THROMBECTOMIE TARDIVE

ETUDES DAWN ET DEFUSE-3

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CAEN 21/06/2018

THROMBECTOMIE

OCCLUSION PROXIMALE (LVO)-CIRCULATION ANTERIEURE-DANS LES 6 HEURES

CLASS 1 LEVEL A

3.7. Mechanical Thrombectomy (Continued)	COR	LOE	New, Revised, or Unchanged
3. Patients should receive mechanical thrombectomy with a stent retriever if they meet all the following criteria: (1) prestroke mRS score of 0 to 1; (2) causative occlusion of the internal carotid artery or MCA segment 1 (M1); (3) age ≥18 years; (4) NIHSS score of ≥6; (5) ASPECTS of ≥6; and (6) treatment can be initiated (groin puncture) within 6 hours of symptom onset.	I	A	Recommendation revised from 2015 Endovascular.
Results from 6 recent randomized trials of mechanical thrombectomy using predominantly stent retriever devices (MR CLEAN, SWIFT PRIME, EXTEND-IA, ESCAPE, REVASCAT, THRACE) support Class I, LOE A recommendations for a defined group of patients as described in the 2015 guidelines.[102–107] A pooled, patient-level analysis from 5 of these studies reported by the HERMES collaboration showed treatment effect in the subgroup of 188 patients not treated with IV alteplase (cOR, 2.43; 95% CI, 1.30–4.55); therefore, pretreatment with IV alteplase has been removed from the prior recommendation. The HERMES pooled patient-level data also showed that mechanical thrombectomy had a favorable effect over standard care in patients ≥80 years old (cOR, 3.68; 95% CI, 1.95–6.92).[172] In patient-level data pooled from trials in which the Solitaire was the only or the predominant device used, a prespecified meta-analysis (SEER Collaboration [Safety and Efficacy of Solitaire Stent Thrombectomy–Individual Patient Data Meta-Analysis of Randomized Trials]: SWIFT PRIME, ESCAPE, EXTEND-IA, REVASCAT) showed that mechanical thrombectomy had a favorable effect over standard care in patients ≥80 years old (3.46; 95% CI, 1.58–7.60).[173] In a meta-analysis of 5 RCTs (MR CLEAN,			See Tables XXIII and XLI in online Data Supplement 1.

AHA/ASA Guideline

2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

Reviewed for evidence-based integrity and endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons

Endorsed by the Society for Academic Emergency Medicine and Neurocritical Care Society

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

THROMBECTOMIE

AVC NNT= 2-4

CARDIO NNT >10

each 1-hour delay to reperfusion was associated with a less favorable degree of disability (cOR, 0.84 [95% CI, 0.76 to 0.93]; ARD, −6.7%) **and less functional independence** (OR, 0.81 [95% CI, 0.71 to 0.92], ARD, −5.2% [95% CI, −8.3% to −2.1%]), but no change in mortality (OR, 1.12 [95% CI, 0.93 to 1.34]; ARD, 1.5% [95% CI, −0.9% to 4.2%]).

JAMA META ANALYSE 2016

THROMBECTOMIE

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

POINT COMMUN=IMAGERIE

FAVORABLE

017

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

DEFUSE-3 1/2018

Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging

G.W. Albers, M.P. Marks, S. Kemp, S. Christensen, J.P. Tsai, S. Ortega-Gutierrez, R.A. McTaggart, M.T. Torbey, M. Kim-Tenser, T. Leslie-Mazwi, A. Sarraj, S.E. Kasner, S.A. Ansari, S.D. Yeatts, S. Hamilton, M. Mlynash, J.J. Heit,

DAWN ET DEFUSE-3

- ETUDES MULTICENTRIQUES PROSPECTIVES RANDOMISEES
- THROMBECTOMIE (+/- rTPA) versus TRAITEMENT MEDICAL > 6H DE DEBUT DES SYMTOMES
- OBJECTIF: TAUX D'INDEPENDENCE FONCTIONNELLE A 3 MOIS
- CT/MRI QUI A PERMIS LE CALCUL DU TISSUE A SAUVER (PERFUSION)

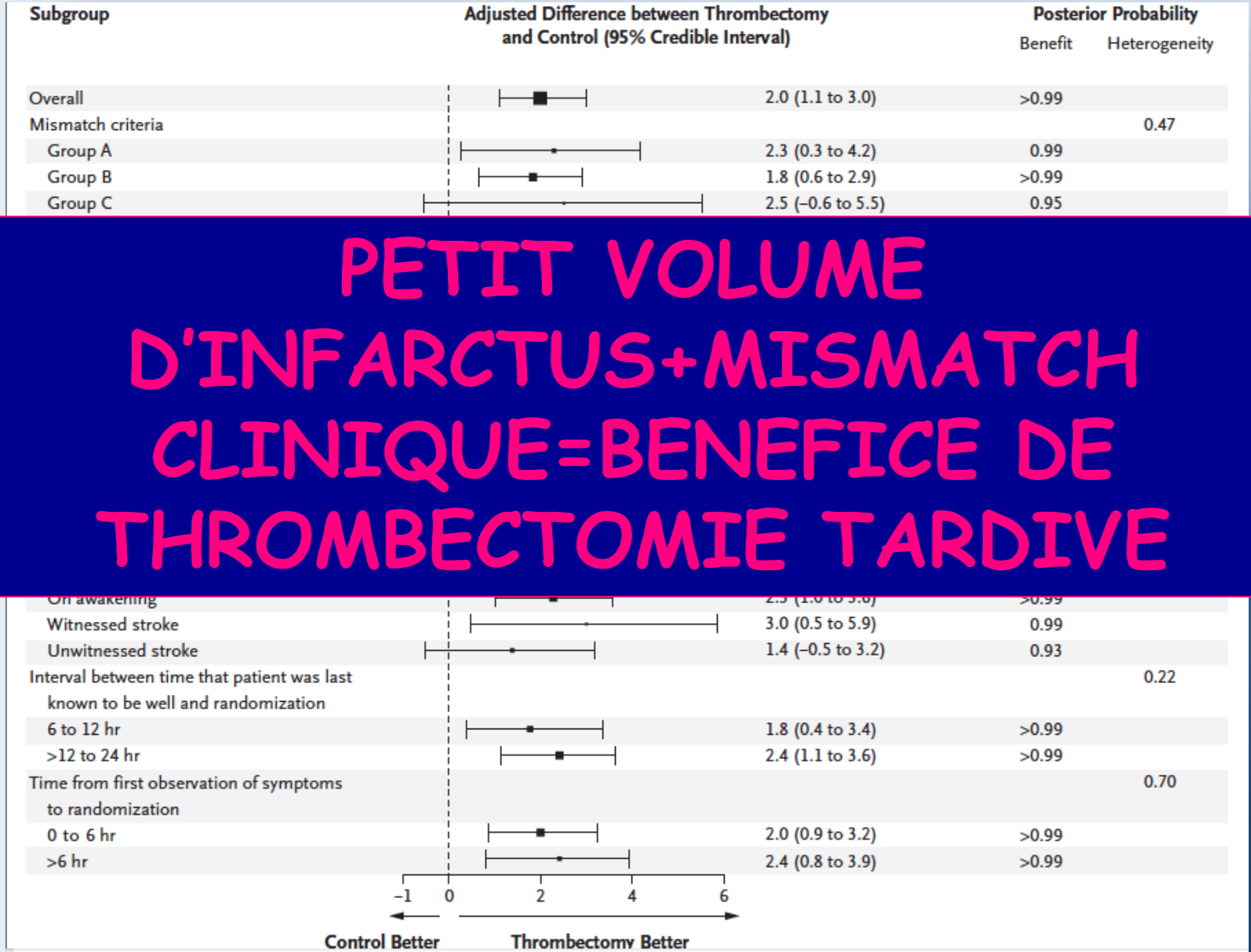
DAWN

	Group A	Group B	Group C
Age	> 80 ans	< 80 ans	< 80 ans
NIHSS	>= 10	>= 10	>= 20
Infarct Volume	< 21 mL	< 31 mL	31 to < 51 mL

DAWN

Age ≥80 yr — no. (%)	25 (23)	29 (29)
Male sex — no. (%)	42 (39)	51 (52)
Atrial fibrillation — no. (%)	43 (40)	24 (24)
Diabetes mellitus — no. (%)	26 (24)	31 (31)
Hypertension — no. (%)	83 (78)	75 (76)
Previous ischemic stroke or transient ischemic attack — no. (%)	12 (11)	11 (11)
NIHSS score†		
Median	17	17
Interquartile range	13–21	14–21
10 to 20 — no. (%)	78 (73)	72 (73)
Treatment with intravenous alteplase — no. (%)	5 (5)	13 (13)
Infarct volume — ml		
Median	7.6	8.9
Interquartile range	2.0–18.0	3.0–18.1
Type of stroke onset — no. (%)‡		
On awakening	67 (63)	47 (47)
Unwitnessed stroke	29 (27)	38 (38)
Witnessed stroke	11 (10)	14 (14)
Occlusion site — no. (%)§		
Intracranial internal carotid artery	22 (21)	19 (19)
First segment of middle cerebral artery	83 (78)	77 (78)
Second segment of middle cerebral artery	2 (2)	3 (3)
Interval between time that patient was last known to be well and randomization — hr		
Median	12.2	13.3
Interquartile range	10.2–16.3	9.4–15.8
Range	6.1–23.5	6.5–23.9

DAWN



PETIT VOLUME D'INFARCTUS+MISMATCH CLINIQUE=BENEFICE DE THROMBECTOMIE TARDIVE

DEFUSE-3

INFARCT VOLUME <70 ml

PENOMBRE>15 ml

MISMATCH PENOMBRE/TISSUE ISCHEMIQUE ≥ 1,8

DEFUSE-3

Characteristic	Endovascular Therapy (N=92)	Medical Therapy (N=90)
Median age (IQR) — yr	70 (59–79)	71 (59–80)
Female sex — no. (%)	46 (50)	46 (51)
Median NIHSS score (IQR)†	16 (10–20)	16 (12–21)
Stroke onset witnessed — no. (%)		
Yes‡	31 (34)	35 (39)
No		
Symptoms were present on awakening	49 (53)	42 (47)
Symptoms began during wakefulness	12 (13)	13 (14)
Treatment with intravenous t-PA — no. (%)§	10 (11)	8 (9)
Imaging characteristics¶		
Qualifying imaging — no. (%)		
CT perfusion imaging	69 (75)	64 (71)
Diffusion and perfusion MRI	23 (25)	26 (29)
Median volume of ischemic core (IQR) — ml	9.4 (2.3–25.6)	10.1 (2.1–24.3)
Median volume of perfusion lesion (IQR) — ml‖	114.7 (79.3–146.3)	116.1 (73.4–158.2)
Occlusion site on baseline CTA or MRA — no. (%)		
Internal carotid artery	32 (35)	36 (40)
Middle cerebral artery**	60 (65)	54 (60)
Median ASPECTS on baseline CT (IQR)††	8 (7–9)	8 (7–9)
Process measures — hr:min		
Median time from stroke onset to qualifying imaging (IQR)	10:29 (8:09–11:40)	9:55 (7:59–12:20)
Median time from stroke onset to randomization (IQR)	10:53 (8:46–12:21)	10:44 (8:42–13:04)
Median time from qualifying imaging to femoral puncture (IQR)	0:59 (0:39–1:27)	NA
Median time from femoral puncture to reperfusion (IQR)	0:38 (0:26- 0:59)	NA

DEFUSE-3

Subgroup	No. of Patients	Endovascular Therapy	Medical Therapy	Risk Ratio for Functional Independence at Day 90 (95% CI)	P Value for Interaction
		functional independence (%)			
Overall	182	45	17	2.67 (1.60–4.48)	
Time from stroke onset to randomization					0.21
<9 hr	50	40	28	1.43 (0.65–3.15)	
9–12 hr	72	50	17	3.00 (1.35–6.68)	
>12 hr	60	42	7	6.08 (1.64–69.93)	
Volume of ischemic core					0.47
<10.0 ml	92	42	20	2.04 (1.04–3.99)	
Determination of time of stroke					0.87
Time that patient was last known to be well	116	38	13	2.96 (1.38–6.36)	
Exact time of symptom onset	66	58	23	2.54 (1.29–5.01)	
Sex					0.71
Female	92	35	13	2.67 (1.15–6.21)	
Male	90	54	20	2.66 (1.41–5.04)	
Race					0.58
White	158	46	16	2.84 (1.64–4.93)	
Other or unknown	24	36	20	1.79 (0.42–11.38)	
Ethnic group					0.61
Hispanic	24	57	10	5.71 (1.11–158.73)	
Non-Hispanic	157	43	18	2.45 (1.43–4.21)	
Atrial fibrillation					0.21
Yes	62	38	4	10.71 (1.91–294.11)	
No	120	48	23	2.14 (1.26–3.64)	
Eligible for DAWN trial					0.96
Yes	112	38	13	3.00 (1.39–6.49)	

PETIT VOLUME D'INFARCTUS+MISMATCH RADIO=BENEFICE DE THROMBECTOMIE TARDIVE

	DAWN	DEFUSE-3
Enrollment	206 patients Stopped at interim analysis	182 patients Stopped at interim analysis
NIHSS	≥ 10	≥ 6
TEMPS	6-24 H (25% 16-24H)	6-16 H
Core volume infarct	< 50 ml (depending age +NIHSS)	<70 ml
Criteria	Clinical-Imaging mismatch	Target imaging mismatch
TICI 2b-3	90%	76%
Functional Independence % 3M	49/13	45/17

40% OF DEFUSE-3 PATIENTS DIDN'T MEET THE DAWN INCLUSION CRITERIA

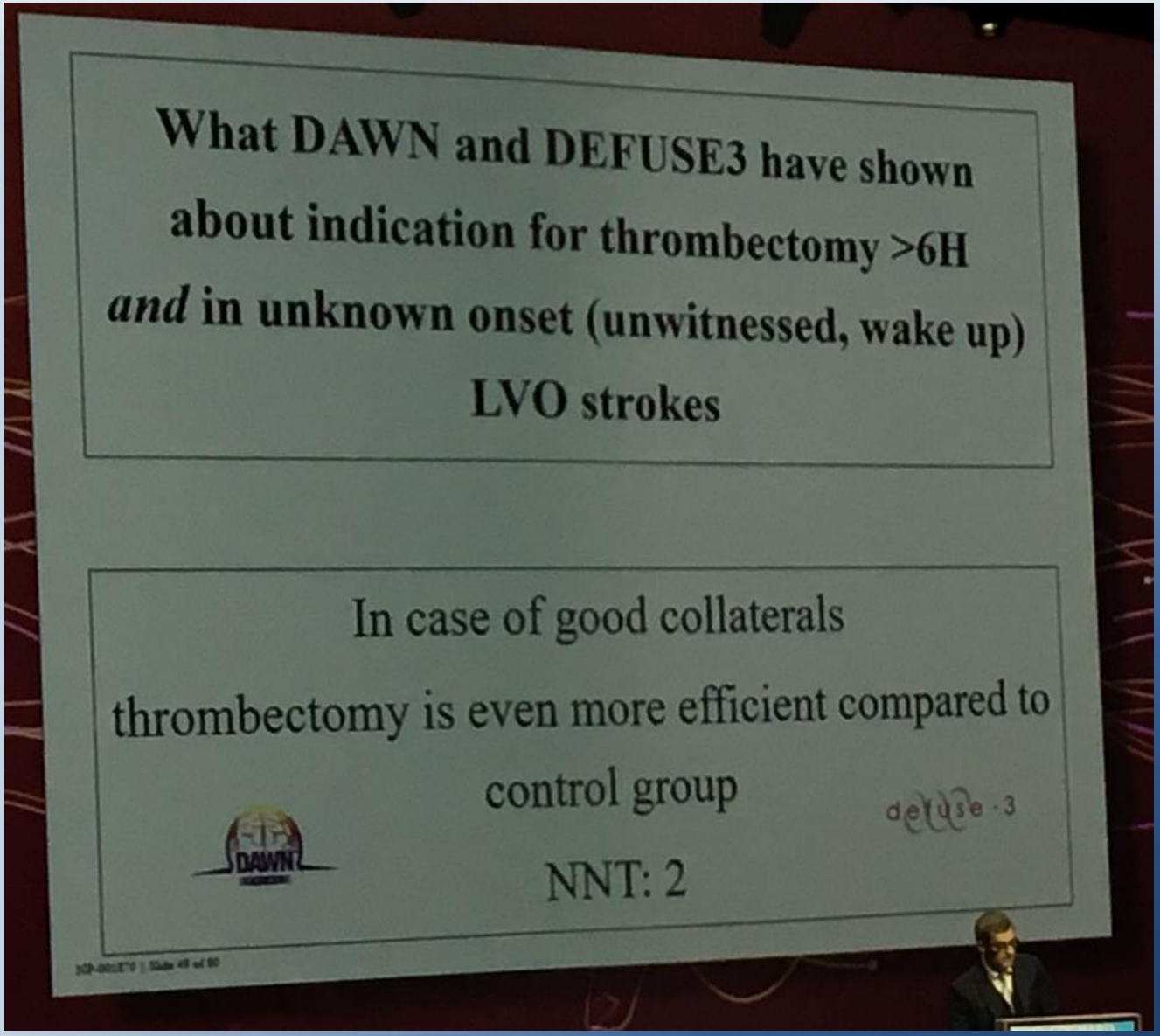
30% OF DAWN PATIENTS DIDN'T MEET THE DEFUSE-3 CRITERIA

TOO MUCH DIFFUSION AND PERFUSION CREATES CONFUSION
(A.VALAVANIS ZURICH 2005)

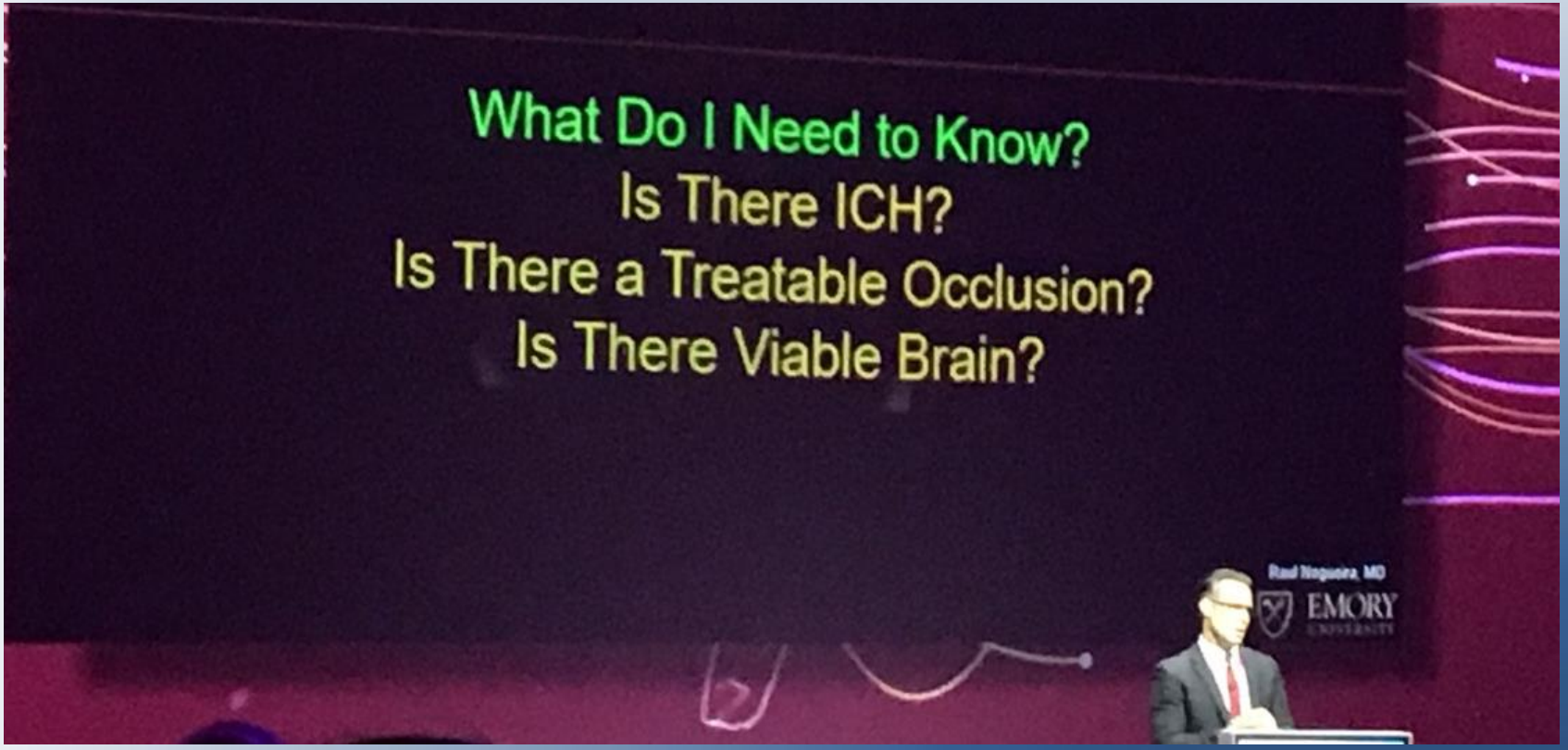
Alors, qu'est-ce qu'on fait???

Quels critères pour décider une thrombectomie tardive??
Ceux de DAWN? de DEFUSE-3?

MEET THE EXPERTS-AUTHORS OF THESE TRIALS



Prof.C.Cognard LINNC 2018



Dr.R.Nogueira LINNC 2018

$$\text{INFARCT VOLUME} = \frac{\text{OCCLUSION TIME}}{\text{COLLATERALS}}$$

$$\text{OUTCOME} = \frac{1}{\text{INFARCT VOLUME} \times \text{REGIONAL ELOQUENCE} \times \text{AGE}}$$

DAWN ET DEFUSE-3 SONT ELLES BENEFIQUES OU DANGEREUSES??

TOUS LES PATIENTS LVO DOIVENT POUVOIR BENEFICIER D'UNE THROMBECTOMIE EN < DE 6 H

SOINS INDIVIDUALISES POUR CHAQUE PATIENT

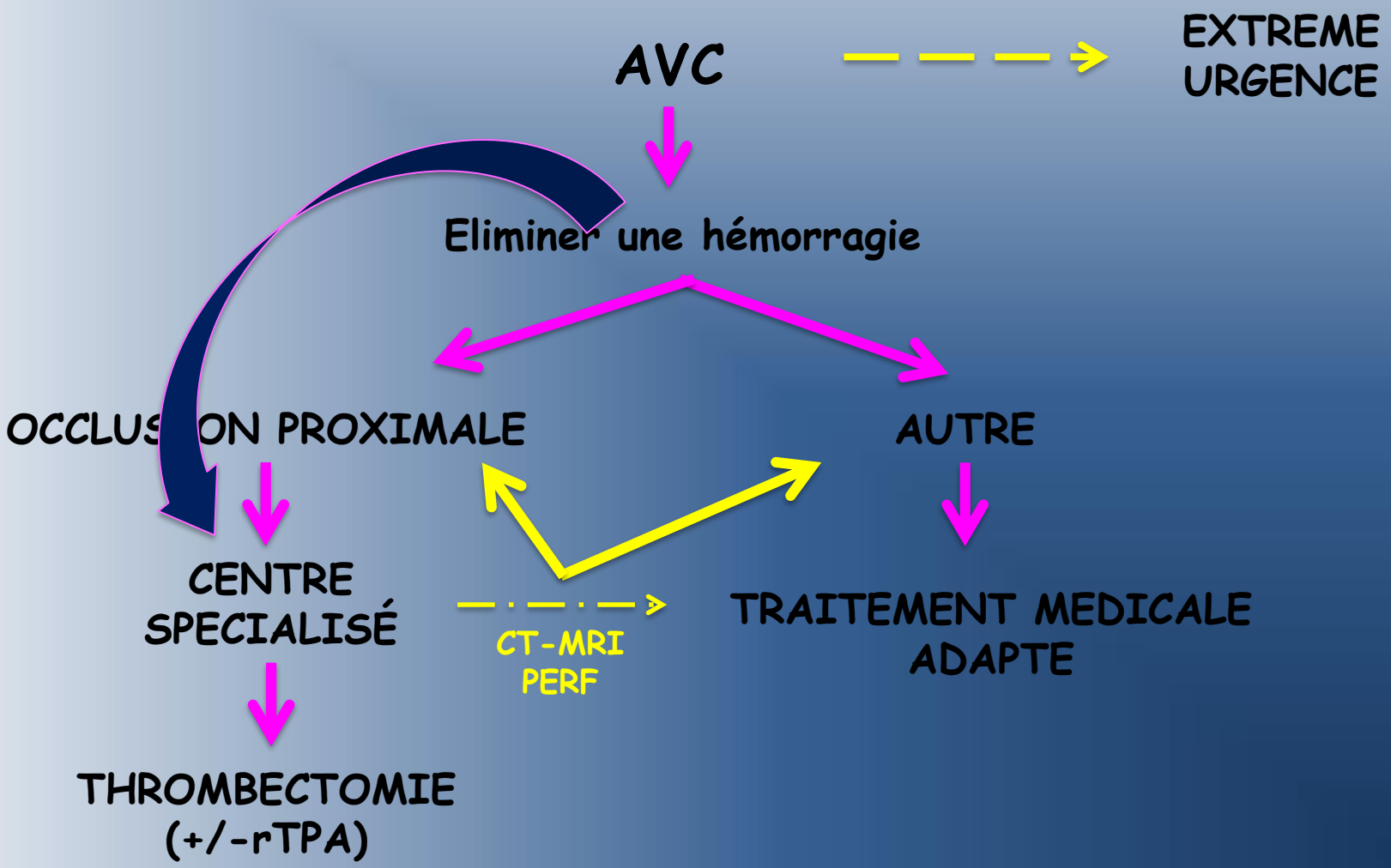
TIME IS BRAIN

QU'EST-CE QUE CES ETUDES ONT MONTRÉ?

	TRAITEMENT MEDICAL	THROMBECTOMIE <6H	DAWN+DEFUSE-3
TICI 2b-3	30%	70%	>80%
OUTCOME-mRS	3,6	2,9	~50% 0-2

for every 4-minute delay in emergency department door-to-reperfusion time, 1 of every 100 treated patients had a worse disability outcome (JAMA 2016)

VIE PRATIQUE (DANS UN MONDE IDEAL)



APRES DAWN QUOI?

CASE SERIES

Thrombectomy 24 hours after stroke: beyond DAWN

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ABSTRACT

Background and purpose The results of the DAWN trial support the benefit of thrombectomy in patients with anterior circulation large vessel occlusion (LVO) acute stroke presenting within 6–24 hours from time last known well (TLKW). We sought to evaluate the characteristics and outcomes of patients who met DAWN criteria but underwent thrombectomy beyond 24 hours of TLKW.

Methods A retrospective review of endovascular thrombectomy databases at three comprehensive stroke centers was performed to identify all patients who received thrombectomy beyond 24 hours of TLKW and otherwise met the DAWN criteria. Baseline characteristics, efficacy, and safety outcomes were compared with patients in the DAWN trial intervention arm.

Results Twenty-one patients met the inclusion criteria. Rates of successful reperfusion (mTICI2b–3: 81% vs 84%, P=0.72), 90-day functional independence (modified Rankin Scale score 0–2, 43% vs 48%,

METHODS

After local Institutional Review Board approval, we performed a retrospective review of prospectively maintained ET databases at three tertiary care medical centers in the USA (University of Pittsburgh Medical Center, Pittsburgh, 2011–2017, 16 patients; Emory University/Marcus Stroke & Neuroscience Center-Grady Memorial Hospital, Atlanta, 2010–2017, 3 patients; and Lyerly Neurosurgery, Baptist Neurological Institute, Jacksonville, 2014–2018, 2 patients). Demographic and clinical data were collected by systematic chart review. Radiological data from non-contrast CT of the head, CT angiography, and/or MR angiography, CT perfusion and/or diffusion weighted imaging (DWI) using MRI at admission, post procedure, and before discharge were collected and analyzed. Imaging modalities used depended on institutional physician preference and resources.

Patient selection

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JNIS 2018

OCCLUSION

REPERFUSION

Merci de votre attention