2nd International Conference on

Brain Disorders and Neurology

March 26-27, 2026 | Paris, France

Volume: 16

Predictors of Functional Recovery Following Mechanical Thrombectomy in Acute Ischemic Stroke

Michael A. Thompson

University of California, USA

Mechanical thrombectomy has substantially improved outcomes for selected patients with acute ischemic stroke caused by large-vessel occlusion; however, functional recovery remains highly variable among patients undergoing successful reperfusion. This study investigated clinical, radiological, and procedural factors associated with favorable functional outcomes following mechanical thrombectomy. Patients presenting with acute large-vessel occlusion stroke and undergoing endovascular thrombectomy were evaluated using baseline neurological status, time from symptom onset to treatment, imaging characteristics, reperfusion grade, procedural parameters, and functional outcome at follow-up. Favorable outcome was assessed using the modified Rankin Scale. Lower baseline stroke severity, smaller ischemic core volume, shorter treatment time, successful reperfusion, and favorable collateral circulation were associated with improved functional recovery. In contrast, greater baseline neurological impairment and extensive established ischemic injury were associated with poorer outcomes despite technically successful reperfusion. These findings highlight the importance of integrating clinical and imaging characteristics when estimating prognosis following thrombectomy. Improved patient selection and rapid treatment pathways may further optimize neurological recovery and reduce disability associated with acute ischemic stroke. A comprehensive prognostic approach may also assist clinicians in counseling patients and planning individualized post-stroke rehabilitation.

Biography

Dr. Michael A. Thompson is a clinician and researcher with an interest in cerebrovascular disease, acute ischemic stroke, and interventional neurology. His research focuses on improving stroke diagnosis, treatment selection, thrombectomy outcomes, and prognostic assessment following acute neurological injury.

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ISSN: 2165-7890