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# Intravenous Thrombolysis for Ischemic Stroke and more

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# Content

- I have no financial disclosures

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# Trial of Endovascular Thrombectomy for Large Ischemic Strokes

- SELECT 2

- prospective, randomized, open-label, adaptive, international trial involving patients with stroke due to occlusion of the internal carotid artery or the first segment of the middle cerebral artery to assess endovascular thrombectomy within 24 hours after onset.
- Patients had a large ischemic-core volume, defined as an ASPECT Score of 3 to 5 (range, 0 to 10, with lower scores indicating larger infarction) or a core volume of at least 50 ml on CTP or DWI sequence on MRI.
- The primary outcome was the modified Rankin scale score at 90 days
- Functional independence was a secondary outcome (mRS 0-2).

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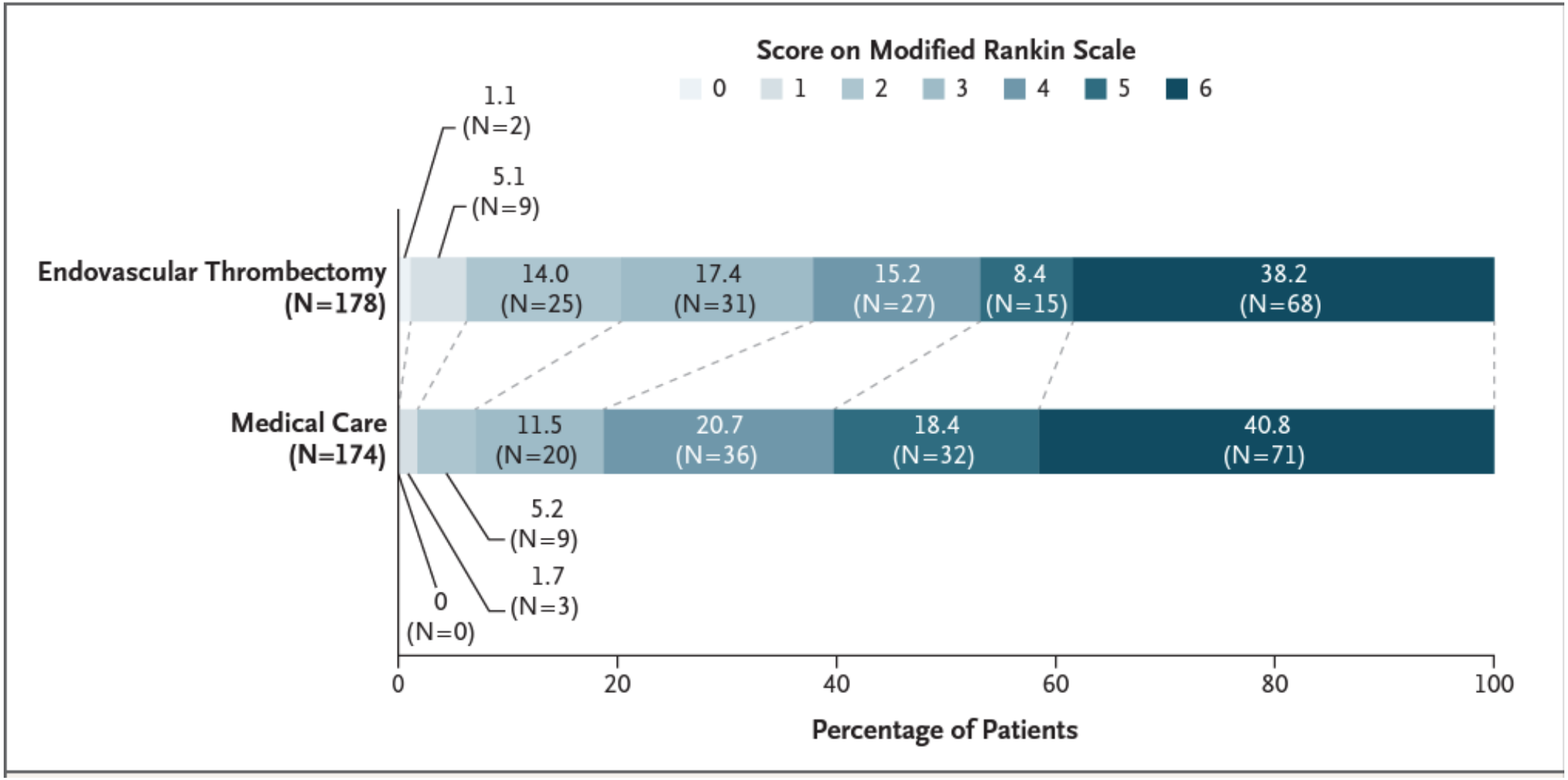
**Table 1. Baseline Characteristics of the Patients (Intention-to-Treat Population).***

| Characteristic | Endovascular Thrombectomy (N = 178) | Medical Care (N = 174) |
|---|---|---|
| Median age (IQR) — yr | 66 (58–75) | 67 (58–75) |
| Female sex — no. (%) | 71 (39.9) | 74 (42.5) |
| Race or ethnic group — no. (%)† | | |
| American Indian or Alaska Native | 0 | 1 (0.6) |
| Asian | 5 (2.8) | 3 (1.7) |
| Black | 26 (14.6) | 24 (13.8) |
| White | 132 (74.2) | 130 (74.7) |
| Native Hawaiian or Pacific Islander | 2 (1.1) | 0 |
| Other or unknown | 13 (7.3) | 16 (9.2) |
| Previous ischemic stroke — no. (%) | 19 (10.7) | 13 (7.5) |
| Right hemisphere affected — no. (%) | 98 (55.1) | 98 (56.3) |
| Occlusion location — no. (%)‡ | | |
| Internal carotid artery | 80 (44.9) | 66 (37.9) |
| M1 segment | 91 (51.1) | 100 (57.5) |
| M2 segment | 7 (3.9) | 8 (4.6) |
| Tandem occlusions — no. of patients (%) | 56 (31.5) | 44 (25.3) |
| Transfer to center with endovascular thrombectomy capabilities — no. (%) | 106 (59.6) | 105 (60.3) |
| Intravenous thrombolysis — no./total no. (%) | 37/178 (20.8) | 30/173 (17.3) |
| Median NIHSS score at hospital arrival (IQR)§ | 19 (15–23) | 19 (15–22) |
| General anesthesia performed — no. (%) | 104/177 (58.8) | — |
| Median interval between time that patient was last known to be well and randomization (IQR) — hr | 9.07 (5.27–15.33) | 9.79 (5.82–15.32) |
| Median interval between hospital arrival and imaging (IQR) — min | | |
| CT | 16 (9–27) | 15 (7–24) |
| CT perfusion or MRI | 26 (17–41) | 25 (13–36) |
| Median interval between hospital arrival and arterial puncture (IQR) — min | 109 (76–138) | — |
| Median interval between arterial puncture and reperfusion or end of procedure (IQR) — min | 38 (25–61) | — |
| Median ASPECTS value on baseline CT imaging (IQR)¶ | 4 (3–5) | 4 (4–5) |
| Imaging method used to estimate ischemic-core volume — no./total no. (%) | | |
| CT perfusion | 174/177 (98.3) | 169/174 (97.1) |
| Diffusion-weighted MRI | 3/177 (1.7) | 5/174 (2.9) |
| Median estimated ischemic-core volume (IQR) — ml‖ | | |
| Overall | 81.5 (57–118) | 79 (62–111) |
| CT perfusion | 81.5 (59–119) | 79 (62–111) |
| Diffusion-weighted MRI | 82 (56–89) | 86 (84–104) |
| Median volume of critically hypoperfused lesion (IQR) — ml** | 171 (127–226) | 169 (127–216) |
| Median volume of tissue with Tmax of >10 sec (IQR) — ml | 107 (70.5–152.5) | 111 (67–147) |

# SELECT 2


Score on Modified Rankin Scale
0
1
2
3
4
5
6
1.1
(N=2)
5.1
(N=9)
Endovascular Thrombectomy
(N=178)
14.0
(N=25)
17.4
(N=31)
15.2
(N=27)
8.4
(N=15)
38.2
(N=68)
Medical Care
(N=174)
11.5
(N=20)
20.7
(N=36)
18.4
(N=32)
40.8
(N=71)
5.2
(N=9)
1.7
(N=3)
0
(N=0)
0
20
40
60
80
100
Percentage of Patients

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# SELECT 2

**Table 2. Clinical Outcomes (Intention-to-Treat Population).***

| Variable | Endovascular Thrombectomy (N=178) | Medical Care (N=174) | Effect Size (95% CI) |
|---|---|---|---|
| **Primary outcome** | | | |
| Median score on modified Rankin scale at 90 days (IQR)† | 4 (3–6) | 5 (4–6) | 1.51 (1.20 to 1.89)‡ |
| **Secondary clinical outcomes** | | | |
| Functional independence at 90 days — no./total no. (%)§ | 36/177 (20.3) | 12/171 (7.0) | 2.97 (1.60 to 5.51)¶ |
| Independent ambulation at 90 days — no./total no. (%)‖ | 67/177 (37.9) | 32/171 (18.7) | 2.06 (1.43 to 2.96)¶ |
| Successful reperfusion — no. (%)** | 142 (79.8) | — | |
| Discharge location — no. (%) | | | |
| Home | 19 (10.7) | 10 (5.7) | |
| Acute care facility | 11 (6.2) | 16 (9.2) | |
| Inpatient rehabilitation facility | 72 (40.4) | 65 (37.4) | |
| Skilled nursing facility | 23 (12.9) | 20 (11.5) | |
| Hospice or home hospice | 11 (6.2) | 19 (10.9) | |
| In-hospital death | 42 (23.6) | 44 (25.3) | |
| Early neurologic improvement — no./total no. (%)†† | 20/174 (11.5) | 13/172 (7.6) | 1.47 (0.76 to 2.87)¶ |
| Median quality-of-life scores (IQR)‡‡ | | | |
| Mobility domain | 35.2 (23.9 to 43.9) | 25.1 (16.5 to 33.0) | 10.10 (5.02 to 15.18)§§ |
| Depression domain | 47.9 (43.1 to 54.3) | 53.6 (46.8 to 57.4) | –5.70 (–8.83 to –2.57)‖ |
| Social domain | 37.1 (32.7 to 42.0) | 33.5 (27.7 to 37.8) | 3.60 (1.11 to 6.09)‖ |
| Cognitive domain | 41.9 (35.0 to 49.6) | 37.9 (30.9 to 42.9) | 4.00 (0.51 to 7.49)‖ |

# SELECT 2

**Table 3. Safety Outcomes and Procedural Complications (Intention-to-Treat Population).***

| Outcome | Endovascular Thrombectomy (N=178) | Medical Care (N=174) | Relative Risk (95% CI) |
|---|---|---|---|
| Symptomatic intracranial hemorrhage within 24 hr — no. (%)† | 1 (0.6) | 2 (1.1) | 0.49 (0.04 to 5.36) |
| Early neurologic worsening — no. (%)‡ | 44 (24.7) | 27 (15.5) | 1.59 (1.03 to 2.45) |
| Death from any cause within 90 days — no./total no. (%) | 68/177 (38.4) | 71/171 (41.5) | 0.91 (0.71 to 1.18) |
| Arterial access-site complications — no. (%) | | | |
| Occlusion | 3 (1.7) | — | |
| Hematoma | 1 (0.6) | — | |
| Infection | 1 (0.6) | — | |
| Vascular injury — no. (%) | | | |
| Dissection | 10 (5.6) | — | |
| Perforation | 7 (3.9) | — | |
| Vasospasm | 11 (6.2) | — | |
| Other | 2 (1.1) | — | |

# SELECT 2

- Study stopped early (with 300 patients enrolled) due to efficacy having reached (after positive results from RESCUE-Japan LIMIT trial)
- Better outcomes were seen with thrombectomy and medical management rather than medical management alone within 24 hours of LSN.
- Incidence of symptomatic intracranial hemorrhage was low in both groups.
- 18% of pts. Had complications associated with procedure.

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JAMA | Original Investigation

# Effect of Alteplase vs Aspirin on Functional Outcome for Patients With Acute Ischemic Stroke and Minor Nondisabling Neurologic Deficits
## The PRISMS Randomized Clinical Trial

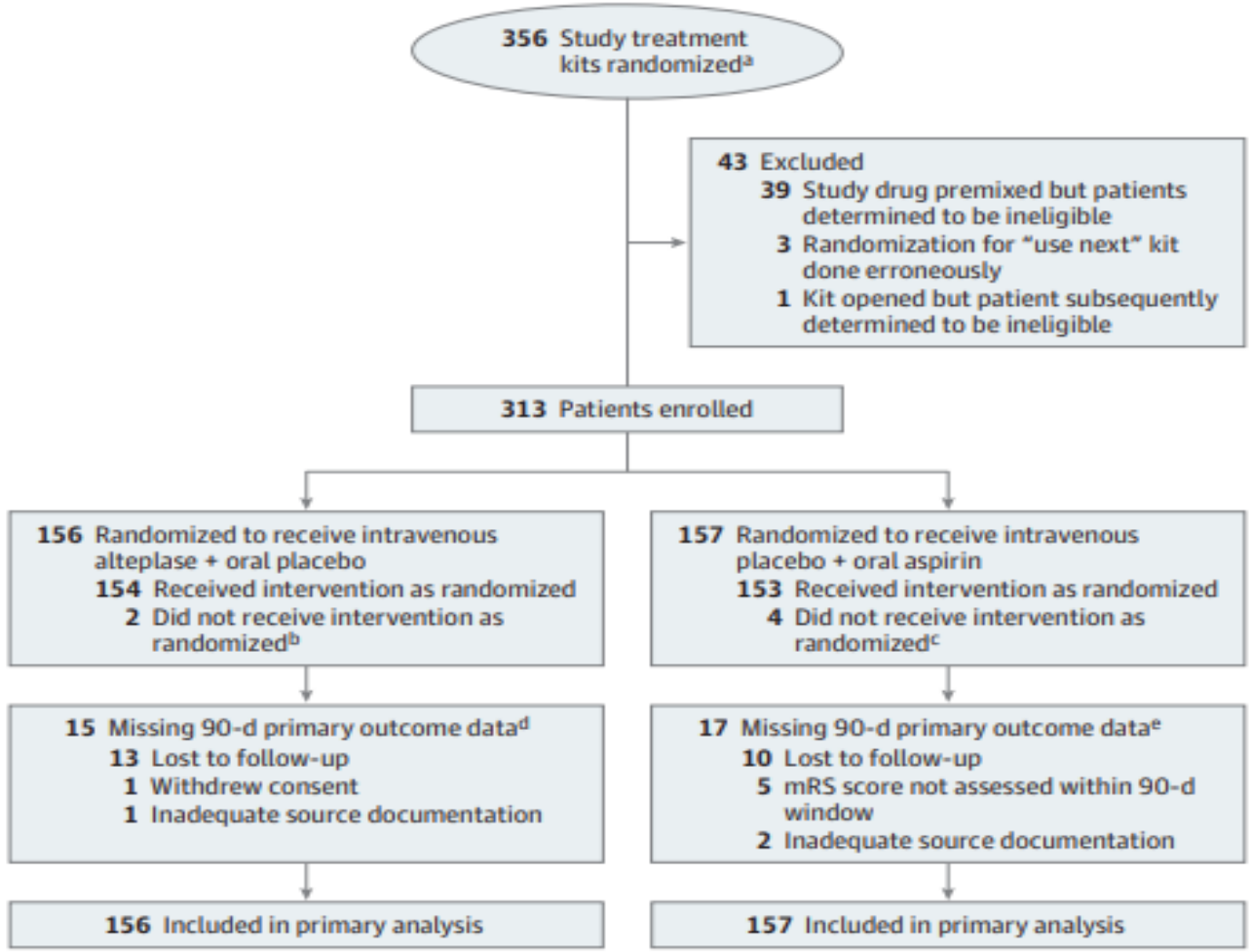
- Phase 3b, randomized, double-blind clinical trial testing the safety and efficacy of intravenous alteplase administered within 3 hours of symptom onset
- Inclusion criteria
  - clinical diagnosis of acute ischemic stroke,
  - age 18 years or older,
  - NIHSS score of 0 to 5, and deficits judged to not be clearly disabling at presentation.
- Randomized to receive IV tPA+ placebo ASA versus ASA 325mg with placebo IV tPA.

# PRISMS

- Primary outcomes was mRS 0/1 at 90 days.
- Secondary Outcome consisted of global favorable recovery including mRS, Barthrel Index and NIHSS scores.
- Safety end point was symptomatic ICH within 36 hours with neurological decline attributed to ICH as well as all cause mortality within 90 days.
- Trial was terminated early because of enrollment below target.

# PRISMS

**Figure 1. Flow of Patients Through the PRISMS Trial**



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# PRISMS

**Table 1. Baseline Patient Characteristics**

| Characteristics | Intravenous Alteplase + Oral Placebo (n=156) | Intravenous Placebo + Oral Aspirin (n = 157) |
|---|---|---|
| Age, mean (SD), y | 62 (14) | 61 (13) |
| Male sex, No. (%) | 77 (49) | 92 (59) |
| Race, No. (%)[a] | | |
| White | 117 (75.0) | 126 (80.3) |
| Black/African American | 35 (22.4) | 27 (17.2) |
| American Indian or Alaska Native | 1 (0.6) | 3 (1.9) |
| Asian | 0 | 1 (0.6) |
| ≥2 races | 1 (0.6) | 0 |
| Unknown | 2 (1.3) | 0 |
| Hispanic or Latino ethnicity, No. (%)[a] | 14 (9.0) | 18 (11.5) |
| Medical history, No. (%) | | |
| Hypertension | 126 (81.3) | 124 (79.0) |
| Hyperlipidemia | 114 (73.1) | 114 (72.6) |
| Diabetes mellitus | 57 (36.5) | 44 (28.0) |
| Previous stroke | 28 (17.9) | 24 (15.3) |
| Atrial fibrillation | 23 (14.7) | 17 (10.8) |
| Medications prior to onset, No. (%) | | |
| Antiplatelet agents | 64 (41.0) | 59 (37.6) |
| Anticoagulant agents | 1 (0.6) | 1 (0.6) |
| Time from symptom onset to intravenous study treatment bolus, h | | |
| No. (%) | | |
| 0 to 2 | 25 (16.0) | 36 (22.9) |
| >2 to 3 | 126 (80.8) | 119 (75.8) |
| >3[b] | 5 (3.2) | 2 (1.3) |
| Median (IQR) | 2.7 (2.2-2.9) | 2.6 (2.1-2.9) |
| Time from onset to oral study treatment, median (IQR), h | 2.9 (2.5-3.1) | 2.8 (2.4-3.1) |
| Baseline NIHSS score[c] | | |
| No. (%) | | |
| 0 | 7 (4.5) | 7 (4.5) |
| 1 | 38 (24.4) | 50 (31.8) |
| 2 | 52 (33.3) | 50 (31.8) |
| 3 | 32 (20.5) | 30 (19.1) |
| 4 | 21 (13.5) | 16 (10.2) |
| 5 | 6 (3.8) | 4 (2.5) |
| Mean (SD) | 2.3 (1.2) | 2.0 (1.2) |
| Glucose level, mean (SD), mg/dL | 141.2 (72.9) | 132.1 (61.8) |
| Systolic blood pressure >140 mm Hg, No. (%) | 83 (53.2) | 112 (71.3) |
| Diastolic blood pressure >90 mm Hg, No. (%) | 31 (19.9) | 44 (28.0) |
| Baseline international normalized ratio >1.1, No. (%) | 42 (26.9) | 52 (33.1) |
| Baseline ASPECTS, median (range)[d] | 10 (7-10) | 10 (7-10) |

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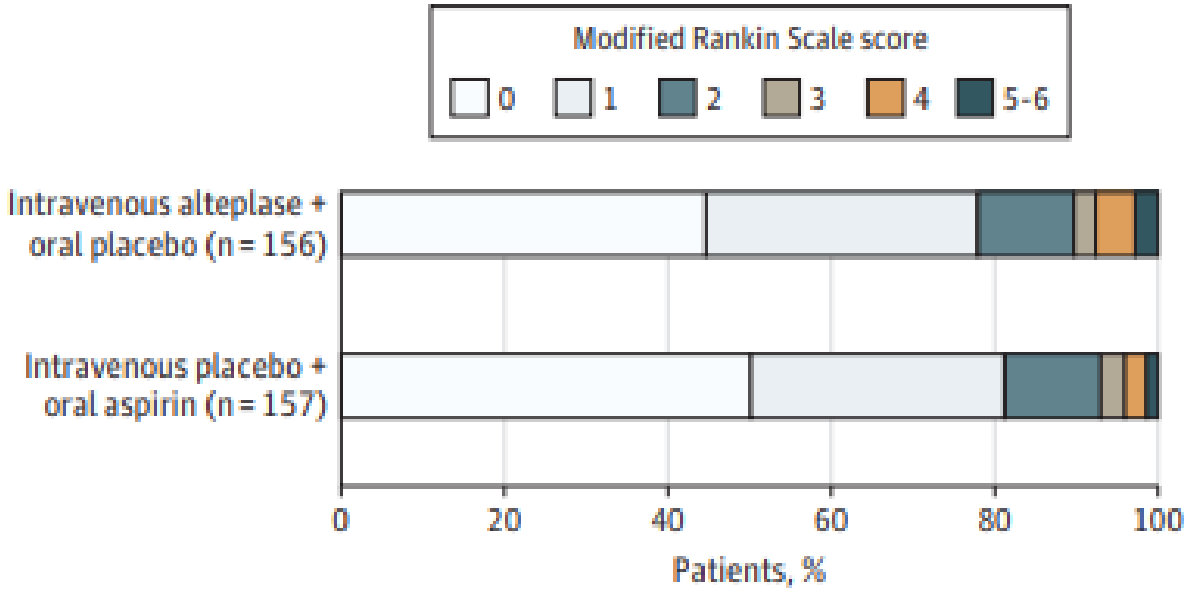
# PRISMS

**Table 2. Presenting Event Characteristics**

| Characteristics | No. (%) | |
|---|---|---|
| | Intravenous Alteplase + Oral Placebo (n = 156) | Intravenous Placebo + Oral Aspirin (n = 157) |
| Rapid improvement of symptoms prior to study treatment administration | 8 (5.1) | 7 (4.5) |
| Localization of presenting deficit[a] | | |
| Right hemisphere | 75 (48.1) | 67 (42.7) |
| Left hemisphere | 59 (37.8) | 62 (39.5) |
| Unknown | 19 (12.2) | 21 (13.4) |
| Brainstem/cerebellum | 9 (5.8) | 18 (11.5) |
| Final diagnosis | | |
| Acute cerebral ischemia | 136 (88.3) | 131 (85.6) |
| Neurovascular mimic[b] | 18 (11.7) | 22 (14.4) |
| Ischemic cerebral event etiology[c] | n=138 | n=135 |
| Small vessel disease | 48 (34.8) | 52 (38.5) |
| Undetermined etiology | 40 (29.0) | 46 (34.1) |
| Cardioembolism | 20 (14.5) | 17 (12.6) |
| Large artery atherosclerosis | 20 (14.5) | 10 (7.4) |
| Other determined etiology[d] | 10 (7.2) | 10 (7.4) |

# PRISMS

**Figure 2. Modified Rankin Scale Score Distributions at 90 Days by Treatment Group**




These distributions, which were used for the primary outcome analysis, included imputation for missing 90-day scores.

122 patients (78.2%) randomized to alteplase had favorable outcomes at 90 days compared with 128 patients (81.5%) randomized to aspirin

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# PRISMS

**Table 4. Adverse Event Results (As-Treated Analysis)**

| Adverse Events | No. (%) Intravenous Alteplase + Oral Placebo (n = 156) | No. (%) Intravenous Placebo + Oral Aspirin (n = 157) | Risk Difference, % (95% CI) |
|---|---|---|---|
| **Primary Adverse Event Assessment** | | | |
| Symptomatic intracranial hemorrhage within 36 h | 5 (3.2) | 0 | 3.3 (0.8 to 7.4) |
| **Secondary Adverse Event Assessments** | | | |
| Symptomatic intracranial hemorrhage within 36 h, SITS-MOST definition[a] | 2 (1.3) | 0 | 1.3 (−1.2 to 4.6) |
| Any radiologic intracranial hemorrhage within 36 h by central reader | 11 (7.1) | 5 (3.3) | 3.9 (−1.2 to 9.5) |
| By radiological subtype[b] | | | |
| Hemorrhagic infarction type 1 | 2 | 3 | |
| Hemorrhagic infarction type 2 | 2 | 1 | |
| Parenchymal hematoma type 1 | 1 | 0 | |
| Parenchymal hematoma type 2 | 4 | 0 | |
| Remote parenchymal hematoma type 1 | 2 | 0 | |
| Intraventricular hemorrhage | 2[c] | 0 | |
| Subarachnoid hemorrhage | 3[c] | 1 | |
| Mortality within 90 d | 1 (0.6) | 0 | |
| Stroke-related and neurologic deaths within 90 d | 0 | 0 | |
| Patients with serious adverse events[d] | 40 (26.0) | 20 (13.1) | 12.9 (4.1 to 21.7)[e] |
| Patients with any adverse events | 119 (77.3) | 104 (68.0) | |

# PRISMS

- Patients with minor, nondisabling acute ischemic stroke, treatment with alteplase compared with aspirin did not increase the likelihood of favorable functional outcome at 90 days.
- Treatment benefit with alteplase was also not demonstrated for secondary and exploratory end points at 90 days.
- The study results raise the hypothesis that even a 6% treatment effect might be unlikely. However, the very early study termination precludes any definitive conclusions.

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JAMA | Original Investigation

# Dual Antiplatelet Therapy vs Alteplase for Patients With Minor Nondisabling Acute Ischemic Stroke
## The ARAMIS Randomized Clinical Trial

- A multicenter, randomized, open-label, blinded end point assessment, noninferiority trial to assess the efficacy and safety of DAPT compared with intravenous alteplase in patients presenting with minor stroke and nondisabling deficits within 4.5 hours of symptom onset.
- Inclusion criteria
  - 18 years or older
  - had an acute ischemic stroke with an NIHSS score less than or equal to 5
  - less than or equal to 1 point on single-item scores, such as vision, language, neglect, or single limb weakness, and a score of 0 in the consciousness item at the time of randomization
  - had CT or MRI performed on admission to identify ischemic stroke
  - could start receiving study treatment within 4.5 hours of stroke symptoms.
- Exclusion criteria
  - Prestroke disability (modified Rankin Scale [mRS] score ≥2;
  - history of intracerebral hemorrhage, or definite indication for anticoagulation.

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# ARAMIS

- Patient received Alteplase or DAPT (load of Clopidogrel 300mgon Day1 followed by 75 mg, ASA 100 mg daily) for 12± 2 days then single agent or DAPT based on guidelines for 90 days.
- Primary outcome is mRS of 0-1.
- Secondary Outcome is favorable mRS, early neurological improvement or deterioration, new stroke or other vascular events at 90 days, all cause mortality.
- Safety outcome is sICH

# ARAMIS

**Figure 1. Patient Flow in the ARAMIS Randomized Clinical Trial**

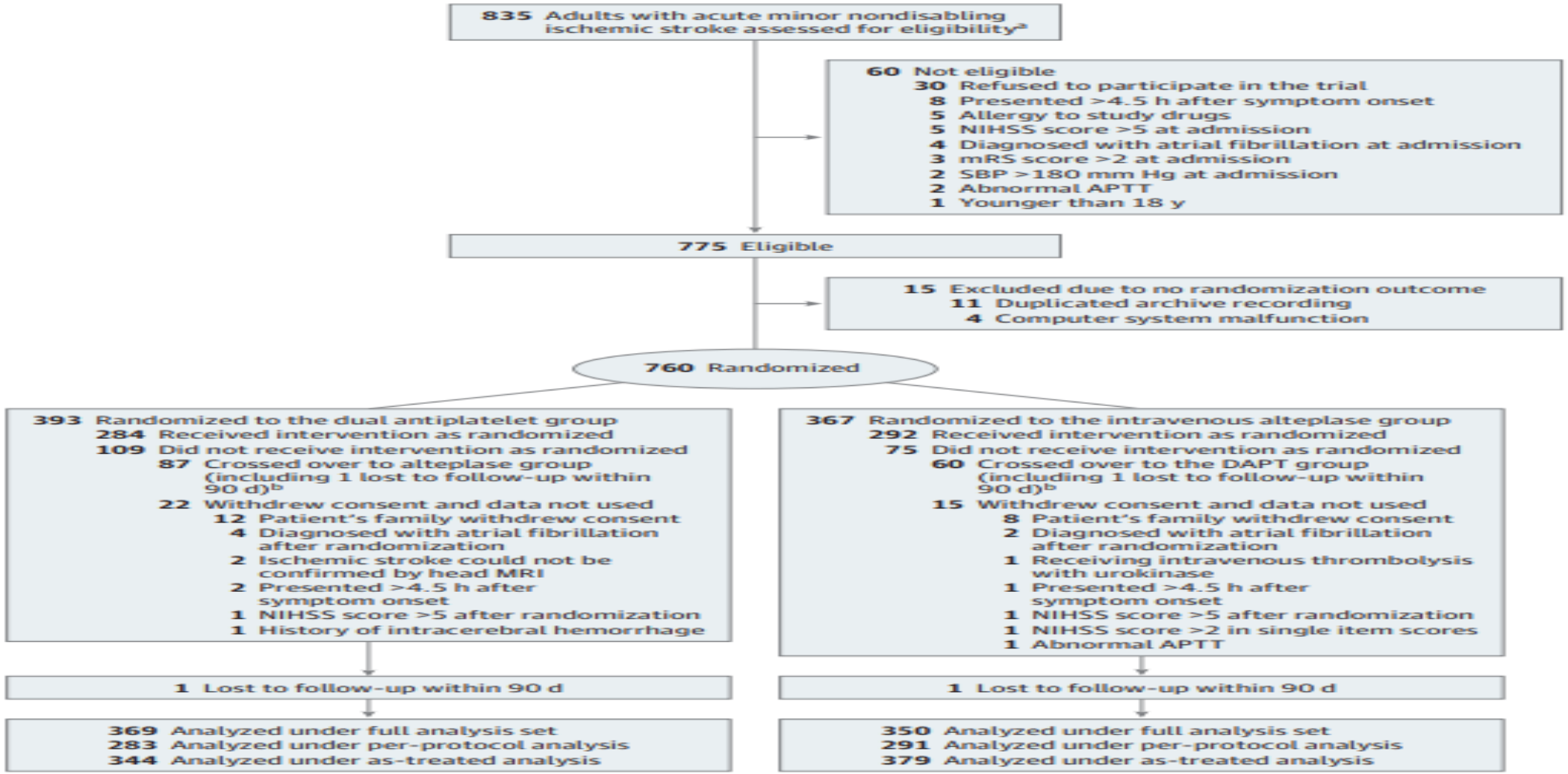

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**Table 1. Baseline Characteristics in the Full Analysis Set**

| Baseline characteristics | No. (%) Dual antiplatelet therapy (n = 369) | Alteplase (n = 350) |
|---|---|---|
| Age, median (IQR), y | 65 (57–71) | 64 (56–71) |
| Sex | | |
| Men | 256 (69.5) | 240 (68.6) |
| Women | 113 (30.6) | 110 (31.4) |
| Current smoking[a] | 122 (33.1) | 118 (33.7) |
| Current drinking[a] | 59 (16.0) | 56 (16.0) |
| Medical history | | |
| Hypertension | 211 (57.2) | 169 (48.3) |
| Diabetes | 101 (27.4) | 86 (24.6) |
| Prior ischemic stroke[b] | 82 (22.2) | 77 (22.0) |
| Prior transient ischemic attack | 4 (1.1) | 2 (0.6) |
| Time from onset of symptoms to receipt of assigned treatment, median (IQR), min | 182 (134–230) | 180 (127–225) |
| Time from onset of symptoms to hospital discharge, median (IQR), d | 8 (6–11) | 8 (6–10) |
| INR at randomization, median (IQR) | 1.00 (0.94–1.05) | 0.98 (0.93–1.04) |
| INR >1.2 at randomization | 5/358 (1.4) | 4/344 (1.2) |
| APTT at randomization, median (IQR), s | 31.8 (27.2–36.3) | 31.9 (27.4–35.7) |
| Median APTT >43.5 s at randomization | 15 (4.1) | 13 (3.7) |
| Systolic blood pressure at randomization, median (IQR), mm Hg | 150 (137–166) | 151 (139–162) |
| Median systolic blood pressure >140 mm Hg at randomization | 245 (66.4) | 242 (69.1) |
| Diastolic blood pressure at randomization, median (IQR), mm Hg | 88 (81–95) | 88 (80–95) |
| Median (IQR) diastolic blood pressure >90 mm Hg at randomization | 142 (38.5) | 132 (37.7) |
| Blood glucose level at randomization, median (IQR), mmol/L | 6.3 (5.4–8.3) | 6.4 (5.4–8.1) |
| Blood glucose level >7.0 mmol/L at randomization | 112/316 (35.4) | 121/314 (38.5) |
| NIHSS score at randomization, median (IQR)[c] | 2 (1–3) | 2 (1–3) |
| NIHSS score of 0 at randomization | 27 (7) | 29 (8) |
| Estimated prestroke function (mRS score) | | |
| No symptoms (score of 0) | 275 (74.5) | 256 (73.1) |
| Symptoms without any disability (score of 1) | 94 (25.5) | 94 (26.9) |
| Presumed stroke cause[d] | | |
| Undetermined cause | 225 (61.0) | 221 (63.1) |
| Small artery occlusion | 87 (23.6) | 79 (22.6) |
| Large artery atherosclerosis | 54 (14.6) | 46 (13.1) |
| Other determined cause | 2 (0.5) | 3 (0.9) |
| Cardioembolic | 1 (0.3) | 1 (0.3) |
| Location of responsible vessel[e] | | |
| Anterior circulation | 283 (76.7) | 279 (79.7) |
| Posterior circulation | 83 (22.5) | 70 (20.0) |
| Anterior and posterior circulation | 3 (0.8) | 1 (0.3) |

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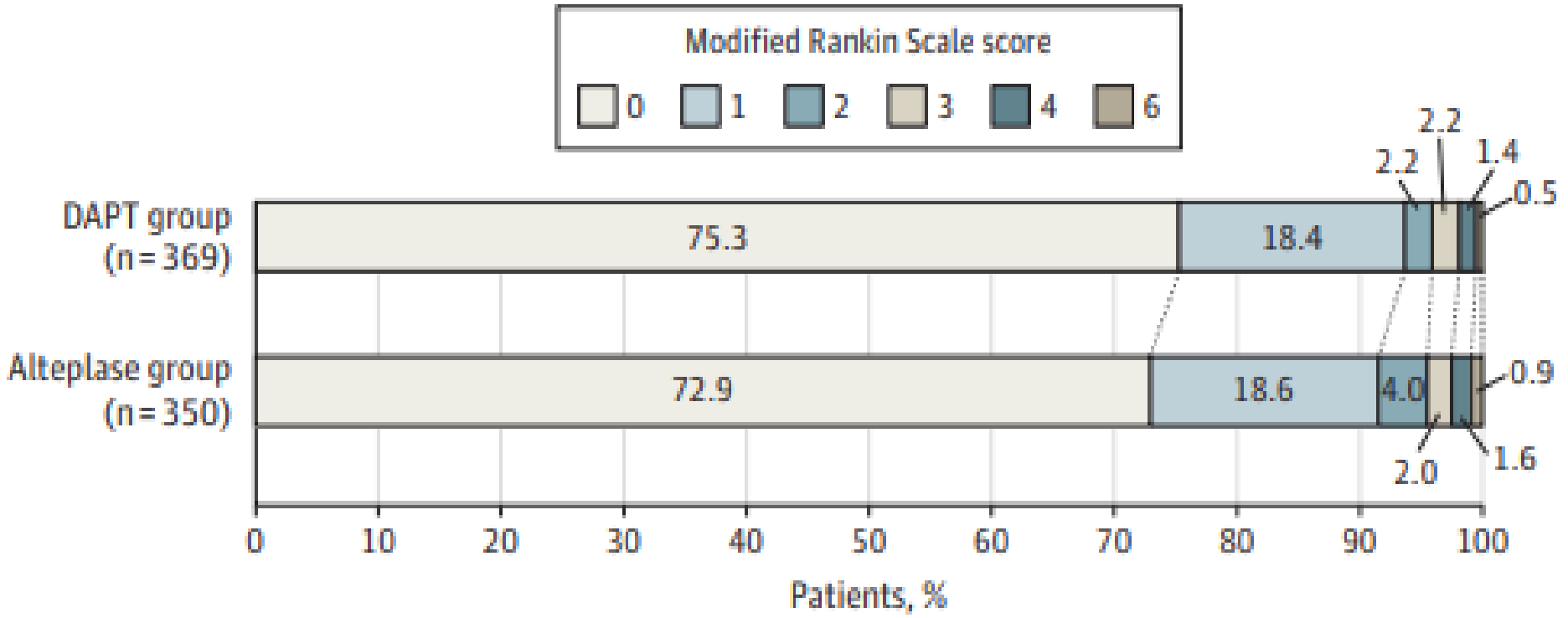
**Table 2. Trial Outcomes in the Full Analysis Set and Safety Population**

| Outcome | No. (%) | | | Unadjusted | | Adjusted[a] | |
|---|---|---|---|---|---|---|---|
| | Dual antiplatelet treatment (n = 369) | Alteplase (n = 350) | Treatment effect metric | Treatment difference (95% CI) | *P* value | Treatment difference (95% CI) | *P* value |
| **Primary outcome (full analysis set)** | | | | | | | |
| mRS score 0-1 within 90 d[b] | 346 (93.8) | 320 (91.4) | Risk difference[c,d] | 2.3% (−1.5% to 6.2%) | <.001 | 2.3% (−1.6% to 6.1%) | <.001 |
| | | | Risk ratio[c] | 1.38 (0.81 to 2.32) | .23 | 1.36 (0.80 to 2.30) | .22 |
| **Secondary outcomes (full analysis set)** | | | | | | | |
| mRS score 0-2 within 90 d[b] | 354 (95.9) | 334 (95.4) | Risk difference[c] | 0.5% (−2.5% to 3.5%) | .74 | 0.5% (−3.5% to 2.5%) | .83 |
| | | | Risk ratio[c] | 1.12 (0.56 to 2.24) | .74 | 1.12 (0.56 to 2.25) | .64 |
| mRS score distribution within 90 d[b] | | | Odds ratio[c] | 1.16 (0.83 to 1.61) | .39 | 1.11 (0.80 to 1.55) | .51 |
| Early neurological improvement within 24 h[e] | 62 (16.8) | 74 (21.1) | Risk difference[c] | −4.1% (−9.8% to 1.7%) | .16 | −3.1% (−8.7% to 2.4%) | .27 |
| | | | Risk ratio[c] | 0.95 (0.89 to 1.02) | .17 | 0.84 (0.62 to 1.14) | .27 |
| Early neurological deterioration within 24 h[f] | 17 (4.6) | 32 (9.1) | Risk difference[c] | −4.5% (−8.2% to −0.8%) | .02 | −4.6% (−8.3% to −0.9%) | .02 |
| | | | Risk ratio[c] | 0.50 (0.29 to 0.89) | .02 | 0.50 (0.28 to 0.89) | .02 |
| Median change in NIHSS score at 24 h from baseline[g] | 0 (−0.41 to 0) | 0 (−0.69 to 0) | Geometric mean ratio[c] | 0.03 (−0.05 to 0.11) | .51 | 0.01 (−0.07 to 0.09) | .68 |
| Stroke or other vascular events within 90 d | 1 (0.3) | 2 (0.6) | Hazard ratio[h] | 0.47 (0.04 to 5.20) | .54 | 0.46 (0.04 to 5.17) | .45 |
| Death at 90 d | 2 (0.5) | 3 (0.9) | Risk difference[c] | −0.3% (−1.5% to 0.9%) | .61 | −0.3% (−1.5% to 0.9%) | .49 |
| | | | Risk ratio[c] | 0.63 (0.11 to 3.76) | .61 | 0.58 (0.10 to 3.51) | .49 |
| **Safety outcomes (safety population)** | | | | | | | |
| Symptomatic intracerebral hemorrhage[i] | 1/371 (0.3) | 3/352 (0.9) | Risk difference[c] | −0.6% (−1.7% to 0.5%) | .30 | −2.4% (−12.1% to 7.3%) | .63 |
| | | | Risk ratio[c] | 0.32 (0.03 to 3.02) | .32 | 0.31 (0.03 to 2.99) | .36 |
| Any bleeding events[j] | 6/371 (1.6) | 19/352 (5.4) | Risk difference[c] | −3.8% (−6.5% to −1.1%) | .006 | −3.6% (−6.4% to −0.7%) | .01 |
| | | | Risk ratio[c] | 0.30 (0.12 to 0.74) | .009 | 0.31 (0.12 to 0.76) | .01 |

# ARAMIS

**Figure 2. Distribution of Modified Rankin Scale Scores at 90 Days in the Full Analysis Set**



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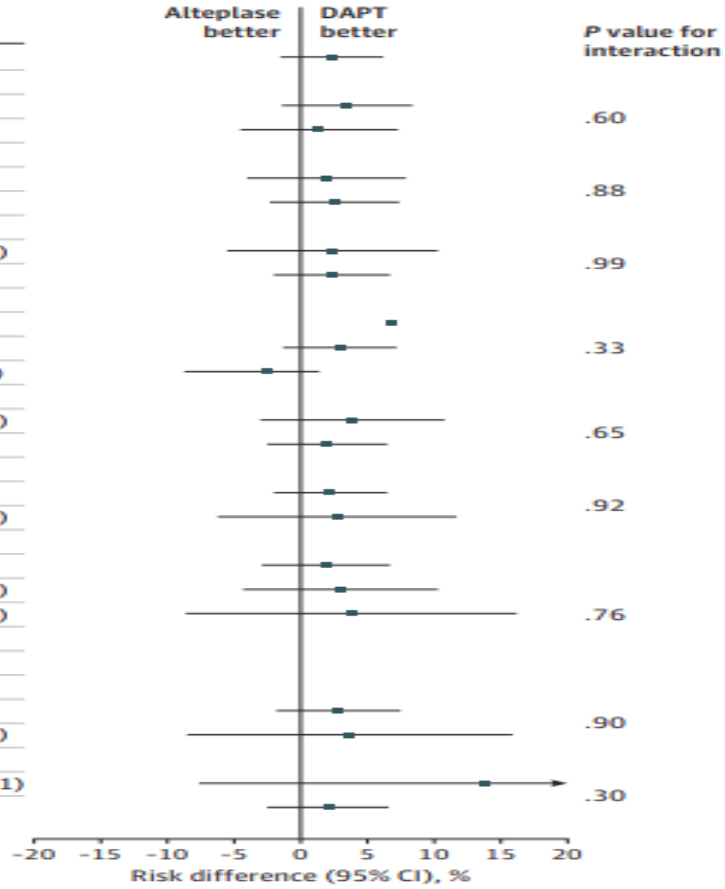
# ARAMIS

**Figure 3. Primary Outcome by Prespecified Subgroups in the Full Analysis Set**

| Subgroup | No. of patients | No. of patients with primary outcome/total No. (%) | | Risk difference (95% CI), % | *P* value for interaction |
|---|---|---|---|---|---|
| | | DAPT group | Alteplase group | | |
| Overall | 719 | 346/369 (93.8) | 320/350 (91.4) | 2.3 (−1.5 to 6.2) | |
| Age, y | | | | | |
| <65 | 366 | 170/178 (95.5) | 173/188 (92.0) | 3.5 (−1.4 to 8.4) | .60 |
| ≥65 | 353 | 176/191 (92.1) | 147/162 (90.7) | 1.4 (−4.5 to 7.3) | |
| Sex | | | | | |
| Women | 223 | 108/113 (95.6) | 103/110 (93.6) | 1.9 (−4.0 to 7.9) | .88 |
| Men | 496 | 238/256 (93.0) | 217/240 (90.4) | 2.6 (−2.3 to 7.4) | |
| History of diabetes | | | | | |
| Yes | 187 | 94/101 (93.1) | 78/86 (90. 7) | 2.4 (−5.5 to 10.3) | .99 |
| No | 532 | 252/268 (94.0) | 242/264 (91.7) | 2.4 (−2.0 to 6.7) | |
| NIHSS score at admission | | | | | |
| 0 | 56 | 27/27 (100.0) | 27/29 (93.1) | 6.9 | |
| 1-3 | 529 | 264/278 (95.0) | 231/251 (92.0) | 2.9 (−1.3 to 7.2) | .33 |
| 4-5 | 134 | 55/64 (85.9) | 62/70 (88.6) | −2.6 (−8.7 to 1.4) | |
| Time from symptom onset to treatment, h | | | | | |
| ≤2 | 145 | 69/71 (97.2) | 69/74 (93.2) | 3.9 (−3.0 to 10.8) | .65 |
| >2 | 574 | 277/298 (93.0) | 251/276 (90.9) | 2.0 (−2.5 to 6.5) | |
| Location of responsible vessel | | | | | |
| Anterior circulation stroke | 562 | 266/283 (94.0) | 256/279 (91.8) | 2.2 (−2.0 to 6.5) | .92 |
| Posterior circulation stroke | 153 | 77/83 (92.8) | 63/70 (90.0) | 2.8 (−6.2 to 11.7) | |
| Stroke etiology | | | | | |
| Undetermined cause | 446 | 221/225 (93.8) | 203/221 (91.9) | 1.9 (−2.9 to 6.7) | |
| Small artery occlusion | 166 | 83/87 (95.4) | 73/79 (92.4) | 3.0 (−4.3 to 10.3) | |
| Large artery arteriosclerosis | 100 | 49/54 (90.7) | 40/46 (87.0) | 3.8 (−8.6 to 16.2) | .76 |
| Other determined cause | 5 | 2/2 (100.0) | 3/3 (100.0) | | |
| Cardioembolic | 2 | 1/1 (100.0) | 1/1 (100.0) | | |
| Degree of responsible vessel stenosis, % | | | | | |
| 50 | 375 | 182/190 (95.8) | 172/185 (93.0) | 2.8 (−1.8 to 7.5) | .90 |
| >50 | 102 | 50/55 (90.9) | 41/47 (87.2) | 3.7 (−8.5 to 15.9) | |
| Large artery occlusion | | | | | |
| Yes | 36 | 19/20 (95.0) | 13/16 (81.3) | 13.7 (−7.6 to 35.1) | .30 |
| No | 441 | 213/225 (94.7) | 200/216 (92.6) | 2.1 (−2.5 to 6.6) | |



# ARAMIS

- Patients with nondisabling minor acute ischemic stroke, DAPT was noninferior to intravenous alteplase when administered within 4.5 hours of stroke onset for the primary outcome of excellent functional outcome at 90 days.
- This trial demonstrated that short-term DAPT (12 [±2] days) initiated in patients presenting within 4.5 hours of a nondisabling minor stroke had noninferior efficacy to intravenous alteplase on 90-day functional outcome with less bleeding risk.

# ARAMIS

- Limitations: high cross over rate between 2 groups
- Study conducted in Asian population only.
- Imaging done prior to enrollment to confirm stroke.

Thank you!