Mechanical Thrombectomy for Large Vessel Occlusion Indications

The 2018 American Heart Association/American Stroke Association guidelines for the early management of acute ischemic stroke recommend the use of retrievable stents for mechanical thrombectomy in patients with acute internal carotid artery or middle cerebral artery M1 occlusion that can be treated within 6 h from the onset. For cases of the carotid artery with ipsilateral middle cerebral artery tandem embolization, the operation is more complicated and challenging.

Mechanical thrombectomy with stent retriever is recommended when all criteria met (Level I [1]):

● prestroke modified Rankin Scale (mRS) of 0–1

● causative occlusion of ICA or M1 segment of the middle cerebral artery

● age ≥ 18 years

● NIHSS score ≥ 6

● ASPECTS ≥ 6

● treatment can be initiated (groin puncture) ≤ 6 hours of onset Benefits uncertain, but mechanical thrombectomy may be reasonable for (Level II [2])

● carefully selected patients with causative occlusion of M2 or M3 segment of MCA, or anterior cerebral, vertebral, basilar or posterior cerebral arteries

● or pre stroke mRS > 1, ASPECTS < 6 and causative occlusion of ICA or M1 segment; however, additional randomized trials are needed

● when treatment can be initiated (groin puncture) ≤ 6 hours after onset

---

Mechanical thrombectomy is recommended for selected patients 6–16 hours from onset with large vessel occlusion (LVO) in the anterior circulation who meet other DAWN trial or DEFUSE-3 eligibility criteria (Level I [3]).

Mechanical thrombectomy is reasonable in selected patients 16–24 hours from onset with anterior circulation LVO who meet other DAWN eligibility criteria (Level II [4]).

The goal of thrombectomy should be reperfusion to an mTICI 2b/3 angiographic result (see Modified treatment in cerebral ischemia scale) and to minimize the time to treatment in order to maximize the chances of good functional outcome (Level I [5]). a DAWN [6] & DEFUSE-3 [7] are the only randomized controlled trials that showed the benefit of mechanical thrombectomy > 6 hours from onset. CTP, DW-MRI or MRI perfusion can aid in patient selection when RCT eligibility criteria are strictly met. Trial eligibility can be found online at http://stroke.aha-journals.org/lookup/suppl/doi:10.1161/STR.0000000000000158/-/DC1

DEFUSE 3 used perfusion/core mismatch & maximum core size (< 70 ml) to select patients 6–16 hrs

from onset. Proprietary software (such as iSchemaView's RAPIDTM) can quickly analyze scans to determine the mismatch. DAWN: used clinical/imaging mismatch (the combination of NIHSS score and imaging findings on CTP or DWI-MRI) to select patients 6–24 hrs from onset.

Mechanical Thrombectomy for Internal Carotid Artery Stenosis

Mechanical Thrombectomy for Internal Carotid Artery Stenosis

[1)](), [2)](), [3)](), [4)](), [5)]()

Powers WJ, Rabinstein AA, Ackerson T, et al. 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke. 2018; 49:e46–e110

[6)]()

Nogueira RG, Jadhav AP, Haussen DC, et al. Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct. N Engl J Med. 2018; 378:11–21

[7)]()

Albers GW, Marks MP, Kemp S, et al. Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging. N Engl J Med. 2018; 378:708–718