

Impact of Endovascular Treatment on Mortality and Disability in Anterior Circulation Large Vessel Occlusion Stroke

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Description

Endovascular Treatment (EVT) has revolutionized the management of anterior circulation Large Vessel Occlusion (LVO) stroke, significantly improving functional outcomes. However, the impact of EVT on mortality and the extent of disability remains uncertain. This article aims to review the findings of Randomized Controlled Trials (RCTs) comparing EVT with Best Medical Therapy (BMT) for anterior circulation LVO stroke, focusing on mortality and disability outcomes. Since the landmark trials in 2015 demonstrating the efficacy of EVT within 6 hours of symptom onset, the indications for EVT have expanded. Subsequent trials have explored EVT in extended time windows and in patients with large ischemic infarct core. While functional outcomes have consistently improved with EVT, the effect on mortality has been less clear, with conflicting findings across trials.

Mortality

A comprehensive review of RCTs comparing EVT with BMT for anterior circulation LVO stroke was conducted. Trials reporting mortality and disability outcomes, including moderately severe and severe disability, were included. Data from eligible trials were synthesized to assess the impact of EVT on mortality and disability. The review identified several RCTs assessing the effect of EVT on mortality and disability outcomes. While some trials, such as ESCAPE and TENSION, suggested a mortality benefit with EVT, others did not demonstrate a significant reduction in mortality. Additionally, the impact of EVT on disability varied across trials, with some reporting improved functional outcomes and others showing no significant difference compared to BMT. The variability in mortality and disability outcomes observed across RCTs may be attributed to differences in patient populations, treatment protocols, and study methodologies. Factors such as patient selection criteria, time from symptom onset to treatment, and use of advanced imaging techniques

may influence the effectiveness of EVT. Additionally, variations in post-treatment care and rehabilitation strategies could impact long-term outcomes. While EVT has consistently improved functional outcomes in anterior circulation LVO stroke, its effect on mortality remains inconclusive. Further research is needed to elucidate the factors contributing to mortality reduction with EVT and to identify optimal patient selection criteria and treatment protocols. Additionally, standardized outcome measures and longer-term follow-up are necessary to accurately assess the impact of EVT on mortality and disability in LVO stroke patients.

Heterogeneity

Overall, this review highlights the importance of considering both mortality and disability outcomes in evaluating the efficacy of EVT for anterior circulation LVO stroke and underscores the need for further investigation to optimize treatment strategies and improve patient outcomes. Furthermore, the heterogeneity in patient populations, stroke severity, and comorbidities across trials may also contribute to the varying outcomes observed. Additionally, differences in procedural techniques, device selection, and operator experience could influence the effectiveness of EVT and its impact on mortality and disability. Moreover, the evolving landscape of stroke care, including advancements in imaging modalities, thrombectomy devices, and post-procedural management strategies, may also influence outcomes over time. As the field of neurointervention continues to evolve, ongoing research and collaborative efforts are essential to refine treatment protocols and optimize patient outcomes. In summary, while EVT has demonstrated significant benefits in improving functional outcomes for anterior circulation LVO stroke, further studies are warranted to elucidate its impact on mortality and disability. By addressing the limitations and discrepancies in existing trials and leveraging emerging technologies and treatment approaches, clinicians can continue to advance stroke care and enhance patient outcomes.