ESC Heart & Brain Workshop

IV Thrombolysis

Natan Bornstein & Marta Rubiera
Stroke Neurologists

Supported by Bayer, Bristol-Myers Squibb and Pfizer Alliance, Boehringer Ingelheim, Daiichi Sankyo Europe GmbH and Medtronic in the form of educational grants. The scientific programme has not been influenced in any way by its sponsors.
57 years-old female, hypertensive, who presents with somnolence, deep right hemiplegia and severe aphasia...

WHEN? Witnessed, 2.5 hours ago...

WHAT? RACE 8 TACI

WHY NOT?

EMS

Stroke neurologist
Design and Validation of a Prehospital Stroke Scale to Predict Large Arterial Occlusion
The Rapid Arterial Occlusion Evaluation Scale

Natalia Pérez de la Ossa, MD, PhD; David Carrera, MD; Montse Gorchs, BD; Marisol Querol, BD; Mònica Millán, MD, PhD; Meritxell Gomis, MD, PhD; Laura Dorado, MD, PhD; Elena López-Cancio, MD, PhD; María Hernández-Pérez, MD; Vicente Chicharro, MD; Xavier Escalada, MD; Xavier Jiménez, MD, PhD; Antoni Dávalos, MD, PhD

Probability of Large Vessel Occlusion
57 years-old female, hypertensive, who presents with somnolence, deep right hemiplegia and severe aphasia.

WHEN? Witnessed, 2.5 hours ago...

WHAT? RACE 9 TACI

WHY NOT? No contraindications

BP 160/98 Glc 122

Coagulation /platelets ??
Predicting abnormal coagulation in ischemic stroke: Reducing delay in rt-PA use

Abstract—Normal prothrombin time (PT) and partial thromboplastin time (PTT) are recommended for administration of recombinant tissue-plasminogen activator (rt-PA) in stroke, but waiting for results can delay use. We examined the charts of 365 stroke patients to assess predetermined risk factors associated with elevated PT/PTT. Elevated PT/PTT can be predicted in patients taking warfarin or heparin/heparinoid or on hemodialysis, according to emergency department triage, with 100% sensitivity and 94.7% specificity. These results could be applied to rt-PA candidates and reduce potential delays.

Rebecca F. Gottesman, MD; Janice Alt, RN; Robert J. Wityk, MD; and Rafael

3. A limited number of hematologic, coagulation, and biochemistry tests are recommended during the initial emergency evaluation, and only the assessment of blood glucose must precede the initiation of intravenous rtPA (Table 8) (Class I; Level of Evidence B).
Pre-notification
RACE > 4 or NIHSS > 10
< 6 hours
Hypodensity of >1/3 Middle Cerebral Artery Territory Versus Alberta Stroke Programme Early CT Score (ASPECTS): Comparison of Two Methods of Quantitative Evaluation of Early CT Changes in Hyperacute Ischemic Stroke in the Community Setting


Conclusions—The ¼ MCA method was more reliable in detecting significant EIC on CT brain within 6 hours of stroke onset in routine clinical practice, whereas ASPECTS was able to detect significant EIC in a higher proportion of these early scans. (Stroke. 2003;34:1194-1196.)

Table 3: Studies of Interrater Agreement on Significant Early Ischemic Changes in the Middle Cerebral Artery Territory

<table>
<thead>
<tr>
<th>CT Method/Study</th>
<th>Time Window</th>
<th>Patient Cohort</th>
<th>Prevalence, %</th>
<th>Overall Agreement, % (no. of raters)</th>
<th>Pairwise Agreement, % (no. of raters)</th>
<th>κ</th>
<th>PABAK</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1/3 MCA</td>
<td>6 h</td>
<td>IV ICA study</td>
<td>68.6</td>
<td>86 (3)</td>
<td>NA</td>
<td>0.36</td>
<td>NA</td>
</tr>
<tr>
<td>von Kummer et al¹</td>
<td>6 h</td>
<td>IV ICA study</td>
<td>28.6</td>
<td>76 (5)</td>
<td>NA</td>
<td>0.37</td>
<td>NA</td>
</tr>
<tr>
<td>Dippel et al⁵</td>
<td>24 h (77% 6 h)</td>
<td>Lateral study</td>
<td>22.7</td>
<td>76 (5)</td>
<td>NA</td>
<td>0.37</td>
<td>NA</td>
</tr>
<tr>
<td>Grotta et al⁴</td>
<td>3 h</td>
<td>IV ICA study</td>
<td>24</td>
<td>77 (16)</td>
<td>0.39†</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td>Marks et al²</td>
<td>6 h</td>
<td>IV ICA study</td>
<td>30</td>
<td>72 (3)</td>
<td>0.53</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>ASPECTS²</td>
<td>6 h</td>
<td>IV ICA in community</td>
<td>11.4</td>
<td>71 (5)</td>
<td>0.49</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Mak et al*</td>
<td>6 h</td>
<td>Community</td>
<td>19.4</td>
<td>42 (5)</td>
<td>0.82</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

ASPECTS ≤ 7

| ASPECTS²               | 3 h         | MPA in community | 19.4 | 42 (5)                               | 0.82                                  | NA  |       |
| Mak et al*            | 6 h         | Community        | 19.4 | 42 (5)                               | 0.82                                  | NA  |       |
Recommendations  
Endovascular Interventions

1. Patients eligible for intravenous r-tPA should receive intravenous r-tPA even if endovascular treatments are being considered (*Class I; Level of Evidence A*). (Unchanged from the 2013 guideline)

9. Observing patients after intravenous r-tPA to assess for clinical response before pursuing endovascular therapy is not required to achieve beneficial outcomes and is not recommended. (*Class III; Level of Evidence B-R*). (New recommendation)
24h

NIHSS: 2
83 years-old male, mRS 2, DM, HTA, who is found at bed with dysarthria and moderate left hemiparesia and hemineglectivity...

WHEN ? Last seen normal 12h ago, when he went to bed

WHAT ? RACE 6 TACI

WHY NOT? Last seen normal 12h ago !!
Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct

CONCLUSIONS

Among patients with acute stroke who had last been known to be well 6 to 24 hours earlier and who had a mismatch between clinical deficit and infarct, outcomes for disability at 90 days were better with thrombectomy plus standard care than with standard care alone. (Funded by Stryker Neurovascular; DAWN ClinicalTrials.gov number, NCT02142283.)
Intravenous Tissue Plasminogen Activator for Wake-Up Stroke: A Propensity Score-Matched Analysis

James E. Anaissie, BSE, Dominique J. Monlezun, MPH, James E. Siegler, MD, Elizabeth D. Waring, BA, Lauren N. Dowell, MS, Alyana A. Samai, MPH, Alexander J. George, MD, Tara Kimbrough, MD, Jimmy Berthaud, MD, MPH, and Sheryl Martin-Schild, MD, PhD

Table 2. Primary and secondary outcome measures

<table>
<thead>
<tr>
<th></th>
<th>Control arm</th>
<th>Treated WUS</th>
<th>Nontreated WUS</th>
<th>P value*</th>
<th>P value†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 369</td>
<td>n = 46</td>
<td>n = 154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sICH, %</td>
<td>3</td>
<td>2.2</td>
<td>.7</td>
<td>.758</td>
<td>.362</td>
</tr>
<tr>
<td>24-h NIHSS, median (range)</td>
<td>4 (0-42)</td>
<td>4 (0-26)</td>
<td>3 (0-29)</td>
<td>.173</td>
<td>.225</td>
</tr>
<tr>
<td>Neurological deterioration at 24 h, %</td>
<td>27.7</td>
<td>30.4</td>
<td>29.2</td>
<td>.699</td>
<td>.874</td>
</tr>
<tr>
<td>Change in NIHSS from 0 to 24 h, median (range)</td>
<td>(-)3 (-39 to 36)</td>
<td>(-)2 (41 to 10)</td>
<td>(-)1 (-13 to 17)</td>
<td>.621</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Discharge mRS, median (range)</td>
<td>3 (0-6)</td>
<td>3 (0-6)</td>
<td>3 (0-6)</td>
<td>.771</td>
<td>.322</td>
</tr>
<tr>
<td>Good functional outcome‡, %</td>
<td>49.9</td>
<td>47.8</td>
<td>42.9</td>
<td>.794</td>
<td>.551</td>
</tr>
<tr>
<td>Favorable discharge disposition§, %</td>
<td>67.5</td>
<td>69.6</td>
<td>71.4</td>
<td>.775</td>
<td>.471</td>
</tr>
<tr>
<td>Discharge NIHSS, median (range)</td>
<td>2 (0-42)</td>
<td>3 (2-42)</td>
<td>3 (0-42)</td>
<td>.532</td>
<td>.395</td>
</tr>
<tr>
<td>In-hospital mortality, %</td>
<td>6.8</td>
<td>4.4</td>
<td>3.9</td>
<td>.529</td>
<td>.891</td>
</tr>
</tbody>
</table>
A multicenter, randomized, double-blind, placebo-controlled trial to test efficacy and safety of magnetic resonance imaging-based thrombolysis in wake-up stroke (WAKE-UP)

Götz Thomalla1*, Jochen B. Fiebach2, Leif Østergaard3, Salvador Pedraza6, Vincent Thijs5,6,7, Norbert Nghoghossian6, Pascal Roy6, Keith W. Muir10, Martin Ebinger2,11, Bastian Cheng1, Ivana Galinovic2, Tae-Hee Cho8, Josep Puig4, Florent Boutitie9, Claus Z. Simonsen12, Matthias Endres2,11,13, Jens Fiehler14, Christian Gerloff1, and WAKE-UP investigators

Thrombolysis for Acute Wake-up and unclear-onset Strokes with alteplase at 0.6 mg/kg (THAWS) Trial

Masatoshi Koga1, Kazunori Toyoda2, Kazumi Kimura3, Haruko Yamamoto4, Makoto Sasaki5, Toshimitsu Hamasaki6, Takanari Kitazono7, Junya Aoki8, Kenta Seki9, Kazunari Homma2, Shoichiro Sato2, and Kazuo Minematsu2, on behalf of the THAWS investigators

Tenecteplase in Wake-up Ischaemic Stroke Trial (TWIST)

The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. Know the risks and potential benefits of clinical studies and talk to your health care provider before participating. Read our disclaimer for details.

ClinicalTrials.gov Identifier: NCT03181360

Recruitment Status: Recruiting
First Posted: June 6, 2017
Last Update Posted: July 19, 2017
See Contacts and Locations