DAWN STUDY- MAIN RESULTS

DWI or CTP Assessment with Clinical Mismatch in the Triage of Wake-Up and Late Presenting Strokes Undergoing Neurointervention with Trevo

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Director UPMC Center for Neuroendovascular Therapy
University of Pittsburgh Medical Center
Disclosures

- Drs. Jovin and Nogueira’s DAWN-related travel expenses were covered by Stryker Neurovascular for the duration of trial
- Other steering committee members, DSMB members, CEC members, and core lab report consulting fees for their work in this trial.
# Study organization

## Study principal investigators
- Tudor G. Jovin, MD
- Raul Nogueira, MD

## Steering committee
- Blaise Baxter, MD
- Prof. Alain Bonafe
- Anthony Furlan, MD
- Rishi Gupta, MD
- Prof. Olav Jansen
- Demetrius Lopes, MD
- Vitor Pereira, MD
- Marc Ribo, MD
- Jeffrey Saver, MD

## Core lab
- Neurovascular Research Imaging Core
- David Liebeskind, MD

## Data Safety Monitoring Board
- Wade Smith, MD - chair
- Daryl Gress, MD
- Steven Hetts, MD
- Roger Lewis, MD, PhD

## Clinical Events Committee (CEC)
- Timothy Malisch, MD
- Ansaar Rai, MD
- Kevin Sheth, MD

## Independent Statisticians
- Berry Consultants
- Scott Berry PhD
- Todd Graves PhD
Study background

- Current evidence suggests that benefit of thrombectomy rapidly decays over time and may no longer exist beyond 7.3 hours from stroke onset (or TLSW)\(^1\)

- Indeed, the current AHA and ESO guidelines define a rigid therapeutic window of 6 hours as level 1a evidence\(^2,3\)

- This treatment paradigm disregards individual variations in compensatory mechanisms for ischemia led by but not restricted to collateral flow.

- Growing evidence supports a physiologic rather than a purely time based approach where patients with Clinical-Core Mismatch (e.g. significant clinical deficits but still limited infarct size) may benefit from reperfusion regardless of time to treatment.\(^4\)

- Wake-up strokes, strokes with unclear onset time, and witnessed late presenting strokes (> 6 hours) represent a large proportion of LVOS (~40%) yet no proven treatment options exist for this population.

Fast Versus Slow Progressors of Infarct Growth in Large Vessel Occlusion Stroke
Clinical and Research Implications

Marcelo Rocha, MD, PhD; Tudor G. Jovin, MD

Rocha M, Stroke 2017
SHOULD WE TREAT PATIENTS WITH LVO AND MISMATCH BEYOND 6 HOURS WITH NO TIME LIMIT ???
88 year old woman with L M1 occlusion, TLSW 22 hours, NIHSS 21, no intervention.
mRS at 3 weeks: 3

Baseline MRI/MRA – NIHSS 21

MCA occlusion

MCA partially recanalized

4 day MRI/MRA – NIHSS 11
88 year old woman with R M1 occlusion, TLSW 20 hours, NIHSS 17, no intervention mRS at 30 days 1

Baseline MRI/MRA

Follow-up MRI/MRA at 24 hours (NIHSS 17) – no infarct growth and partial recanalization
61 year old man with M1 occlusion, 1LSW 14 hours, NIHSS 21, no intervention
3 months mRS 4

Baseline MRI/MRA/CTP

MRI/MRA at 24 hours, NIHSS 20

MRI at day 5, NIHSS 18
Study Objective

To demonstrate superior functional outcomes at 90 days with Trevo plus medical management compared to medical management alone in appropriately selected patients treated six to 24 hours after last seen well

Study Design

<table>
<thead>
<tr>
<th>Study design</th>
<th>Global, multi-center, adaptive, population enrichment, prospective, randomized, open, blinded endpoint (PROBE), controlled FDA IDE trial</th>
</tr>
</thead>
</table>
| Patient population | • Acute ischemic stroke (AIS) with large vessel occlusion  
• Able to be randomized between six to 24 hours after time last known well  
• Clinical imaging mismatch (CIM) defined by age, core, and NIHSS |
| Target vessel | Intracranial ICA, M1 segment of the MCA |
| Randomization | 1:1 Trevo + medical management vs. medical management alone |
| Sites | Up to 50 sites worldwide (30 US and 20 international) |
| Sample size | 500 maximum subjects: 250 in the treatment arm and 250 in the control arm. Minimum sample size is 150 subjects. |
| Follow-up | 24 hours (-6/+24), day 5-7/discharge, day 30 (± 14), and day 90 (± 14) |

Jovin et al International Journal of Stroke 2017
**Study Methods: Workflow**

6-24h

- Age ≥18
- NIHSS ≥10
- Pre-mRS 0-1
- TLSW to Randomization: 6-24h

**NCCT/DWI:**
<1/3 MCA Territory

**CTA/MRA:**
ICA-T and/or MCA-M1 (Tandem Occlusions Allowed)

**RAPID CTP/DWI CIM:**

A. ≥80 y/o:
   1. NIHSS ≥10 + core <21cc

B. <80 y/o:
   2. NIHSS ≥10 + core <31cc
   3. NIHSS ≥20 + core <51cc

1:1 Randomization:
- CIM subgroup
- ICA-T vs M1
- 6-12 vs 12-24h

**Control**

- U-W mRS - mRS 0-2

**90-day mRS**

**Thrombectomy**

Informed Consent

## Study endpoints

<table>
<thead>
<tr>
<th>Primary endpoint</th>
<th>90-day disability assessed by the modified Rankin scale (mRS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Assessed via <strong>Utility-Weighted mRS</strong></td>
</tr>
<tr>
<td></td>
<td>• Nested <strong>Dichotomous mRS 0-2</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary endpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>• “Early response” at day 5-7/discharge, defined as a NIHSS drop of ≥10 points from baseline or NIHSS score 0 or 1</td>
</tr>
<tr>
<td>• All cause mortality rates</td>
</tr>
<tr>
<td>• Median final infarct size at 24 (-6/+24) hours from randomization</td>
</tr>
<tr>
<td>• Revascularization rates at 24 (-6/+24) hours from randomization</td>
</tr>
<tr>
<td>• Treatment arm: reperfusion rates post device and post procedure by angiography core lab measurement of modified TICI &gt; 2b</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary safety endpoint</th>
<th><strong>Stroke related mortality at 90 days</strong></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Secondary safety endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Incidence of SICH, by ECASS III definition, within 24 (-6/+24) hours post randomization</td>
</tr>
<tr>
<td>• Incidence of neurological deterioration from baseline NIHSS score through day 5-7/discharge</td>
</tr>
<tr>
<td>• Incidence of procedure-related and device-related serious adverse events through 24 (-6/+24) hours post randomization</td>
</tr>
</tbody>
</table>

DAWN Trial utility weighted mRS and enrichment

**Utility weighted mRS**
- Better captures health state transitions across the entire spectrum
- Patient-centered outcomes analysis

<table>
<thead>
<tr>
<th>mRS</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>10</td>
<td>9.1</td>
<td>7.6</td>
<td>6.5</td>
<td>3.3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Enrichment**
- Designed to fine tune the patient population based on core infarct size
- Identify subgroups experiencing clinical benefit

0-50 cc → 0-45 cc → 0-40 cc → 0-35 cc → 0-30 cc

Origin of the Utility – Weighted mRS

Chasnaianunkul et al., Stroke. 2015;46:2238-2243.
### Key statistical operating characteristics: Bayesian approach

<table>
<thead>
<tr>
<th>First futility/enrichment analysis at 150 subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>First efficacy analysis at 200 subjects</td>
</tr>
<tr>
<td>Interim analysis after every 50 subjects up to 500 max</td>
</tr>
</tbody>
</table>

- The threshold for declaring success depends on the degree to which the population has been enriched.

- If there is no enrichment and the probability of a treatment effect is $\geq 0.986$ the intervention is deemed efficacious.

- Similar to a “traditional” study design one-sided test at the $\alpha=0.014$ level.

TRIAL ENROLLMENT RATE AND TERMINATION

**Site Status**

| Sites Qualified | Contracts Executed | 36 | 31 |
| Sites Initiated | Sites Activated to Enroll | 30 | 30 |
| IRB/EC Approvals | Subjects Enrolled | 31 | 206 |

**Actual / Projected Enrollment**

*Boundary for first enrichment not crossed.*

Enrollment stopped at DSMB recommendation.
Results

- CBF (≤30%) volume: 2.0 ml
- Perfusion (Tmax>6.0s) volume: 100.0 ml
- Mismatch volume: 98.0 ml
- Mismatch ratio: 50.0

*This image is not intended for primary diagnosis*
Randomization and follow-up

Trevo + MM
N=107

Randomized
(n=206)

Stratification by clinical core mismatch, time, and occlusion location

ITT cohort

MM
N=99

Final FU available
106 90-day complete
1 withdrew after 30 day visit*

Final FU available
96 90-day complete
2 LTFU after 30 days*
1 withdrew after 30 day visit*

* 30 day mRS carried forward in 4 pts
100% follow-up to 30 days
## Demographics

<table>
<thead>
<tr>
<th></th>
<th>Treatment arm N=107</th>
<th>Control arm N=99</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years) (median, [IQR])</strong></td>
<td>72.0 [60.0-79.0]</td>
<td>73.0 [61.0-82.0]</td>
<td>0.51</td>
</tr>
<tr>
<td><strong>NIHSS, baseline (median, [IQR])</strong></td>
<td>17 [13-21]</td>
<td>17 [14-21]</td>
<td>0.64</td>
</tr>
<tr>
<td><strong>Sex, male (%)</strong></td>
<td>39.3%</td>
<td>51.5%</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>66.0%</td>
<td>63.6%</td>
<td>0.77</td>
</tr>
<tr>
<td>Black or African American</td>
<td>21.7%</td>
<td>15.2%</td>
<td>0.28</td>
</tr>
<tr>
<td>Other*</td>
<td>12.3%</td>
<td>21.2%</td>
<td>0.09</td>
</tr>
<tr>
<td>IV-tPA administered</td>
<td>4.7%</td>
<td>13.1%</td>
<td>0.05</td>
</tr>
</tbody>
</table>

* Inclusive of Asians and International sites that did not disclose race per local authorities
### Medical history

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment arm N=107</th>
<th>Control arm N=99</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>79.0%</td>
<td>75.8%</td>
<td>0.62</td>
</tr>
<tr>
<td>Heart failure</td>
<td>18.8%</td>
<td>15.5%</td>
<td>0.58</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>31.4%</td>
<td>24.0%</td>
<td>0.27</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>41.3%</td>
<td>25.0%</td>
<td>0.02</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>25.2%</td>
<td>31.6%</td>
<td>0.35</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>58.8%</td>
<td>59.4%</td>
<td>1.00</td>
</tr>
<tr>
<td>Current smoker (within last year)</td>
<td>20.4%</td>
<td>23.5%</td>
<td>0.61</td>
</tr>
<tr>
<td>Previous ischemic stroke</td>
<td>12.1%</td>
<td>11.1%</td>
<td>1.00</td>
</tr>
</tbody>
</table>
## Baseline imaging characteristics

<table>
<thead>
<tr>
<th></th>
<th>Treatment arm N=107</th>
<th>Control arm N=99</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifying infarct volume by <strong>site</strong> RAPID (median, [IQR])</td>
<td>7.6 [2.0-18.0]</td>
<td>8.9 [3.0-18.1]</td>
<td>0.99</td>
</tr>
<tr>
<td>Qualifying RAPID volume obtained by CTP– no. (%)</td>
<td>67 (62.6)</td>
<td>64 (64.6)</td>
<td></td>
</tr>
<tr>
<td>Qualifying RAPID volume obtained by DWI MRI– no. (%)</td>
<td>40 (37.4)</td>
<td>35 (35.4)</td>
<td></td>
</tr>
<tr>
<td>Patients with baseline MRI (%)*</td>
<td>43.0%</td>
<td>37.8%</td>
<td>0.48</td>
</tr>
<tr>
<td>Patients with baseline CT/CTA/CTP(%)*</td>
<td>76.6%</td>
<td>76.5%</td>
<td>1.0</td>
</tr>
</tbody>
</table>

* Patients may have both CTP and MRI
## Baseline occlusion locations – core lab adjudicated

<table>
<thead>
<tr>
<th>Intracranial occlusion location – no. (%) (Core Lab assessment)</th>
<th>Treatment arm N=107</th>
<th>Control arm N=99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracranial ICA</td>
<td>22 (20.6)</td>
<td>19 (19.2)</td>
</tr>
<tr>
<td>M1 middle cerebral artery segment</td>
<td>79 (73.8)</td>
<td>74 (74.7)</td>
</tr>
<tr>
<td>M2 middle cerebral artery segment</td>
<td>3 (2.8)</td>
<td>3 (3.0%)</td>
</tr>
<tr>
<td>Cervical carotid stenosis – no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-50%</td>
<td>80 (74.8)</td>
<td>72 (72.7)</td>
</tr>
<tr>
<td>51-99%</td>
<td>12 (11.2)</td>
<td>14 (14.1)</td>
</tr>
<tr>
<td>100% (occlusion)</td>
<td>15 (14.0)</td>
<td>13 (13.1)</td>
</tr>
</tbody>
</table>
## Patient presentation

<table>
<thead>
<tr>
<th>Time since time last seen well to randomization (hrs)</th>
<th>Treatment arm N=107</th>
<th>Control arm N=99</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ± SD</td>
<td>13.4 ± 4.1</td>
<td>13.0 ± 4.5</td>
<td>0.53</td>
</tr>
<tr>
<td>Median (Q1, Q3)</td>
<td>12.2 (10.2, 16.0)</td>
<td>13.2 (9.4, 15.8)</td>
<td></td>
</tr>
<tr>
<td>Range (min, max)</td>
<td>(6.1, 23.5)</td>
<td>(6.4, 23.9)</td>
<td></td>
</tr>
</tbody>
</table>

### Stroke sub-population

<table>
<thead>
<tr>
<th></th>
<th>Treatment arm</th>
<th>Control arm</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake up stroke</td>
<td>64.5%</td>
<td>47.5%</td>
<td>0.01</td>
</tr>
<tr>
<td>Witnessed stroke</td>
<td>10.3%</td>
<td>14.1%</td>
<td>0.52</td>
</tr>
<tr>
<td>Un-witnessed stroke</td>
<td>25.2%</td>
<td>38.4%</td>
<td>0.05</td>
</tr>
<tr>
<td>Treatment arm</td>
<td>N=107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Procedure duration (minutes) (median IQR)</strong></td>
<td>56.0 [33.0-90.0]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of Trevo device passes (median IQR)</strong></td>
<td>2.0 [1.0-3.0]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment arm</th>
<th>N=107</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core lab adjudicated TICIs</strong></td>
<td></td>
</tr>
<tr>
<td>Post procedure mTICI ≥ 2B</td>
<td>84.0%</td>
</tr>
<tr>
<td>Post procedure oTICI ≥ 2B*</td>
<td>72.6%</td>
</tr>
<tr>
<td>Post procedure TICI 3</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

*Protocol advised to stop after oTICI 2b achieved
CEC adjudicated safety outcomes

- **sICH rate**: Trevo 4.8%, MM 3.2%  
  P = 0.3

- **Neurological deterioration**: Trevo 10.5%, MM 22.1%  
  P < 0.01

- **Stroke related mortality**: Trevo 13.0%, MM 18.0%  
  P = 0.6
## Co-primary endpoints

<table>
<thead>
<tr>
<th></th>
<th>Trevo</th>
<th>MM</th>
<th>Treatment benefit (95% CI)</th>
<th>Bayesian probability of superiority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 90 weighted mRS</td>
<td>5.5 ± 3.8</td>
<td>3.4 ± 3.1</td>
<td>2.1 (1.20, 3.12)</td>
<td>&gt;0.9999*</td>
</tr>
<tr>
<td>Day 90 mRS (0-2)</td>
<td>48.6%</td>
<td>13.1%</td>
<td>35.5% (23.9%, 47.0%)</td>
<td>&gt;0.9999*</td>
</tr>
</tbody>
</table>

**NNT for 90-day functional independence = 2.8**

*Similar to p<0.0001*
Primary outcome

73% relative risk reduction of dependency in ADL’s
NNT for any lower disability 2.0

Probability of superiority >0.9999
90 Day mRS 0-2 by TLSW to Randomization

<table>
<thead>
<tr>
<th></th>
<th>Trevo</th>
<th>MM</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-12h</td>
<td>55.1%</td>
<td>20.0%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>12-24h</td>
<td>43.1%</td>
<td>7.4%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

![Graph showing estimated probability over time for Trevo and MM treatments.](image-url)
Secondary effectiveness endpoints

24 hour revascularization rates

- Trevo: 76.6%
- MM: 38.4%

Relative improvement: 100%
P < 0.001

All cause mortality

- Trevo: 18.7%
- MM: 18.2%
P = 1.0
Conclusions

• Thrombectomy with Trevo in DAWN-eligible patients is associated with improvement in clinical outcomes across the entire range of utility weighted mRS and with higher rates of functional independence (mRS 0-2) compared to standard medical therapy (48.6% vs 13.1%, probability of superiority >0.999, NNT = 2.8)

• For every 100 patients treated with endovascular therapy, 49 will have a less disabled outcome as a result of treatment, including 36 who will be functionally independent

• The treatment effect size in DAWN is the highest out of any stroke trials to date and suggests that the presence of Clinical-Core Mismatch is a critical predictor of treatment effect independent of time to presentation

• Treatment effect persisted throughout 24 hours from TLKW; however, earlier treated patients do better

• Thrombectomy with the Trevo device in patients presenting beyond 6 hours of TLSW had comparable safety profile to thrombectomy performed within 6 hours
Diffusion-weighted imaging or computerized tomography perfusion assessment with clinical mismatch in the triage of wake up and late presenting strokes undergoing neurointervention with Trevo (DAWN) trial methods

Tudor G Jovin¹, Jeffrey L Saver², Marc Ribo³, Vitor Pereira⁴, Anthony Furlan⁵, Alain Bonafe⁶, Blaise Baxter⁷, Rishi Gupta⁸, Demetrius Lopes⁹, Olav Jansen¹⁰, Wade Smith¹¹, Daryl Gress¹², Steven Hetts¹³, Roger J Lewis¹⁴, Ryan Shields¹⁵, Scott M Berry¹⁶, Todd L Graves¹⁶, Tim Malisch¹⁷, Ansaar Rai¹⁸, Kevin N Sheth¹⁹, David S Liebeskind²⁰ and Raul G Nogueira²⁰

DAWN may have profound implications for treatment of stroke due to LVO, because it would validate the physiological (rather than chronological) approach to patient selection for endovascular therapy. It will also allow many more patients with LVO stroke to be treated with mechanical embolectomy, especially in countries outside of the US, Australia, Canada, and Western Europe, where due to inadequate development for stroke pre-hospital systems of care, a large proportion of patients with LVO stroke present to endovascular centers outside 6 h from TLSW.
Enrolling Centers

North America
1. Abington Memorial, PA
2. Baptist Jacksonville, FL
3. Buffalo, NY
4. Capital Health Trenton, NJ
5. Christiana Delaware, DE
6. CPMC San Francisco, CA
7. Erlanger, Chattanooga, TN
8. Florida Hospital, FL
9. Grady Atlanta, GA
10. JFK, Edison, NJ
11. Kaiser LA
12. Kennestone, Marietta GA
13. KUMC Kansas City, KA
14. Lexington Memorial, KY
15. Riverside, OH
16. Rush, IL
17. St. Joseph Mercy MI
18. Texas Stroke Institute TX
19. Toronto Western, ON
20. UCLA, CA

Europe
21. UH Cleveland, OH
22. University of Miami, FL
23. UPMC, PA
24. Valley Baptist, TX
25. Lexington (PI: Givens, ATE 08/29/16) - 0 SPM
26. Bellvitge Barcelona
27. Germans Trias Barcelona
28. Gui de Chauliac Montpellier
29. Hopital Purpan Toulouse
30. Hospital Clinic Barcelona
31. Vall d’Hebron Barcelona

Australia
32. Royal Melbourne Hospital
Real-World Applicability of Endovascular Therapy in ICA and/or MCA-M1 Occlusions Treated in the 6-24-hour Window: Subgroup Analysis of the Prospective Trevo Registry


On behalf of the Trevo Retriever Registry Investigators
Methods

- Consecutive Trevo Registry patients fulfilling the basic DAWN trial criteria
  - Baseline NIHSS ≥ 10
  - Intracranial ICA and/or MCA-M1 occlusion
  - Pre-morbid mRS 0-1

- Categorized according to their time-from-last-seen-well to arterial puncture as:
  - Early (≤6 hours)
    vs.
  - Late (6-24 hours)

- Univariate analyses were performed for group comparisons.

- Multivariate analysis was performed to identify the predictors of good outcomes (pre-specified)
mRS Distribution

57.5% Functional Independence at 90 days

≤ 6 HOURS TLSW
- mRS 0: 20.9%
- mRS 1: 20.3%
- mRS 2: 16.4%
- mRS 3: 13.4%
- mRS 4: 14.2%
- mRS 5: 3.7%
- mRS 6: 11.2%

P = 0.09

>6 HOURS TLSW
- mRS 0: 11.1%
- mRS 1: 22.7%
- mRS 2: 16.4%
- mRS 3: 17.4%
- mRS 4: 15.9%
- mRS 5: 5.8%
- mRS 6: 10.6%

50.2% Functional Independence at 90 days
DEFUSE 3: NIH-funded, prospective, randomized, multi-center, adaptive, blinded endpoint trial

- Paradigm shift
  - From time-based selection to imaging-based selection

- Target population
  - Anterior circulation ischemic stroke; ICA or M1 occlusions (CTA/MRA)
  - Salvageable tissue on CT perfusion or MR diffusion/perfusion
  - Endovascular therapy within 6-16 hours of last known well

- Design
  - 1:1 randomization; standard medical therapy vs. endovascular
  - 45 sites
Neuroimaging Inclusion Criteria

MRA / CTA reveals
- M1 segment MCA occlusion, or
- ICA occlusion (cervical or intracranial; with or without tandem MCA lesions)

AND

Target Mismatch Profile on CT perfusion or MRI (RAPID)
- Ischemic core volume < 70 mL
- Mismatch ratio > 1.8
- Mismatch volume ≥ 15 mL
HOW MANY SYTROKE PATIENTS QUALIFY ??

APPLICATION OF DAWN CRITERIA TO CONSECUTIVE ACUTE ISCHEMIC STROKE PATIENTS DURING DAWN TRIAL PERIOD AT UPMC PRESBYTERIAN HOSPITAL

Acute Ischemic Strokes in DAWN Trial Period (November 2014 to February 2017) 2667

- LKW to Arrival Time 6-24h 792 (30%)
- NIHSS Score ≥10 890 (33%)

  - 6-24h and NIHSS score ≥10 298 (11%)
    - Presence of Proximal Anterior Large Vessel Occlusion 155 (6%)
      - Baseline mRS 0-1 & Clinical Core Mismatch 45 (1.7%)

APPLICATION OF DAWN AND DEFUSE 3 CRITERIA TO CONSECUTIVE ACUTE ISCHEMIC STROKE PATIENTS DURING THE DAWN TRIAL PERIOD AT UPMC PRESBYTERIAN UNIVERSITY HOSPITAL

Acute Ischemic Strokes in DAWN Trial Period (November 2014 to February 2017) 2667

- LKW to Arrival Time 6-24h 792 (30%)
- NIHSS Score ≥6 1242 (47%)

  - 6-24h and NIHSS score ≥6 407 (15%)
    - Presence of Proximal Anterior Large Vessel Occlusion 155 (6%)
      - Baseline mRS 0-2 & DAWN-DEFUSE 3 Imaging Criteria 47.70 (1.7-2.8%)
It's a new DAWN!

Thank you

to all DAWN investigators, patients and families