



# Actualités Neuro Vasculaires

**Dr S. Marcel**

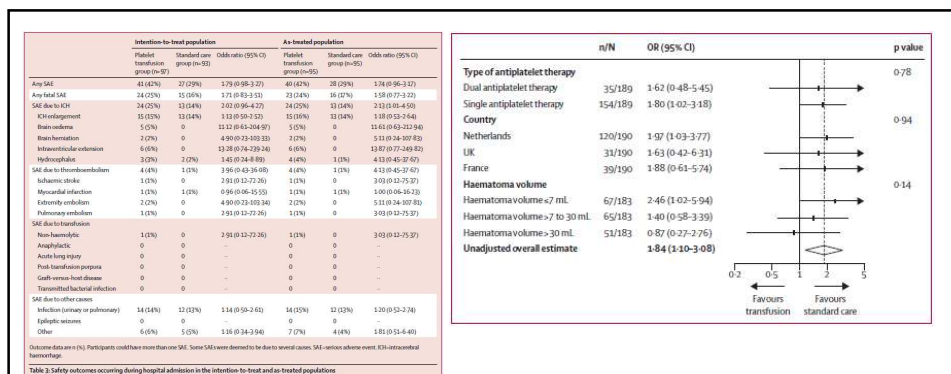
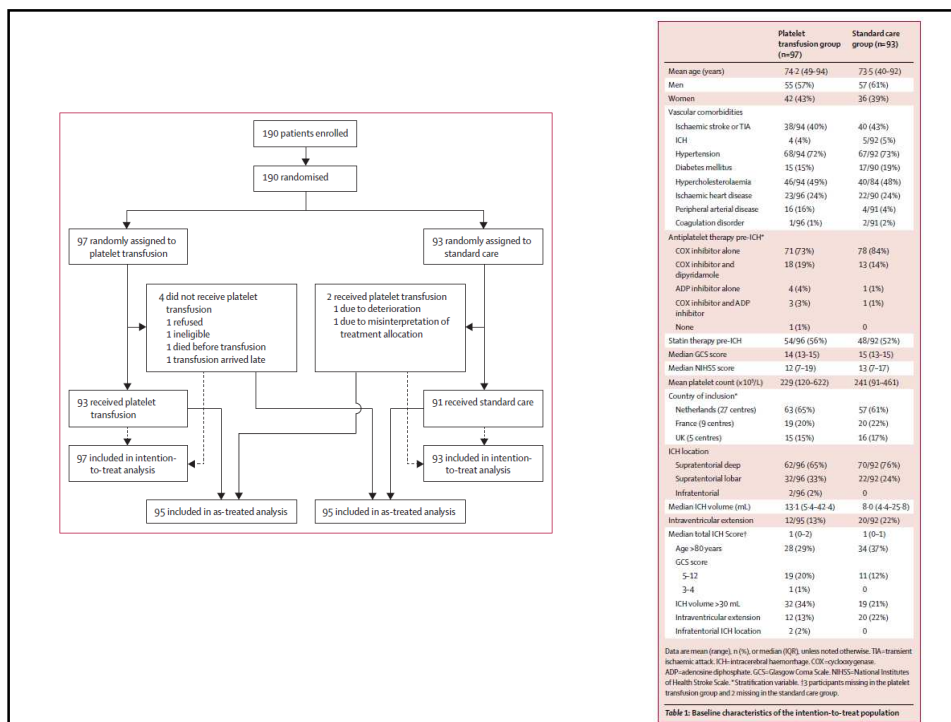
Unité Neuro Vasculaire, CH de Chambéry

Journée des filières  
RENAU  
Chambéry le 2 février 2017

## Platelet transfusion versus standard care after acute stroke due to spontaneous cerebral haemorrhage associated with antiplatelet therapy (PATCH): a randomised, open-label, phase 3 trial

*M İrem Baharoglu\*, Charlotte Cordonnier\*, Rustom Al-Shahi Salman\*, Koen de Gans, Maria M Koopman, Anneke Brand, Charles B Majole, Ludo F Beenen, Henk A Marquering, Marinus Vermeulen, Paul J Nederkoorn, Rob J de Haan, Yvo B Raas, for the PATCH Investigators†*

- Prise en charge classique vs PEC classique + perfusion plaquettaire
- Mesure décès et dépendance à 3 mois
- Multicentrique, ouvert, 60 centres dont 11 en France
- AVC hémorragique de moins de 6 h, sus tentoriel, Glasgow > 8
- Sous AAP depuis 7 jours



Problème des AVC ischémiques secondairement hémorragiques...

## ORIGINAL ARTICLE

## Intensive Blood-Pressure Lowering in Patients with Acute Cerebral Hemorrhage

Adnan I. Qureshi, M.D., Yuko Y. Palesch, Ph.D., William G. Barsan, M.D., Daniel F. Hanley, M.D., Chung Y. Hsu, M.D., Renee L. Martin, Ph.D., Claudia S. Moy, Ph.D., Robert Silbergleit, M.D., Thorsten Steiner, M.D., Jose I. Suarez, M.D., Kazunori Toyoda, M.D., Ph.D., Yongjun Wang, M.D., Haruko Yamamoto, M.D., Ph.D., and Byung-Woo Yoon, M.D., Ph.D., for the ATACH-2 Trial Investigators and the Neurological Emergency Treatment Trials Network\*

- AVC hémorragique avec HTA
- Glasgow >5
- Volume <60 cc
- Baisse de la PA <4.5h
- 2 groupes : 110/140 et 140/180
- Multicentrique
- 2000 patients

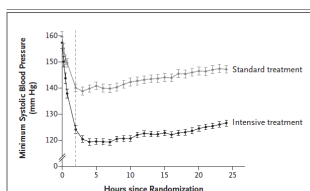


Figure 1. Mean Hourly Minimum Systolic Blood Pressure during the First 24 Hours after Randomization, According to Treatment Group. The dashed vertical line indicates 2 hours, and I bars 95% confidence intervals.

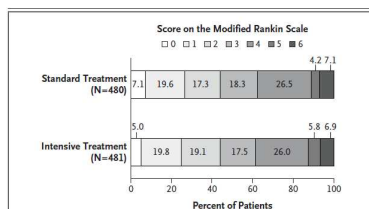


Figure 2. Distribution of Scores on the Modified Rankin Scale, According to Treatment Group.

The data are presented only for participants for whom a score on the modified Rankin scale score was obtained at 90 days. The percentage of participants with each score on the modified Rankin scale is shown in or above each cell. Scores range from 0 to 6, with 0 indicating no symptoms, 1 no clinically significant disability (able to carry out all usual activities, despite some symptoms), 2 slight disability (able to look after own affairs without assistance but unable to carry out all previous activities), 3 moderate disability (requires some help but able to walk unassisted), 4 moderately severe disability (unable to attend to bodily needs without assistance and unable to walk unassisted), 5 severe disability (requires constant nursing care and attention, bedridden, and incontinent), and 6 death. Percentages may not sum to exactly 100.0 owing to rounding.

Table 1. Demographic and Clinical Characteristics of the Participants, According to Treatment Group.\*

Characteristic	Intensive Treatment (N=500)	Standard Treatment (N=500)
Age—yr	62±13.1	61.9±13.1
Male sex—no. (%)	304 (60.8)	316 (63.2)
Race—no. (%)†		
Asian	277 (55.4)	285 (57.0)
Black	73 (14.6)	58 (11.6)
White	142 (28.4)	145 (29.0)
Other or unknown	8 (1.6)	12 (2.4)
Hispanic ethnic group—no. (%)†	38 (7.6)	41 (8.2)
Recruited at site in Asia—no. (%)	264 (52.8)	273 (54.6)
Glasgow Coma Scale score—no. (%)‡		
3–11	73 (14.6)	74 (14.8)
12–14	152 (30.4)	142 (28.4)
15	275 (55.0)	284 (56.8)
Systolic blood pressure at presentation in emergency department—mm Hg§	200±27.1	201.1±26.9
Median NIHSS score (range)¶	11 (0–40)	11 (0–40)
Intracerebral hematoma volume		
>30 cm³—no./total no. (%)	45/496 (9.1)	51/492 (10.4)
Median (range)—cm³	10.3 (2.3–85.2)	10.2 (0.98–79.1)
Intraventricular hemorrhage—no./total no. (%)	122/496 (24.6)	142/492 (28.9)
Location of hemorrhage—no./total no. (%)		
Thalamus	193/496 (38.9)	180/492 (36.6)
Basal ganglia	255/496 (51.4)	251/492 (51.0)
Cerebral lobe	48/496 (9.7)	60/492 (12.2)
Cerebellum	0/496	1/492 (0.2)

Pas de différence entre les 2 groupes

Etude arrêtée précocement

Table 2. Primary, Secondary, and Safety Outcomes, According to Treatment Group.\*

Outcome	Intensive Treatment (N=500)	Standard Treatment (N=500)	Unadjusted Analysis		Adjusted Analysis†	
			Relative Risk or Beta Estimate (95% CI)	P Value	Relative Risk or Beta Estimate (95% CI)	P Value
Primary outcome: death or disability — no./total no. (%)‡	186/481 (38.7)	181/480 (37.7)	1.02 (0.83 to 1.25)	0.84	1.04 (0.85 to 1.27)	0.72
Hematoma expansion — no./total no. (%)§	85/450 (18.9)	104/426 (24.4)	0.78 (0.59 to 1.04)	0.09	0.78 (0.58 to 1.03)	0.08
Neurologic deterioration within 24 hr — no. (%)¶	55 (11.0)	40 (8.0)	1.38 (0.92 to 2.07)	0.13	1.39 (0.92 to 2.09)	0.11
Treatment-related serious adverse event within 72 hr — no. (%)	8 (1.6)	6 (1.2)	1.33 (0.46 to 3.84)	0.59	1.37 (0.47 to 3.95)	0.56
Any serious adverse event within 3 mo — no. (%)	128 (25.6)	100 (20.0)	1.28 (0.99 to 1.66)	0.06	1.30 (1.00 to 1.69)	0.05
Hypotension within 72 hr — no. (%)	6 (1.2)	3 (0.6)	2.00 (0.50 to 8.00)	0.33	1.96 (0.49 to 7.87)	0.34
Death — no. (%)	33 (6.6)	34 (6.8)	0.97 (0.60 to 1.57)	0.90	0.99 (0.61 to 1.60)	0.97
EQ-5D utility index score**††			-0.01 (-0.05 to 0.02)	0.47	-0.02 (-0.05 to 0.02)	0.29
Median	0.7	0.7				
Range	-0.1 to 1.0	0 to 1.0				
EQ-5D visual-analogue scale score**‡‡			-1.14 (-5.28 to 2.99)	0.59	-1.32 (-5.25 to 2.60)	0.51
Median	62.5	70				
Range	0 to 100	0 to 100				

## The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JUNE 20, 2013

VOL. 368 NO. 25

### Rapid Blood-Pressure Lowering in Patients with Acute Intracerebral Hemorrhage

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Mark Parsons, M.D., Ph.D., Yuechun Li, M.D., Jinchao Wang, M.D., Stephane Heritier, Ph.D., Qiang Li, B.Sc.,  
Mark Woodward, Ph.D., R. John Simes, M.D., Ph.D., Stephen M. Davis, M.D., and John Chalmers, M.D., Ph.D.,  
for the INTERACT2 Investigators\*

- Faut-il faire baisser plus rapidement?
- 2833 patients
- Objectif TA en moins d'une heure
- Glasgow >5

**Table 2. Treatment of Patients with Intracerebral Hemorrhage.**

Variable	Intensive Blood-Pressure Lowering (N=1399)	Guideline- Recommended Blood-Pressure Lowering (N=1430)	P Value
Time from ICH to start of treatment — hr			
Median	4.0	4.5	
Interquartile range	2.9–5.1	3.0–7.0	<0.001
Time from randomization to start of treatment — hr			
Median	0.1	0.3	
Interquartile range	0.0–0.39	0.0–2.8	
Blood-pressure-lowering treatment during first 24 hr — no. (%)			
Any intravenous treatment	1260 (90.1)	613 (42.8)	<0.001
Use of a single intravenous agent	848 (60.7)	421 (29.4)	<0.001
Type of intravenous agent used			
Alpha-adrenergic antagonist, such as urapidil	454 (32.5)	191 (13.4)	
Calcium-channel blocker, such as nicardipine or nimodipine	127 (9.2)	122 (8.5)	
Combined alpha- and beta-blocker, such as labetalol	202 (14.6)	83 (5.8)	
Nitroglycerin	209 (14.9)	59 (4.1)	
Diuretic, such as furosemide	174 (12.4)	94 (6.6)	
Nitroprusside	169 (12.1)	28 (2.0)	
Nitroglycerin	82 (5.9)	50 (3.5)	
Other	83 (6.0)	44 (3.1)	
Medical and surgical treatment during the first 7 days — no./total no. (%)			
Intubation	96/1379 (7.0)	93/1400 (6.6)	0.74
Admission to an intensive care unit	532/1379 (38.6)	529/1400 (37.8)	0.67
Prophylactic treatment for deep-vein thrombosis	306/1379 (22.2)	304/1400 (21.7)	0.76
Compression stockings	147/1379 (10.7)	146/1400 (10.4)	0.84
Subcutaneous heparin	246/1379 (18.0)	245/1400 (17.5)	0.74
Use of intravenous mannitol	855/1379 (62.0)	864/1400 (61.7)	0.88
Hemostatic therapy*	57/1379 (4.1)	40/1400 (2.9)	0.07
Any surgical intervention	77/1379 (5.6)	77/1400 (5.5)	0.92
Evacuation or decompression of the hematoma	40/1379 (2.9)	36/1400 (2.6)	0.53
Insertion of a ventricular drain	41/1379 (3.0)	44/1400 (3.1)	0.80
Decision to withdraw active treatment and care	75/1379 (5.4)	46/1400 (3.3)	0.005

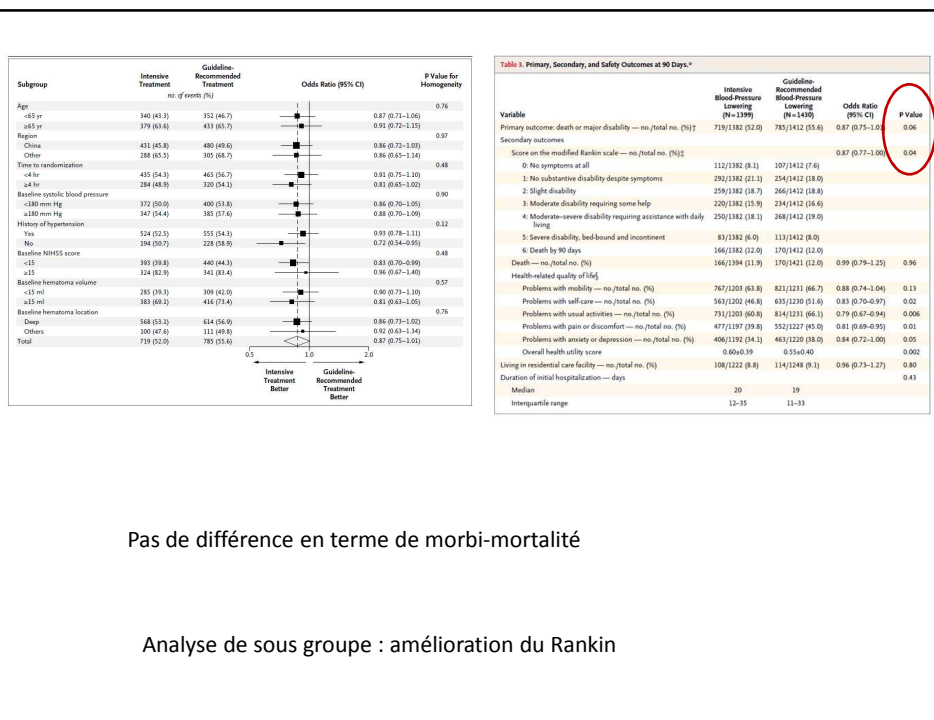
**Table 1. Baseline Characteristics of the Participants.\***

Characteristic	Intensive Blood-Pressure Lowering (N=1399)	Guideline- Recommended Blood-Pressure Lowering (N=1430)
Time from onset of ICH to randomization — hr		
Median	3.7	3.7
Interquartile range	2.8–4.8	2.9–4.7
Age — yr	63.0±13.1	64.1±12.6
Male sex — no. (%)	898 (64.2)	882 (61.7)
Recruited from China — no. (%)	947 (67.7)	973 (68.0)
Blood pressure — mm Hg		
Systolic	179±17	179±17
Diastolic	101±15	101±15
NIHSS score†		
Median	10	11
Interquartile range	6–15	6–16
GCS score‡		
Median	14	14
Interquartile range	12–15	12–15
History of hypertension — no./total no. (%)	1012/1398 (72.4)	1036/1428 (72.5)
Current use of antihypertensive drugs — no./total no. (%)	627/1398 (44.8)	647/1428 (45.3)
Prior intracerebral hemorrhage — no./total no. (%)	115/1398 (8.2)	114/1428 (8.0)
Prior ischemic or undifferentiated stroke — no./total no. (%)	157/1398 (11.2)	166/1428 (11.6)
Prior acute coronary event — no./total no. (%)	39/1398 (2.8)	42/1428 (2.9)
Diabetes mellitus — no./total no. (%)	155/1398 (11.1)	150/1428 (10.5)
Use of warfarin anticoagulation — no./total no. (%)	50/1398 (3.6)	31/1428 (2.2)
Use of aspirin or other antiplatelet agent — no./total no. (%)	123/1398 (8.8)	142/1428 (9.9)
Baseline hematoma volume — ml		
Median	11	11
Interquartile range	6–19	6–20
Deep location of hematoma — no./total no. (%)§	1084/1294 (83.8)	1098/1319 (83.2)
Left hemisphere site of hematoma — no./total no. (%)	644/1294 (49.8)	669/1319 (50.7)
Intraventricular extension of hemorrhage — no./total no. (%)	371/1294 (28.7)	369/1319 (28.0)

**Table 3. (Continued.)**

Variable	Intensive Blood-Pressure Lowering (N=1399)	Guideline- Recommended Blood-Pressure Lowering (N=1430)	Odds Ratio (95% CI)	P Value
Safety outcomes — no./total no. (%)				
Neurologic deterioration in first 24 hr¶	198/1369 (14.5)	211/1395 (15.1)	0.95 (0.77–1.17)	0.62
Nonfatal serious adverse events	326/1399 (23.3)	338/1430 (23.6)		0.92
Any neurologic deterioration from intracerebral hemorrhage¶¶	47/1399 (3.4)	55/1430 (3.8)		0.49
Recurrent intracerebral hemorrhage	4/1399 (0.3)	4/1430 (0.3)		
Ischemic or undifferentiated stroke	8/1399 (0.6)	8/1430 (0.6)		
Acute coronary event	5/1399 (0.4)	5/1430 (0.3)		
Other cardiovascular disease	22/1399 (1.6)	26/1430 (1.8)		
Noncardiovascular disease	160/1399 (11.4)	152/1430 (10.6)		0.49
Severe hypotension††	7/1399 (0.5)	8/1430 (0.6)		

Bien toléré



Pas de différence en terme de morbi-mortalité

Analyse de sous groupe : amélioration du Rankin

## Quelles recommandations?

- SFNV
- AHA/ASA

### Acute Blood Pressure Management in Intracerebral Hemorrhage

Equipoise Resists an Attack

Kenneth Butcher, MD, PhD, FRCP; Magdy Selim, MD, PhD

#### Recommendations

For ICH patients presenting with SBP between 150 and 220 mm Hg and without contraindication to acute BP treatment, acute lowering of SBP to 140 mm Hg is safe (*Class I; Level of Evidence A*) and can be effective for improving functional outcome (*Class IIa; Level of Evidence B*). (Revised from the previous guideline)

For ICH patients presenting with SBP >220 mm Hg, it may be reasonable to consider aggressive reduction of BP with a continuous intravenous infusion and frequent BP monitoring (*Class IIb; Level of Evidence C*)

# The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JUNE 16, 2016

VOL. 374 NO. 24

## Low-Dose versus Standard-Dose Intravenous Alteplase in Acute Ischemic Stroke

C.S. Anderson, T. Robinson, R.J. Lindley, H. Arima, P.M. Lavados, T.-H. Lee, J.P. Broderick, X. Chen, G. Chen, V.K. Sharma, J.S. Kim, N.H. Thang, Y. Cao, M.W. Parsons, C. Levi, Y. Huang, V.V. Olavarria, A.M. Demchuk, P.M. Bath, G.A. Donnan, S. Martins, O.M. Pontes-Neto, F. Silva, S. Ricci, C. Roffe, J. Pandian, L. Billot, M. Woodward, Q. Li, X. Wang, J. Wang, and J. Chalmers, for the ENCHANTED Investigators and Coordinators\*

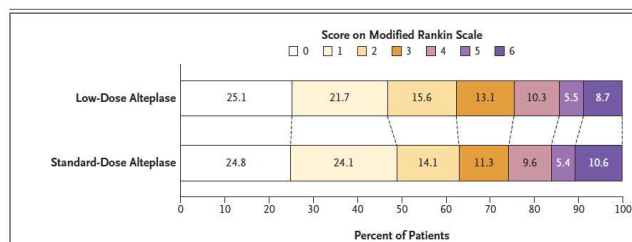
- Peut on thrombolysier avec une dose plus faible de rTpa?
- 3000 patients
- Internationale, multicentrique
- 0.6 vs 0.9 mg/kg de tpa
- Contrôle de la PA dans le groupe 0.6 mg/kg (PA<140)
- Etude de non infériorité

Table 1. Characteristics of the Patients at Baseline and Their Treatment.\*

Variable	Low-Dose Alteplase (N=1654)	Standard-Dose Alteplase (N=1643)
Age—yr		
Median	68	67
IQR	58–76	58–76
Female sex—no. (%)	634 (38.3)	614 (37.4)
Region of recruitment—no. (%)		
China	708 (42.8)	711 (43.3)
United Kingdom, continental Europe, or Australia	445 (26.9)	439 (26.7)
Asia, other than China	336 (20.3)	334 (20.3)
South America	165 (10.0)	159 (9.7)
Asian race—no./total no. (%)†	1043/1651 (63.2)	1036/1640 (63.2)
Medical history—no./total no. (%)‡		
Hypertension	1031/1648 (62.6)	1034/1640 (63.0)
Any stroke	287/1654 (17.4)	302/1643 (18.4)
Coronary artery disease	256/1648 (15.5)	223/1640 (13.6)
Atrial fibrillation	330/1645 (20.1)	306/1640 (18.7)
Diabetes mellitus	325/1648 (19.7)	321/1640 (19.6)
Hypercholesterolemia	297/1648 (18.0)	258/1640 (15.7)
Current cigarette use	377/1646 (22.9)	393/1638 (24.0)
Modified Rankin scale score of 0 before stroke§	1349/1647 (81.9)	1325/1639 (80.8)
Use of antihypertensive agent	755/1648 (45.8)	743/1640 (45.3)
Use of statin or other lipid-lowering agent	333/1646 (20.2)	282/1638 (17.2)
Use of aspirin or other antiplatelet agent	407/1647 (24.7)	345/1638 (21.1)
Warfarin anticoagulation	48/1647 (2.9)	34/1638 (2.1)
Blood pressure—mm Hg		
Systolic	149±20	150±20
Diastolic	84±13	85±13
NIHSS score—median (IQR)¶	8 (5–14)	8 (5–14)
Signs of cerebral ischemia on brain imaging—no./total no. (%)	388/1648 (23.5)	383/1640 (23.4)
Proximal vessel occlusion on CTA or MRA—no./total no. (%)	258/1622 (15.9)	248/1624 (15.3)
Final diagnosis at time of hospital discharge—no./total no. (%)**		
Nonstroke diagnosis	50/1625 (3.1)	47/1609 (2.9)
Large-artery occlusion due to clinically significant atheroma	622/1625 (38.3)	648/1609 (40.3)
Small-vessel or perforator lacunar disease	334/1625 (20.6)	339/1609 (21.1)
Cardioembolism	324/1625 (19.9)	317/1609 (19.7)
Dissection	14/1625 (0.9)	11/1609 (0.7)
Other or uncertain cause of stroke	281/1625 (17.3)	247/1609 (15.4)
Time from stroke onset to alteplase administration—min††		
Median	170	170
IQR	125–218	127–219
Estimated body weight before alteplase administration—kg	69.6±14.4	69.9±14.4

**Table 2. Primary and Secondary Outcomes at 3 Months.<sup>a</sup>**

Outcome	Low-Dose Alteplase (N=1654)	Standard-Dose Alteplase (N=1643)	Odds Ratio with Low-Dose Alteplase (95% CI)	P Value <sup>†</sup>	P Value for Noninferiority <sup>‡</sup>
Primary outcome: death or disability — no./total no. (%)§	855/1607 (53.2)	817/1599 (51.1)	1.09 (0.95 to 1.25)		0.51
Secondary outcomes					
Symptomatic intracerebral hemorrhage — no. (%)					
By SITS-MOST criteria¶	17 (1.0)	35 (2.1)	0.48 (0.27 to 0.86)	0.01	
By NIHSS criteria	98 (5.9)	131 (8.0)	0.73 (0.55 to 0.95)	0.02	
Score on the modified Rankin scale — no./total no. (%)					
0: No symptoms at all	403/1607 (25.1)	397/1599 (24.8)	1.00 (0.89 to 1.13)**		0.04
1: No substantive disability despite symptoms	255/1607 (15.9)	225/1599 (14.1)			
2: Slight disability	250/1607 (15.6)	225/1599 (14.1)			
3: Moderate disability requiring some help	211/1607 (13.1)	181/1599 (11.3)			
4: Moderate-severe disability requiring assistance with daily living	165/1607 (10.3)	154/1599 (9.6)			
5: Severe disability, bed-bound and incontinent	89/1607 (5.5)	87/1599 (5.4)			
6: Death	140/1607 (8.7)	170/1599 (10.6)			
Death or major disability — no./total no. (%)††	605/1607 (37.6)	592/1599 (37.0)	1.03 (0.89 to 1.19)	0.73	
Death within 90 days — no. (%)	140 (8.5)	170 (10.3)	0.80 (0.63 to 1.01)	0.07	
Overall health utility score on the EQ-5D‡‡	0.64±0.40	0.64±0.41	0.00 (-0.03 to 0.03)§§	0.86	
Admission to residential care — no./total no. (%)	36/1513 (2.4)	43/1476 (2.9)	0.81 (0.52 to 1.27)	0.36	
Median duration of hospitalization (IQR) — days	10 (5 to 17)	10 (5 to 18)	-0.47 (-1.93 to 1.00)§§	0.53	
Death or neurologic deterioration in 72 hr — no. (%)¶¶	177 (10.7)	192 (11.7)	0.91 (0.73 to 1.12)	0.37	
Serious adverse event — no. (%)	415 (25.1)	448 (27.3)	0.89 (0.76 to 1.04)	0.16	



**Figure 1. Functional Outcomes at 90 Days, According to Score on the Modified Rankin Scale.**

Shown is the raw distribution of scores on the modified Rankin scale at 90 days in the group that received a low dose of alteplase (0.6 mg per kilogram of body weight) and the group that received the standard dose of alteplase (0.9 mg per kilogram). Scores on the modified Rankin scale range from 0 to 6, with 0 indicating no symptoms, 1 symptoms without clinically significant disability, 2 slight disability, 3 moderate disability, 4 moderately severe disability, 5 severe disability, and 6 death.

Subgroup	Low-Dose Alteplase no. (%)	Standard-Dose Alteplase no. (%)	Odds Ratio (95% CI)	P Value for Interaction
Age				0.20
<65 yr	302 (43.9)	301 (44.3)	0.98 (0.79–1.22)	
≥65 yr	553 (60.2)	516 (56.1)	1.18 (0.98–1.42)	
Sex				0.53
Male	503 (50.9)	480 (48.0)	1.12 (0.94–1.34)	
Female	352 (57.0)	317 (56.4)	1.02 (0.82–1.29)	
Race				0.82
Asian	527 (51.5)	500 (49.0)	1.10 (0.93–1.31)	
Non-Asian	328 (56.4)	317 (54.7)	1.07 (0.85–1.35)	
Time from stroke onset to randomization				0.63
<3 hr	536 (54.5)	497 (51.8)	1.12 (0.93–1.34)	
≥3 hr	319 (51.1)	320 (50.1)	1.04 (0.84–1.30)	
Baseline systolic blood pressure				0.08
≤150 mm Hg	404 (50.6)	402 (51.6)	0.96 (0.79–1.17)	
>150 mm Hg	451 (55.7)	415 (50.6)	1.23 (1.01–1.49)	
Baseline NIHSS score				0.31
≤8	282 (34.9)	282 (34.6)	1.01 (0.83–1.24)	
>8	573 (71.8)	535 (68.3)	1.18 (0.95–1.46)	
Final diagnosis of ischemic stroke				0.88
Large-artery atheroma occlusion	356 (58.0)	362 (56.7)	1.05 (0.84–1.32)	
Small-vessel disease	114 (34.4)	110 (33.0)	1.07 (0.77–1.47)	
Cardioembolism	212 (67.5)	193 (61.7)	1.29 (0.93–1.79)	
Other definite or uncertain cause	138 (51.1)	117 (49.2)	1.08 (0.76–1.53)	
Cerebral infarction on CT				0.66
Yes	205 (58.9)	220 (58.0)	0.94 (0.72–1.23)	
No	649 (51.7)	597 (48.9)	1.12 (0.93–1.31)	
Use of antiplatelet agent				0.05
Yes	222 (56.3)	204 (60.7)	0.84 (0.62–1.12)	
No	632 (52.3)	612 (48.5)	1.16 (0.99–1.36)	
Evidence of atrial fibrillation				0.54
Yes	249 (66.9)	251 (68.5)	0.94 (0.69–1.28)	
No	603 (49.1)	584 (46.4)	1.11 (0.95–1.30)	

- La dose faible n'a pas atteint la non infériorité
- Non infériorité atteint pour mRs<2
  - A discuter quand risque hémorragique élevé

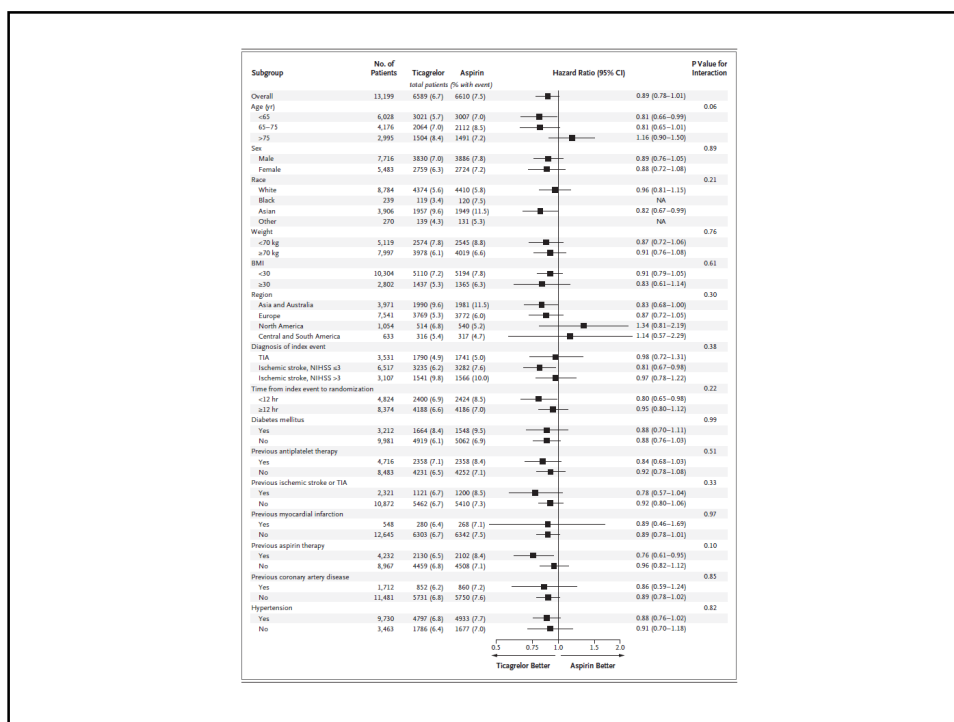
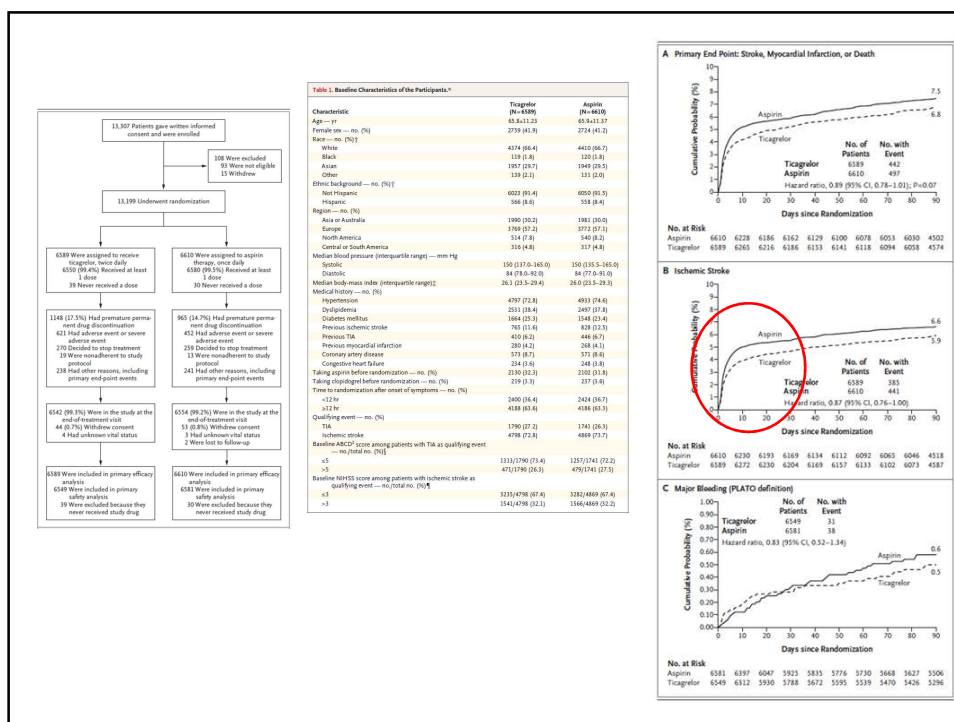
## ORIGINAL ARTICLE

## Ticagrelor versus Aspirin in Acute Stroke or Transient Ischemic Attack

S. Claiborne Johnston, M.D., Ph.D., Pierre Amarenco, M.D., Gregory W. Albers, M.D., Hans Denison, M.D., Ph.D., J. Donald Easton, M.D., Scott R. Evans, Ph.D., Peter Held, M.D., Ph.D., Jenny Jonasson, Ph.D., Kazuo Minematsu, M.D., Ph.D., Carlos A. Molina, M.D., Yongjun Wang, M.D., and K.S. Lawrence Wong, M.D., for the SOCRATES Steering Committee and Investigators\*

- Données de CHANCE
- 13200 patients à haut risques
- Score ABCD2 > 4 ou AVC i avec NIHSS < 5
- Multicentrique, internationale, 33 pays
- AVC non cardio-embolique
- Endpoint : délai d'apparition d'un événement vasculaire (AVC, IDM ou décès)

		Score ABCD2	Risque d'AVC à J2	Risque d'AVC à J7	Risque d'AVC à 3 mois
-A = Age :					
• ≥ 60 ans	=1				
-B = Pression artérielle :					
• PAS > 140 et/ou PAD ≥ 90 mmHg	=1				
-C = Caractéristiques de l'AIT :					
• Faiblesse unilatérale, hémiparésie	=2	0-3	1%	1,2%	3,1%
• Troubles du langage	=1				
• Autre signes	=0	4-5	4,1%	5,9%	9,8%
-D = Durée de l'AIT :					
• ≥ 60 min	=2				
• 10 à 59 min	=1	6-7	8,1%	11,7%	17,8%
• < 10 min	=0				
-D : Diabète	=1				



# Stroke

JOURNAL OF THE AMERICAN HEART ASSOCIATION



## Air Pollution Is Associated With Ischemic Stroke via Cardiogenic Embolism

Jong-Won Chung, Oh Young Bang, Kangmo Ahn, Sang-Soon Park, Tai Hwan Park, Jae Guk Kim, Youngchai Ko, SooJoo Lee, Kyung Bok Lee, Jun Lee, Kyusik Kang, Jong-Moo Park, Yong-Jin Cho, Keun-Sik Hong, Hyun-Wook Nah, Dae-Hyun Kim, Jae-Kwan Cha, Wi-Sun Ryu, Dong-Eog Kim, Joon-Tae Kim, Jay Chol Choi, Mi-Sun Oh, Kyung-Ho Yu, Byung-Chul Lee, Ji Sung Lee, Juneyoung Lee, Hong-Kyun Park, Beom Joon Kim, Moon-Ku Han and Hee-Joon Bae

*Stroke*. published online November 29, 2016;  
*Stroke* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231  
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 Print ISSN: 0039-2499. Online ISSN: 1524-4638

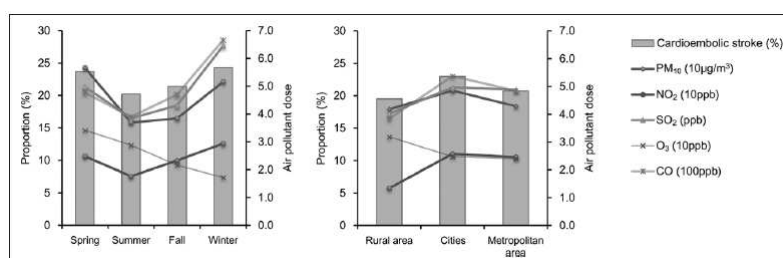
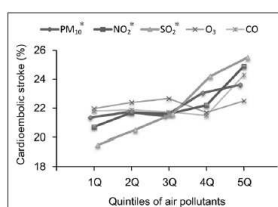
- Variabilité saisonnière des AVC i (Framingham)
- Rôle arythmogène des polluants?
- Etude coréenne, multicentrique (12)
- Comparaison de la mesure de différents polluants 7 jours avant l'AVC (PM10, SO2, NO2, O3, CO)
- Classification selon TOAST

	CE (n=3010)	LAA (n=499)	SW (n=2237)	OD and UD (n=3295)	P Value
Male sex	1564 (52.0)	3081 (61.7)	1380 (60.8)	1909 (42.1)	<0.001
Age, y	71.81±11.34	67.55±12.19	64.52±12.35	66.02±14.28	<0.001
Body mass index, kg/m <sup>2</sup>	23.17±3.27	23.72±3.22	23.98±3.18	23.49±3.41	<0.001
Medical history					
Stroke	719 (23.9)	1116 (22.4)	353 (15.8)	660 (20.0)	<0.001
Coronary heart disease	421 (13.9)	415 (8.3)	123 (5.5)	210 (6.4)	<0.001
Hypertension	2769 (90.9)	3424 (79.6)	3466 (15.5)	2943 (82.0)	<0.001
Diabetes mellitus	825 (27.4)	1889 (37.7)	742 (33.2)	880 (26.7)	<0.001
Dyslipidemia	891 (29.4)	1665 (33.3)	759 (33.9)	892 (27.1)	<0.001
Atrial fibrillation	2319 (77.0)	26 (0.5)	2 (0.1)	518 (15.7)	<0.001
Cigarette smoking					<0.001
Never smoked	2087 (69.3)	2875 (57.6)	1215 (54.3)	2012 (61.1)	
Ex-smoker	451 (15.0)	723 (14.5)	260 (11.6)	411 (12.5)	
Current smoker	472 (15.7)	1395 (27.9)	762 (34.1)	872 (26.5)	
Laboratory findings					
Systolic blood pressure, mm Hg	143.03±26.30	146.51±25.87	153.26±28.58	143.88±26.52	<0.001
Total cholesterol, mg/dL	167.40±40.77	179.83±43.45	183.05±41.58	173.48±42.65	<0.001
LDL cholesterol, mg/dL	102.83±35.05	113.37±37.60	115.91±36.21	107.84±36.45	<0.001
Fasting glucose, mg/dL	121.80±44.61	123.72±54.07	117.11±47.03	118.57±47.56	<0.001
Medication before onset					
Anticardiolipin agents	1134 (37.7)	1396 (27.9)	561 (25.1)	900 (27.3)	<0.001
Warfarin	444 (14.6)	27 (0.5)	9 (0.4)	122 (3.7)	<0.001
Statins	584 (19.4)	857 (17.2)	277 (12.4)	511 (15.5)	<0.001
NIHSS at admission, median (IQR)	8 (3–16)	3 (1–7)	2 (1–6)	4 (1–8)	<0.001

	Crude OR (95% CI)	P Value	Adjusted OR (95% CI)*	P Value	Adjusted OR (95% CI)†	P Value
PM <sub>10</sub> by 10-µg/m <sup>3</sup> increments						
LAA	1		1		1	
SW	1.02 (0.98–1.06)	0.99	1.030 (0.98–1.07)	0.17	1.030 (0.98–1.07)	0.22
CE	1.04 (1.01–1.07)	0.02	1.060 (1.01–1.10)	0.01	1.051 (1.002–1.101)	0.04
OD and UD	0.99 (0.96–1.02)	1.00	1.000 (0.97–1.03)	1.00	0.999 (0.97–1.02)	1.00
NO <sub>2</sub> by 10-ppb increments						
LAA	1		1		1	
SW	0.98 (0.96–1.00)	1.00	0.990 (0.97–1.00)	1.00	0.990 (0.97–1.00)	1.00
CE	1.12 (1.08–1.16)	<0.001	1.090 (1.05–1.13)	<0.001	1.080 (1.04–1.12)	0.17
OD and UD	0.96 (0.91–1.02)	0.23	0.970 (0.91–1.03)	0.82	0.950 (0.89–1.01)	0.11
SO <sub>2</sub> by 10-ppb increments						
LAA	1		1		1	
SW	1.03 (0.75–1.42)	1.00	1.08 (0.78–1.48)	1.00	1.05 (0.75–1.55)	1.00
CE	1.86 (1.44–2.41)	<0.001	1.63 (1.11–2.40)	<0.01	1.57 (1.02–2.42)	0.04
OD and UD	1.10 (0.82–1.48)	1.00	1.10 (0.84–1.45)	1.00	1.01 (0.75–1.36)	1.00
O <sub>3</sub> by 10-ppb increments						
LAA	1		1		1	
SW	1.01 (0.95–1.07)	1.00	1.01 (0.95–1.07)	1.00	1.02 (0.95–1.08)	1.00
CE	1.01 (0.96–1.06)	1.00	1.03 (0.96–1.11)	0.94	1.07 (0.98–1.16)	0.18
OD and UD	1.01 (0.96–1.07)	1.00	1.01 (0.96–1.07)	1.00	1.03 (0.98–1.08)	0.50
CO by 1-ppm increments						
LAA	1		1		1	
SW	0.99 (0.71–1.39)	1.00	1.06 (0.75–1.50)	1.00	1.03 (0.69–1.56)	1.00
CE	1.20 (0.90–1.60)	0.37	1.15 (0.79–1.78)	1.00	0.98 (0.69–1.62)	1.00
OD and UD	0.74 (0.55–0.99)	0.04	0.77 (0.57–1.04)	0.11	0.61 (0.43–0.86)	<0.01

Values are presented as the number of patients (%) or means (SD) if not indicated. CE indicates cardioembolism; IQR, interquartile range; LAA, large artery atherosclerosis; LDL, low-density lipoprotein; NIHSS, National Institutes of Health Stroke Scale; CI, confidence interval; SW, small-vessel disease; OD, undetermined; UD, undetermined.





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