover, contemporary long-term cost data were retrieved from a large cohort of 2 stroke centers in the United States within the time period of 2010 to 2014. These contemporary cost data are significantly higher ( $\approx 2$ ) than the previous cost data applied in the United States cost-effectiveness analyses on EVT, which were based on estimates from an economic model established in 1996 and consequently inflated to 2015 US dollars.<sup>3,4</sup>

Applying patient outcome data from the SWIFT-PRIME trial resulted in overall cost-savings for the strategy EVT+SC (lifetime costs for EVT+SC, \$215 781; lifetime costs for SC, \$238 984; incremental quality-adjusted life years, 1.74).<sup>2</sup> In fact, applying these contemporary cost data to our own analytic model<sup>4</sup> equally resulted in long-term cost-savings when patients are treated with EVT+SC (lifetime costs for EVT+SC, \$217 044; lifetime costs for SC, \$252 190; incremental quality-adjusted life years, 1.59; thus, EVT+SC is the dominant, ie, cost-saving strategy). Therefore, EVT+SC was not only cost-effective but also led to lifetime cost-savings in the United States setting.

A cost-utility analysis performed in the United Kingdom by Lobotesis et al<sup>5</sup> also implied lifetime cost-savings in patients treated with EVT+SC, which might also be explained by the fact that significantly higher acute and long-term treatment costs were applied than in the previous United States studies. These cost data were also based on more updated cost estimations derived from stroke registries in the United Kingdom. Accordingly, multiple

studies have shown the large impact of in particular long-term cost data on the cost-effectiveness of EVT as demonstrated by sensitivity analyses.<sup>2-5</sup>

Taken together, we would like to convey the message that performing EVT in patients with acute ischemic large-vessel occlusion stroke is not only cost-effective in the United States setting but likely also cost-saving during the patient life time compared with only treating patients with SC. Adopting a healthcare payer perspective, this aspect may, therefore, have fundamental implications on the nationwide implementation of EVT.

### Disclosures

None.

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