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.
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

<table>
<thead>
<tr>
<th>Variable</th>
<th>tPA group (N = 49)</th>
<th>TNK group (N = 55)</th>
<th>Effect Size* (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in NIHSS between pre-treatment and on arrival at the receiving hospital, median (Q1, Q3)</td>
<td>0 (0, 3)</td>
<td>1 (0, 6)</td>
<td>1 (0·11, 1·9)</td>
<td>0·03</td>
</tr>
<tr>
<td>Time from MSU arrival to MSU imaging (min), median (Q1, Q3)</td>
<td>16 (14, 21)</td>
<td>N = 54</td>
<td>-0·01 (-2·98, 2·95)</td>
<td>0·99</td>
</tr>
<tr>
<td>Time from MSU imaging to treatment (min), median (Q1, Q3)</td>
<td>19 (14·5, 26·8)</td>
<td>13 (9·4, 18·2)</td>
<td>-6·1 (-9·6, -2·6)</td>
<td>0·001</td>
</tr>
<tr>
<td>Time from MSU arrival to treatment (min), median (Q1, Q3)</td>
<td>37 (32, 43)</td>
<td>N = 54</td>
<td>-7 (-11·9, -2·11)</td>
<td>0·01</td>
</tr>
<tr>
<td>Time from MSU arrival to ED arrival (min), median (Q1, Q3)</td>
<td>64 (59, 77)</td>
<td>N = 54</td>
<td>-1 (-7·8, 5·8)</td>
<td>0·77</td>
</tr>
</tbody>
</table>
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