

The Melbourne Mobile Stroke Unit Tenecteplase versus Alteplase for Stroke Thrombolysis Evaluation in the Ambulance Trial

TASTE-A: a randomised clinical trial

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Introduction

- Mobile Stroke Units (MSU) equipped with a CT-scanner reduce time to thrombolytic treatment and improve patient outcomes.
 - The Melbourne MSU is staffed by a neurologist, a stroke nurse, a radiographer and two paramedics.
- There is increasing evidence for the use of tenecteplase as a front-line thrombolytic agent for acute ischemic stroke, for multiple reasons:
 - High fibrin specificity
 - Improved PAI-1 resistance
 - Can be administered as a single bolus allowing rapid treatment, ideal for the MSU.
- We sought to test the hypothesis that ultra-early pre-hospital treatment with tenecteplase on an MSU would result in superior early reperfusion compared to alteplase



Primary outcome

- The primary outcome of the CT-perfusion lesion volume, was significantly smaller in patients treated with tenecteplase.
 - Tenecteplase median 12mL, Q1, Q3: 3, 28mL
 - Alteplase median 35mL Q1, Q3: 18, 76mL
 - Adjusted Incidence Rate Ratio 0.55, 95% CI: 0.37, 0.81; **p=0.003**.
- The results were maintained in the pre-specified robustness analysis.

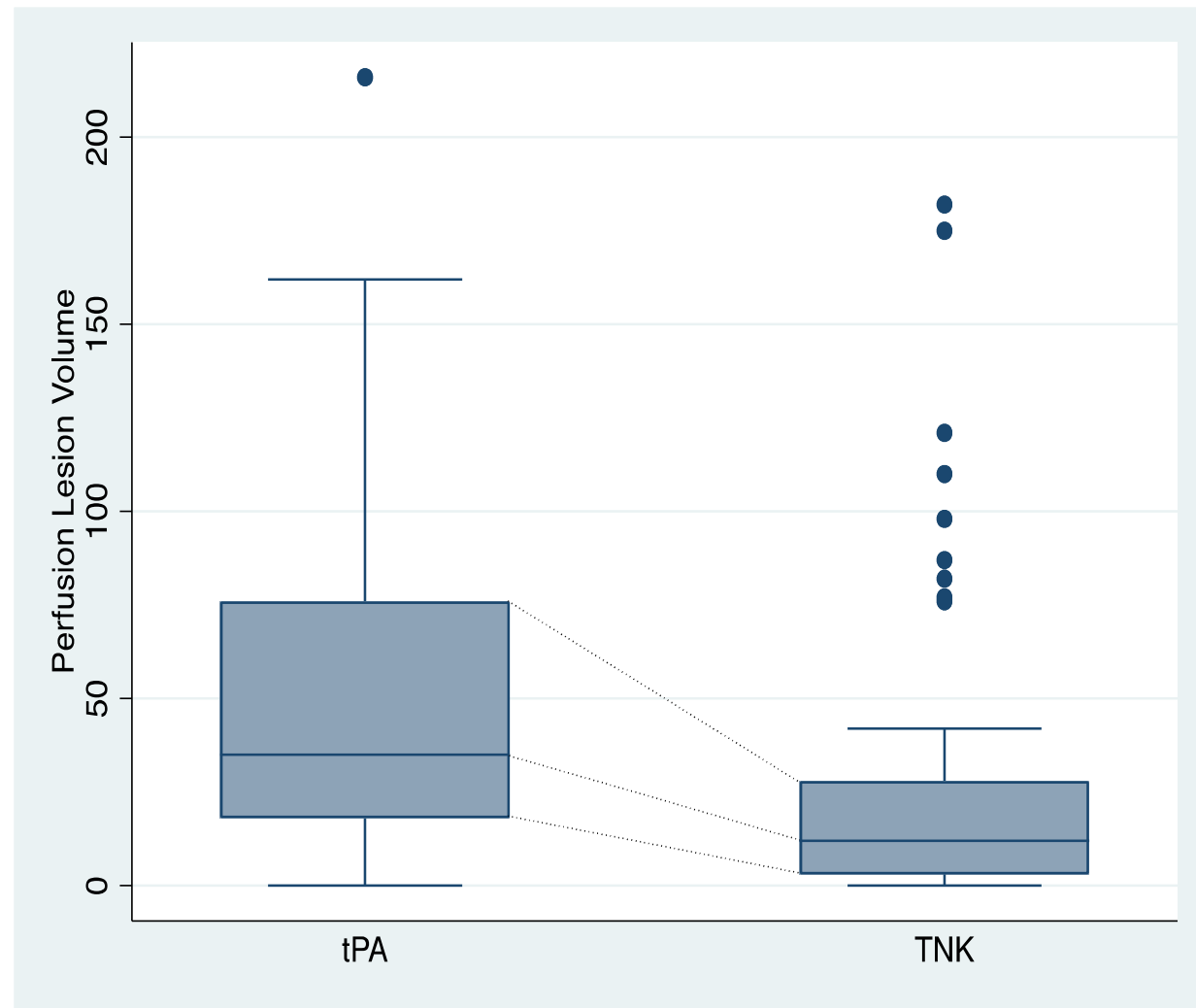


Figure 1. Perfusion lesion volume on Computed Tomography Perfusion imaging performed on arrival at the receiving hospital by treatment group

Secondary outcomes

Variable	tPA group (N = 49)	TNK group (N = 55)	Effect Size* (95% CI)	p-value
Reduction in NIHSS between pre-treatment and on arrival at the receiving hospital, median (Q1, Q3)	0 (0, 3)	1 (0, 6)	1 (0.11, 1.9)	0.03
Time from MSU arrival to MSU imaging (min), median (Q1, Q3)	16 (14, 21)	N = 54 16 (13, 20)	-0.01 (-2.98, 2.95)	0.99
Time from MSU imaging to treatment (min), median (Q1, Q3)	19 (14.5, 26.8)	13 (9.4, 18.2)	-6.1 (-9.6, -2.6)	0.001
Time from MSU arrival to treatment (min), median (Q1, Q3)	37 (32, 43)	N = 54 30 (25, 38)	-7 (-11.9, -2.11)	0.01
Time from MSU arrival to ED arrival (min), median (Q1, Q3)	64 (59, 77)	N = 54 62.5 (54, 70)	-1 (-7.8, 5.8)	0.77

In the first pre-hospital randomised controlled trial of thrombolytic for ischemic stroke patients, treatment with intravenous tenecteplase on the Melbourne Mobile Stroke Unit resulted in:

- Substantially smaller post-treatment perfusion lesion,
- Greater ultra-early clinical recovery, and was
- Faster initiation of treatment compared to patients treated with intravenous alteplase
- No safety concerns
- No differences in the incidence of symptomatic cerebral haemorrhage
- No differences in the incidence of death or severe disability

