

**Dr. Ankur Khandelwal**

MD, DM* (AIIMS), DNB, PDCC* (SGPGIMS), MNAMS, AFAMS

*Neuroanaesthesia & Neurocritical Care

Fellowship in Headache & Facial Pain Medicine (World Headache Society)

Associate Professor

Department of Anaesthesiology, Critical Care and Pain Medicine

All India Institute of Medical Sciences (AIIMS), Guwahati, Assam

Stroke Burden

1. In 2021, stroke-related deaths rose to 7.3 million, with disability-adjusted life-years (DALYs) reaching 160.5 million.
2. The World Stroke Organization and the Lancet Neurology Commission report highlights that stroke-related deaths are projected to increase from 6.6 million in 2020 to a staggering 9.7 million by 2050. Additionally, DALYs are anticipated to approach 190 million within the same period.
3. South East Asian countries contribute to over 40% of global stroke-related deaths, with India recording the highest mortality rate.

Golden Hour Intravenous Thrombolysis (IVT)

1. A latest meta-analysis comprising seven studies from 2015-2023 involving 78,826 patients found that golden hour IVT (0-60 minutes; n=1,613) was associated with higher odds of achieving excellent functional outcomes at 90 days (OR 1.40, 95% CI 1.16-1.67) and good functional outcomes at 90 days (OR 1.38, 95% CI 1.13-1.69) compared to IVT given beyond the golden hour (61 minutes to 4.5 hours; n=77,213). The rates of symptomatic ICH and mortality were comparable between the two groups.

Tenecteplase for AIS

1. Tenecteplase, a genetically modified variant of alteplase, is gaining widespread use in the treatment of AIS and received FDA approval in March 2025.
2. A recent meta-analysis that included 11 RCTs comprising a total of 3,788 patients found a similar safety profile between tenecteplase 0.25 mg/kg and alteplase, while showing that tenecteplase is superior to alteplase regarding excellent functional outcome and reduced disability at 3 months.

IVT in Posterior Circulation Stroke (PCS)

1. A latest systematic review and meta-analysis evaluated the outcomes of IVT in PCS. Across 12 studies involving 1,589 patients, IVT was associated with a 63% rate of favorable functional outcomes, 19% mortality, and 4% risk of symptomatic intracranial hemorrhage (sICH). Treatment within the standard time window (<4.5 hours) significantly improved outcomes compared to the extended window (>4.5 hours). Patients treated early had nearly double the chance of favorable outcomes and lower risks of mortality and sICH. Overall, IVT is safe and more effective when administered early in PCS cases.

Alteplase for Posterior Circulation Ischemic Stroke at 4.5 to 24 hours

1. The EXPECTS multicentric RCT conducted across 30 centres in China investigated the safety and efficacy of IVT with alteplase administered 4.5 to 24 hours after PCS onset. Among 234 patients, those receiving alteplase had significantly higher rates of functional independence at 90 days (89.6% vs. 72.6%). The adjusted risk ratio was 1.16 (95% CI: 1.03-1.30; P=0.01). sICH was low in both groups (1.7% vs. 0.9%), and mortality at 90 days was slightly lower in the alteplase group (5.2% vs. 8.5%). The findings suggest alteplase may improve outcomes with acceptable safety in the extended time window.

Endovascular Thrombectomy (EVT) in large ischemic strokes

1. The four recent trials [Rescue-Japan LIMIT Trial (i), ANGEL-ASPECT Trial (ii), SELECT 2 Trial (iii), TENSION Trial (iv)] have shown that EVT with or without IVT even in patients with large ischemic strokes (ASPECTS Score 3-5, average core volume >50 ml) is associated with improved functional outcome, quality of life, and overall survival.

EVT in Medium-Vessel Occlusion (MeVO) ischemic strokes

1. The ESCAPE-MeVO randomized, multicenter trial assessed the efficacy of EVT versus usual care in patients with AIS due to medium-vessel occlusion within 12 hours of symptom onset. Among 530 patients, favorable outcomes (mRS score 0-1 at 90 days) were similar between the EVT (41.6%) and usual-care (43.1%) groups. Mortality was higher in the EVT group (13.3% vs. 8.4%), as was the rate of sICH (5.4% vs. 2.2%). Overall, EVT did not provide better functional outcomes compared to usual care.
2. The DISTAL randomized trial investigated the effectiveness of EVT plus best medical therapy versus best medical therapy alone in patients with medium or distal cerebral artery occlusions. Among 543 participants, no significant difference in 90-day disability levels (measured by mRS) was found between the two groups. Mortality rates and sICH incidences were also similar. Most occlusions were in the M2 and M3 segments of the middle cerebral artery. Overall, EVT did not offer additional benefit over best medical treatment alone in reducing disability or death in these patients.

Standard versus Intensive BP control following EVT

1. A recent meta-analysis published in 2024 which included 4 major RCTs encompassing 1559 participants found that standard BP control (systolic BP ≤ 180 mm Hg) during the first 24 hours post EVT for AIS with LVOs was associated with better functional outcome as compared to intensive BP control (systolic BP < 140 mm Hg). In safety outcomes, there was no significant difference in all-cause mortality, any ICH, symptomatic ICH, parenchymal hematoma type 2, and stroke recurrence.

General Anesthesia (GA) Compared With Non-GA in EVT

1. A recent systematic review and meta-analysis of seven randomized controlled trials (980 patients) compared GA and non-GA techniques during EVT for ischemic stroke. GA was associated with significantly higher recanalization rates (84.6% vs 75.6%) and better functional recovery at 3 months (44.6% vs 36.2%), with no difference in mortality or hemorrhagic complications. The findings support GA as the preferred

approach, with a level A recommendation for improving recanalization and level B for enhancing functional recovery. Stroke care pathways should prioritize GA in EVT procedures.

2. Another meta-analysis of 10 studies assessed outcomes of GA versus conscious sedation/local anesthesia (CS/LA) in patients undergoing EVT for acute PCS. No significant differences were found between the groups in functional independence, 3-month mortality, reperfusion success, or rates of hemorrhagic and respiratory complications. These findings suggest that CS/LA is a viable alternative to GA for EVT in this stroke subtype, offering similar safety and effectiveness.

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