CONFERENCE ABSTRACT

Evolving Evidence Practices in Acute Stroke Care:

Tenecteplase, Extended Thrombolysis Windows, and Wake-Up Stroke Management

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Acute ischemic stroke care is experiencing a transformative shift, driven by emerging evidence supporting optimized thrombolytic strategies, extended treatment windows, and advanced imaging protocols.

Recent clinical trials have demonstrated the non-inferiority—and, in certain aspects, superiority—of tenecteplase over alteplase. With its simplified single bolus administration, enhanced fibrin specificity, and potential for improved recanalization rates, tenecteplase is increasingly recognized as a preferred first-line thrombolytic agent in many treatment algorithms. Additionally, streamlined treatment protocols have contributed to reduced door-in and door-out times for patients requiring transfer to higher-level centers for endovascular stroke interventions.

The conventional 4.5-hour thrombolysis window is also being redefined. Advanced imaging techniques, such as CT perfusion and diffusion-weighted MRI, now enable the identification of salvageable brain tissue beyond standard time constraints. These technologies have facilitated the safe and effective administration of thrombolytics in carefully selected patients, extending the treatment window to as much as 9 hours post-symptom onset. Wake-up stroke, historically excluded from thrombolytic treatment due to uncertainty around symptom onset time, is now being successfully addressed through imaging-based protocols. Landmark trials, including WAKE-UP and EXTEND, have demonstrated the efficacy and safety of IV thrombolysis in patients showing imaging evidence of salvageable brain tissue, even without a known onset time. Further advancements include the integration of innovative tools, such as electronic fundoscopy, which has improved the timely detection and management of central retinal artery occlusion, ensuring faster intervention and better outcomes for these high-risk patients.

Despite these significant advancements, challenges persist in translating evidence into practice. Barriers such as equitable access to advanced imaging, variability in protocol adoption, and healthcare system preparedness continue to impact stroke care delivery.

This presentation will synthesize the latest evidence, share clinical insights, and outline practical strategies derived from the experience of an integrated healthcare system in Northern California, comprising 21 stroke centers. Key focus areas include the adoption of tenecteplase over alteplase, leveraging tele-stroke technology for real-time acute care consultation, extending thrombolysis treatment windows, implementing electronic fundoscopy, and optimizing wake-up stroke management protocols.