

Health Quality Ontario

Mechanical Thrombectomy for Patients With Acute Ischemic Stroke: OHTAC Recommendation

ONTARIO HEALTH TECHNOLOGY ADVISORY COMMITTEE RECOMMENDATION

- OHTAC recommends publicly funding stent retrievers and thromboaspiration devices for mechanical thrombectomy in patients with acute ischemic stroke, in selected stroke centres identified by the Ontario Stroke Network.

BACKGROUND

Acute ischemic stroke is caused by occlusion of a cerebral artery. If a patient who is having a stroke is brought to medical attention promptly, physicians can try to open the occluded blood vessels and re-establish blood flow. The most commonly used strategy is intravenous administration of thrombolytic medications. More recently, studies have suggested that newer mechanical thrombectomy devices, which can be used to remove a blood clot in a cerebral artery via the insertion of a catheter, may improve patient outcomes.

HQO decided to conduct a health technology assessment on newer mechanical thrombectomy devices (retrievable stents and thrombus aspiration devices) and asked OHTAC to make a recommendation regarding public funding.

SUMMARY OF THE HEALTH TECHNOLOGY ASSESSMENT

The health technology assessment completed by HQO is available separately (1). A completed decision determinants framework is included as an appendix to this report. The key findings of the health technology assessment were:

- High quality evidence showed a significant difference in functional independence among patients who received mechanical thrombectomy compared to intravenous thrombolysis.
- Our economic model suggested that after 5 years' follow-up, mechanical thrombectomy was associated with an incremental cost effectiveness ratio of \$11,990 (best estimate) per quality-adjusted life-year gained. The incremental cost effectiveness ratio was robust to a range of plausible assumptions.
- We estimated that the budget impact of adopting mechanical thrombectomy in Ontario would be \$1 to \$2 million.

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OHTAC DELIBERATIONS

The Ontario Health Technology Advisory Committee accepted the findings of the health technology assessment. Given the substantial clinical benefit and the favourable incremental cost-effectiveness ratio, OHTAC decided to recommend in favour of public funding.

Decision Determinants for Mechanical Thrombectomy for Patients With Acute Ischemic Stroke

Decision Criteria	Subcriteria	Decision Determinants Considerations
Overall clinical benefit How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	Effectiveness How effective is the health technology/intervention likely to be (taking into account any variability)?	Compared to intravenous thrombolysis, there was a clinically and significant difference in functional independence among patients with acute ischemic stroke who underwent mechanical thrombectomy
	Safety How safe is the health technology/intervention likely to be?	There was no significant difference between mechanical thrombectomy (with or without intravenous thrombolysis) and intravenous thrombolysis alone for acute ischemic stroke. No other adverse events were examined in this analysis, but there were no safety concerns for any adverse events in the randomized controlled trials reviewed
	Burden of illness What is the likely size of the burden of illness pertaining to this health technology/intervention?	Experts stated that since the technology has demonstrated a beneficial effect in randomized controlled trials, the number of eligible patients has increased. About 10% of all acute ischemic stroke patients may have an intracranial artery occlusion that would be considered for endovascular treatment
	Need How large is the need for this health technology/intervention?	In fiscal year 2012/13, mechanical thrombectomy was performed in 1.1% of acute ischemic stroke patients in Ontario. Between November 2014 and March 2015, the number of endovascular treatment cases at Toronto Western Hospital had already reached 40
Consistency with expected societal and ethical values^a How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?	Societal values How likely is the adoption of the health technology/intervention to be congruent with expected societal values?	Patients may want to receive an intervention that gives them the potential to function in society after a stroke that may have otherwise left them disabled
	Ethical values How likely is the adoption of the health technology/intervention to be congruent with expected ethical values?	Compared to intravenous thrombolysis, mechanical thrombectomy significantly improved functional independence in patients who had an acute ischemic stroke caused by a proximal intracranial occlusion
Value for money How efficient is the health technology likely to be?	Economic evaluation How efficient is the health technology/intervention likely to be?	The best estimate for the incremental cost-effectiveness ratio for mechanical thrombectomy is about \$11,990 per quality-adjusted life-year gained
Feasibility of adoption into health system How feasible is it to adopt the health technology/intervention into the Ontario health care system?	Economic feasibility How economically feasible is the health technology/intervention?	Adopting mechanical thrombectomy would lead to a moderate cost increase: about \$1 million in 2015 at an uptake of 3% (i.e., 200 patients)
	Organizational feasibility How organizationally feasible is it to implement the health technology/intervention?	Since acute ischemic stroke needs to be addressed quickly, with advanced imaging and a team of qualified physicians, there may be some difficulty in implementing the technology in centres other than the 11 comprehensive stroke centres that already exist in Ontario

^aThe anticipated or assumed common ethical and societal values held in regard to the target condition, target population, and/or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

REFERENCES

1. Health Quality Ontario. Mechanical thrombectomy in patients with acute ischemic stroke: a health technology assessment. Ont Health Technol Assess Ser [Internet]. 2016 February;16(4):1-79. Available from: <http://www.hqontario.ca/evidence/publications-and-ohnac-recommendations/ontario-health-technology-assessment-series/hta-mechanical-thrombectomy>.

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About OHTAC

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