Quantitative Analysis of Barriers and Facilitators to Adopting Tenecteplase

Sidarrth Prasad, DaiWai M. Olson, Mehari Gebreyohanns, Erica Jones, Yoonjee Kwon, Nneka L. Ifejika, & The Lone Star Stroke Research Consortium

UT Southwestern Medical Center

Lone Star Stroke Consortium
improving the health of Texans affected by cerebrovascular disease

BACKGROUND

Tenecteplase (TNK) is an emerging treatment for acute ischemic stroke (AIS) being adopted in place of alteplase (ALT). Compared to ALT, TNK has a longer half-life, shorter administration time, lower cost, and similarly high efficacy in treating large vessel occlusion. Nevertheless, there are barriers to TNK adoption as a treatment for AIS.

OBJECTIVES

The objective of this study is to identify barriers and facilitators to TNK implementation at hospitals within the state of Texas and present them in a quantifiable presentation.

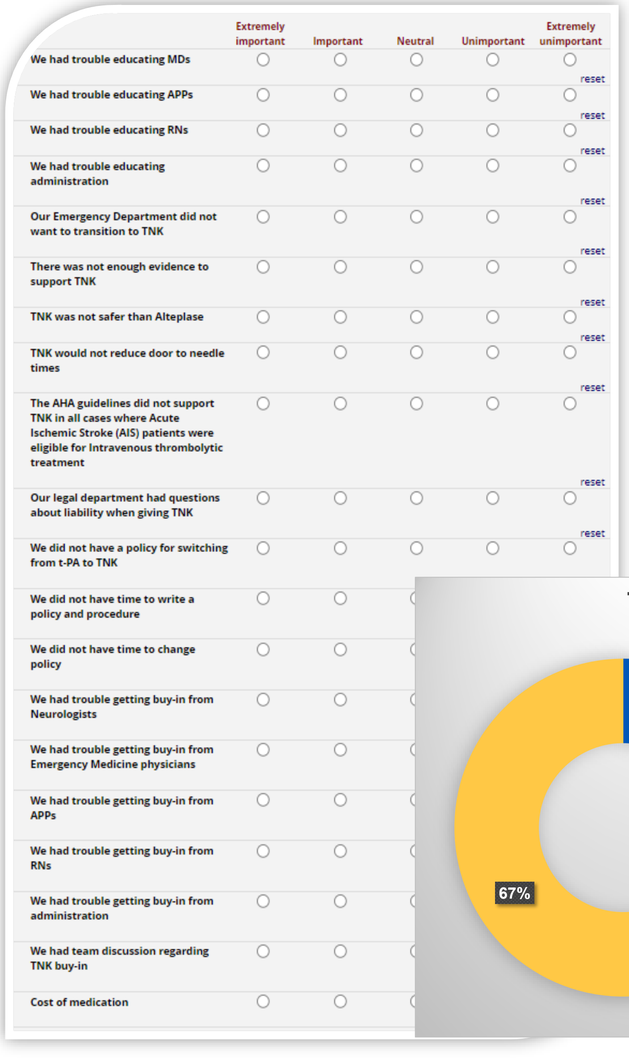
METHODS

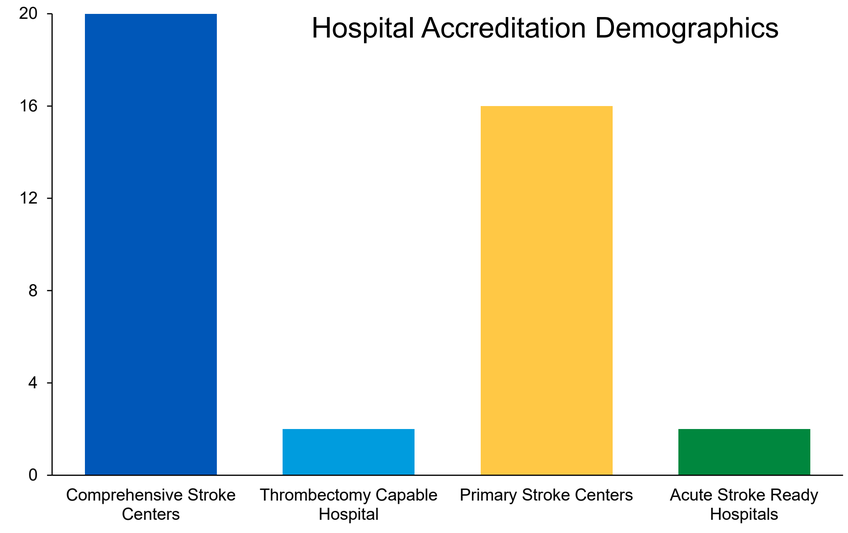
This study examines questionnaire responses from 40 hospitals to examine barriers and facilitators to transition from ALT to TNK. Surveys were done via teleconference with stroke coordinators and physicians associated with the Lone Star Stroke Research Consortium and other regional Texas hospitals. The consortium comprises participants from 6 hub hospitals and 28 spoke hospitals including community-based facilities to Comprehensive Stroke Centers (CSC). Interviews lasting 10-20 minutes were conducted where nominal variables like hospital bed information, stroke information, thrombolytic use, and ordinal variables were recorded utilizing a Likert questionnaire. The participants were blinded to the survey questions to reduce bias.

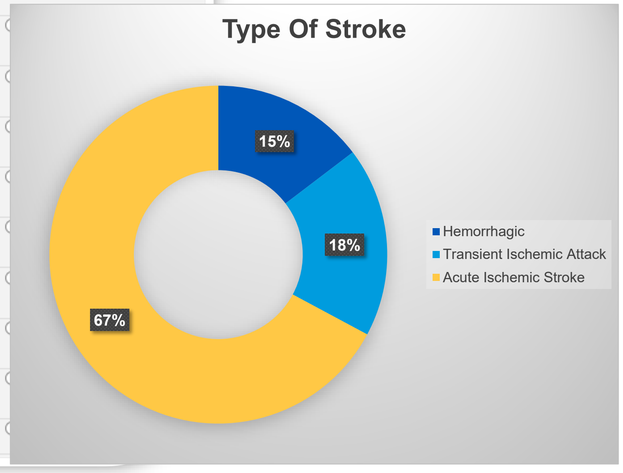
RESULTS

The 40 Texas hospitals had a mean of 40 ED beds, 49 stroke beds, 685 annual stroke admissions out of which 14.5%, were hemorrhagic, 18% Transient Ischemic Attack (TIA) and 66.5% AIS respectively. There were 20 (50%) CSC hospitals, 2 (5%) thrombectomy capable, 16 (40%) primary stroke centers, and 2 (5%) were acute stroke ready hospitals. Compared to hospitals that successfully adopted TNK, non-adopters had significantly different views on the barrier of adequate evidence (P <.05), TNK delivery times (P<.05), and legal issues regarding giving TNK (P<.05). However, hospitals were similar in respect to the barriers of having a TNK policy (P=.094), buy-in from administration (P=.276), the cost of TNK (P=.089), and the willingness of pharmacy to adopt TNK (P=.242).

DATA REPRESENTATION







Similar Barriers to TNK Adoption Faced by Hospitals	P
Constructing new TNK Policy	0.094
Buy-In From Administration	0.276
Cost of TNK	0.089
Willingness of Pharmacy to adopt TNK	0.242

DISCUSSION

- The purpose of Implementation Science is to reduce the time to adoption of new practices as the standard of care in hospital setups
- There will always be barriers to the adoption process which can be overcome by following a set of steps.
- A process flow chart can solve many of these problems.

CONCLUSIONS

There is a generalizable pattern of barriers and facilitators from the perspective of stroke coordinators and physicians. The results will be used to develop a TNK adoption Toolkit.

REFERENCES

1. Campbell BC, Meretoja A, Donnan GA, Davis SM. Twenty-Year History of the Evolution of Stroke Thrombolysis With Intravenous Alteplase to Reduce Long-Term Disability. Stroke. Aug 2015;46(8):2341-6. doi:10.1161/strokeaha.114.007564
2. Barthels D, Das H. Current advances in ischemic stroke research and therapies. Biochim Biophys Acta Mol Basis Dis. Apr 1 2020;1866(4):165260. doi:10.1016/j.bbadis.2018.09.012
3. Langhorne P, Coupar F, Pollock A. Motor recovery after stroke: a systematic review. Lancet Neurol. Aug 2009;8(8):741-54. doi:10.1016/s1474-4422(09)70150-4
4. Kleindorfer D, Broderick J, Demaerschalk B, Saver J. Cost of Alteplase Has More Than Doubled Over the Past Decade. Stroke. Jul 2017;48(7):2000-2002. doi:10.1161/strokeaha.116.015822
5. Duncan PW, Bushnell C, Sissine M, et al. Comprehensive Stroke Care and Outcomes: Time for a Paradigm Shift. Stroke. Jan 2021;52(1):385-393. doi:10.1161/strokeaha.120.029678