

ENSEIGNEMENT POST-UNIVERSITAIRE
D'ANESTHESIE ET DE REANIMATION
REGION RHONE-ALPES – AUVERGNE



Homologué par le "Committee for the European Education in Anesthesiology" CEEA - ESA

AVC : Prise en charge en 2015

Anna Ferrier

UNV Service Neurologie CHU Clermont-Ferrand

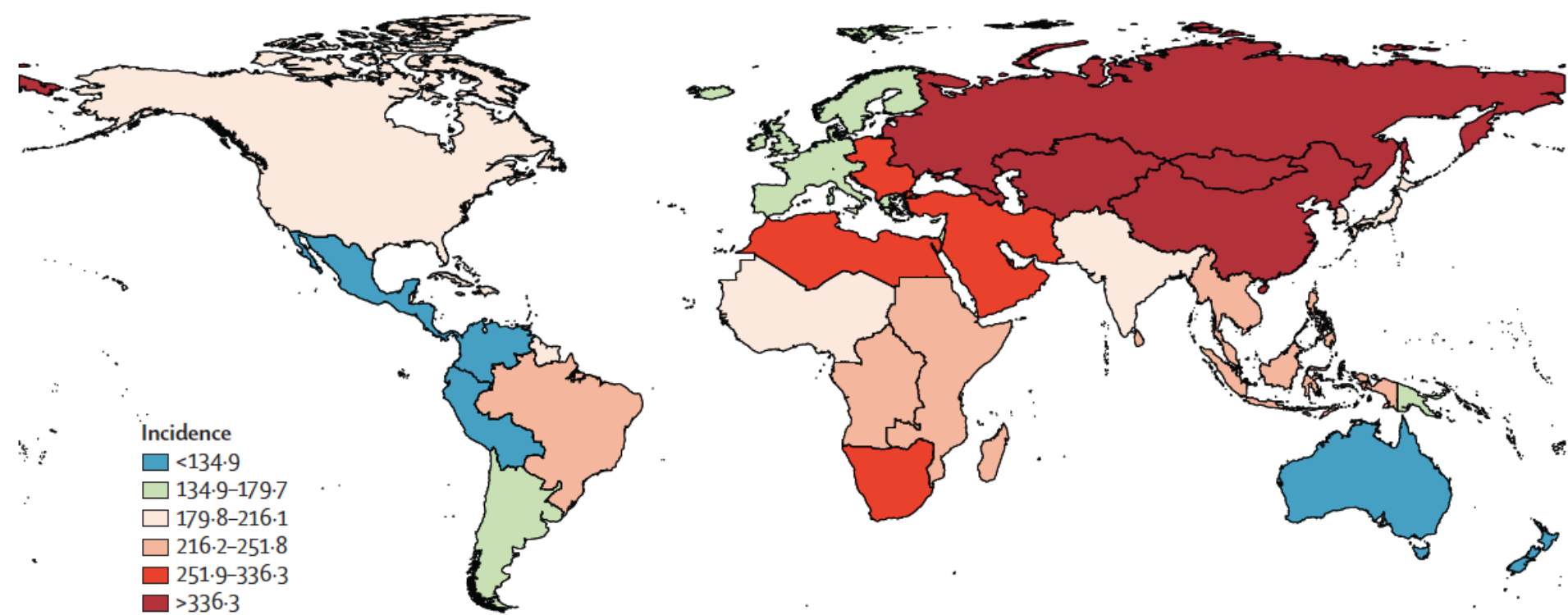
6 octobre 2015

Vichy

Épidémiologie

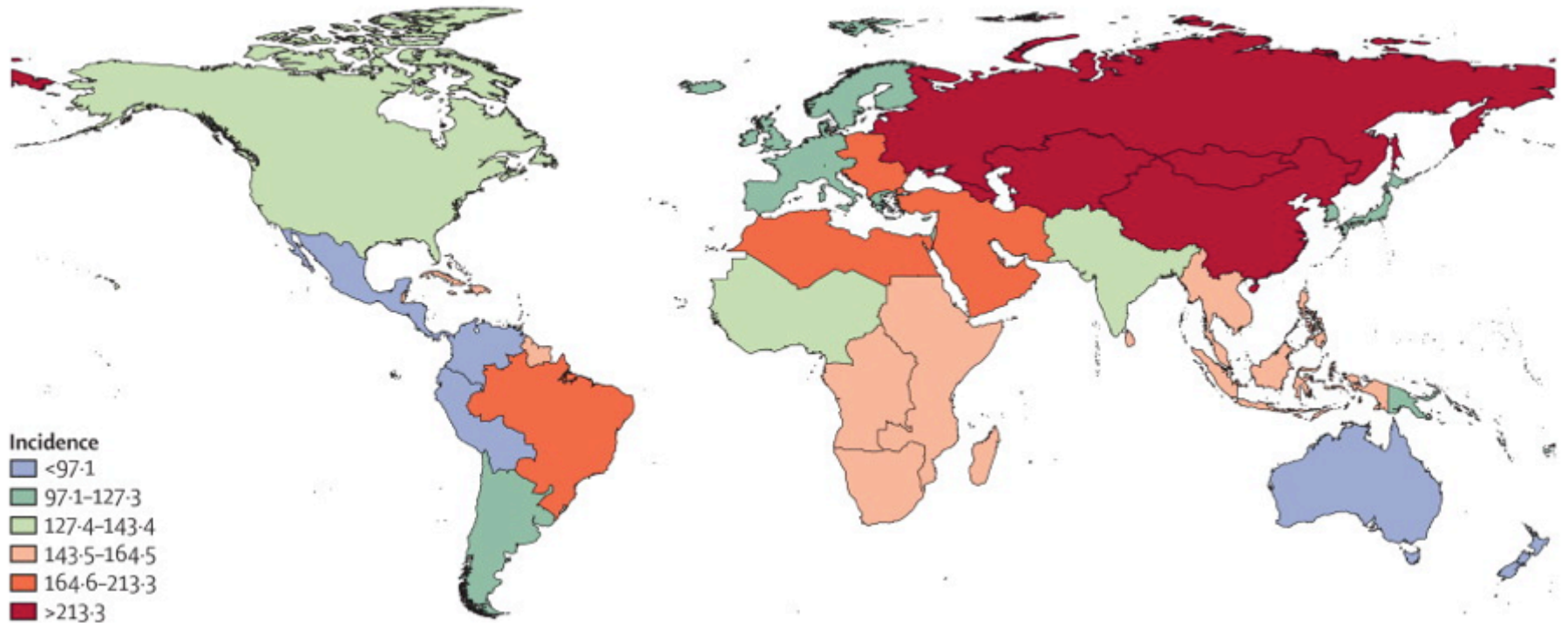
- Dans le monde, en 2010:
 - 16.9 millions victimes d'un 1^{er} AVC
 - 33 millions de survivants
 - 5.9 millions de décès en rapport avec un AVC
 - Incidence et mortalité augmentent avec l'âge
 - Âge moyen
 - AVC ischémiques 73 ans
 - AVC hémorragiques 65 ans

Age-standardised stroke incidence per 100 000 person-years for 2010

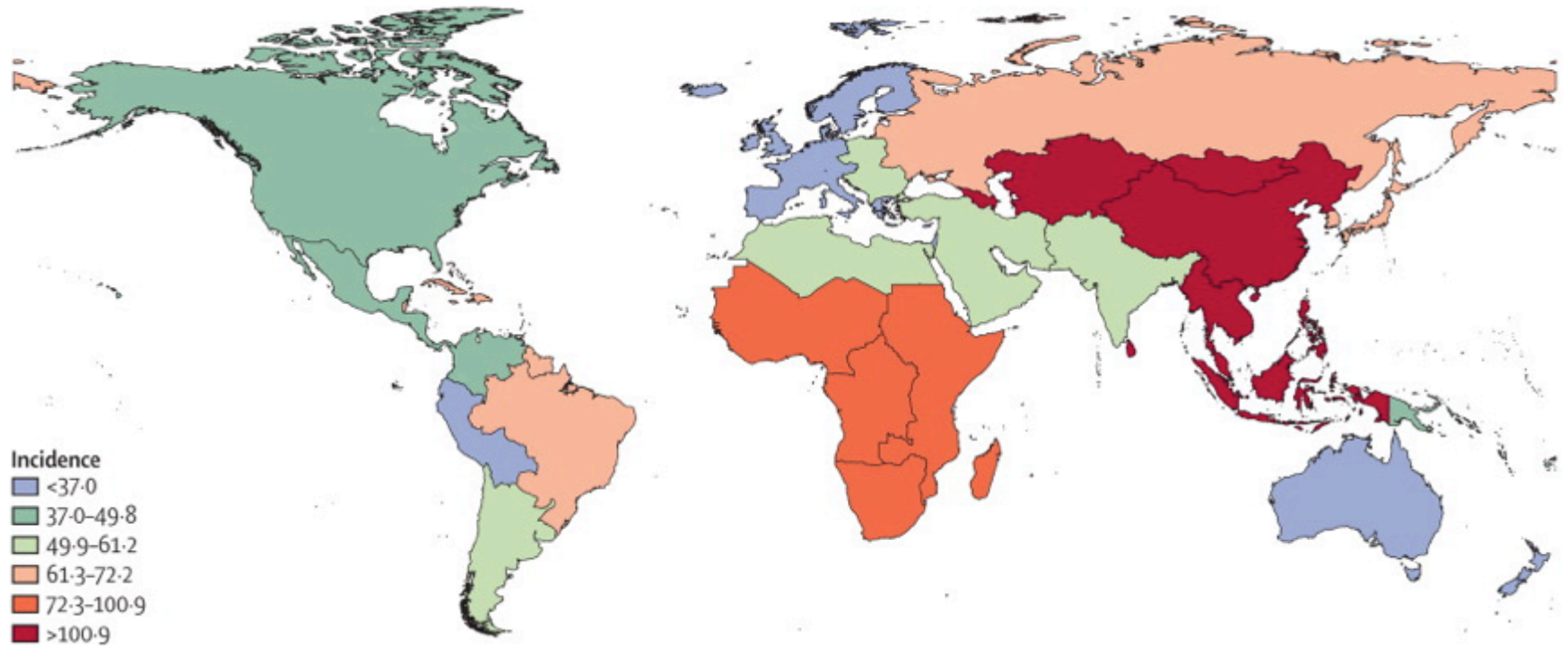


Feigin V Lancet 2014; 383: 245-55

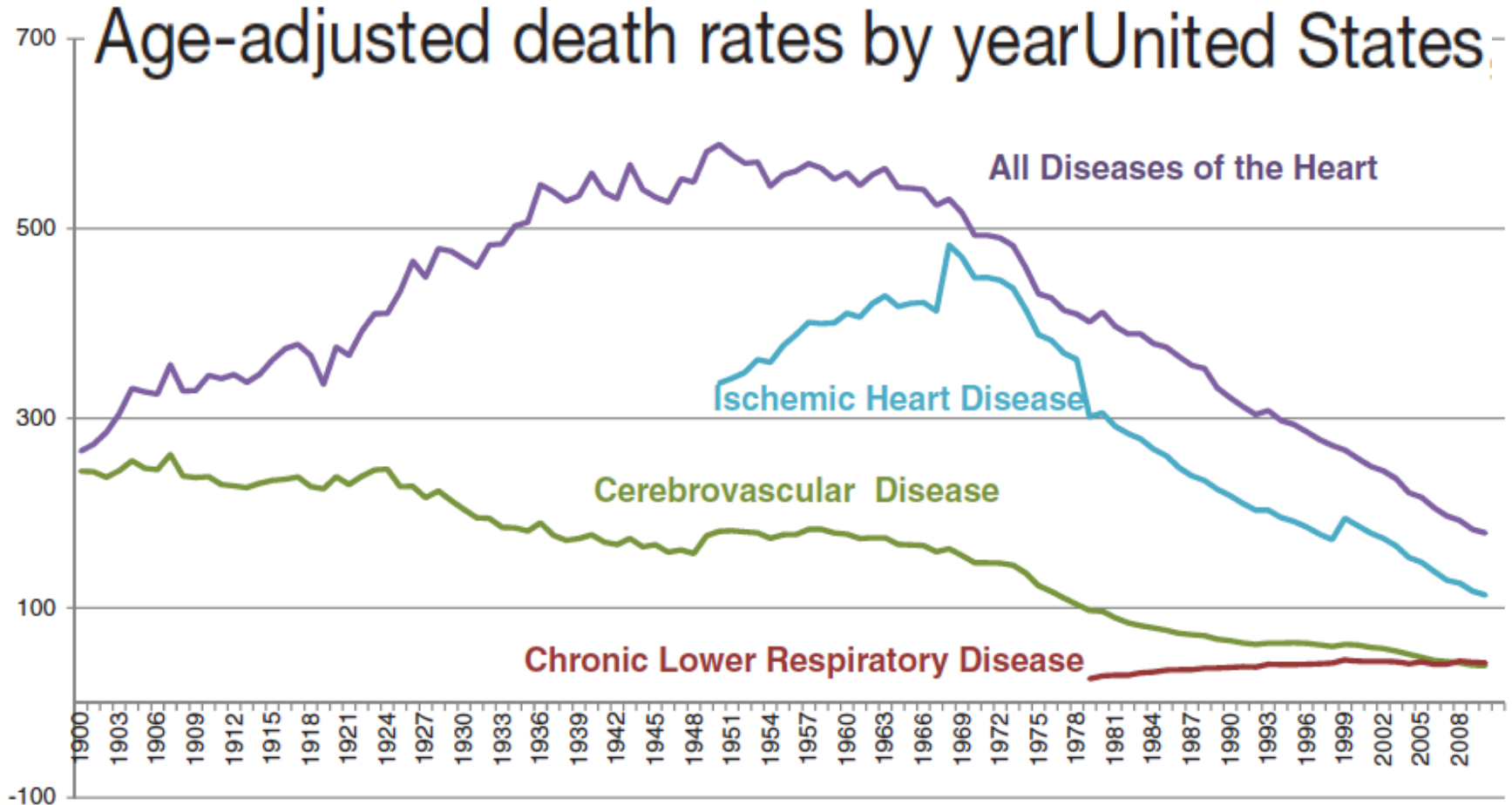
Age-standardised incidence of ischaemic stroke per 100 000 person-years for 2010



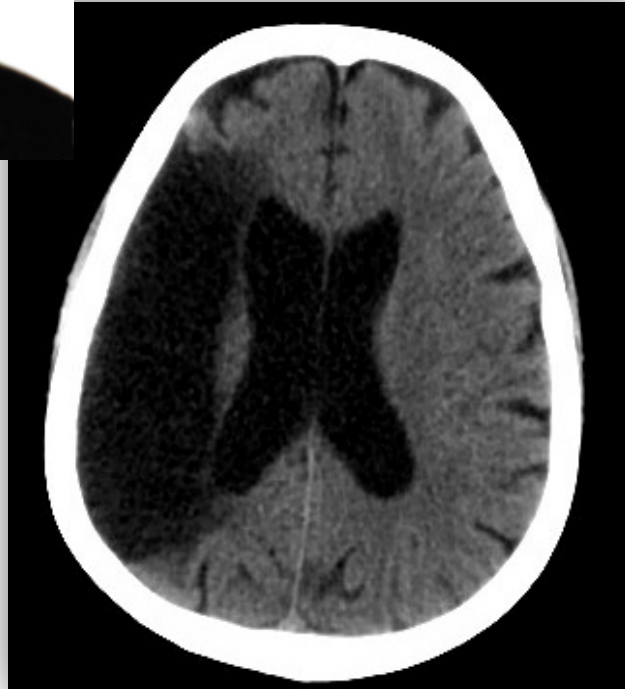
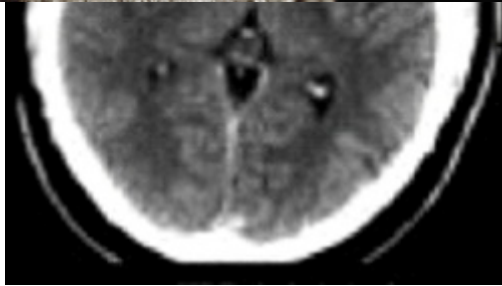
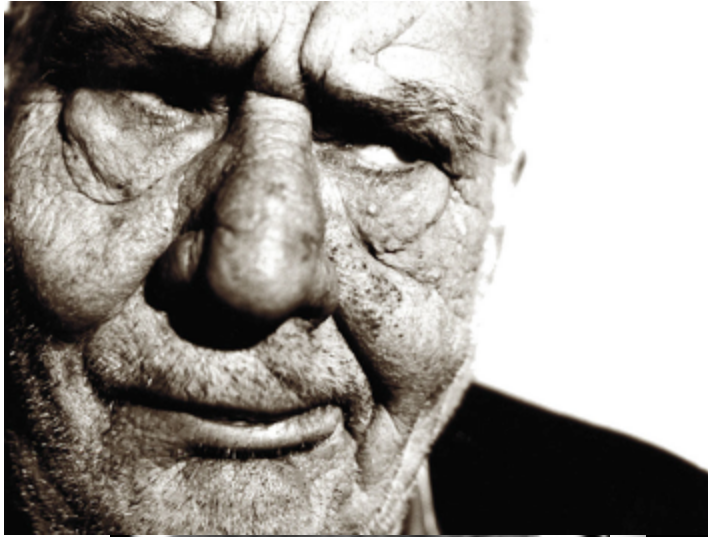
Age-standardised incidence of haemorrhagic stroke per 100 000 person-years for 2010



Mortalité en baisse



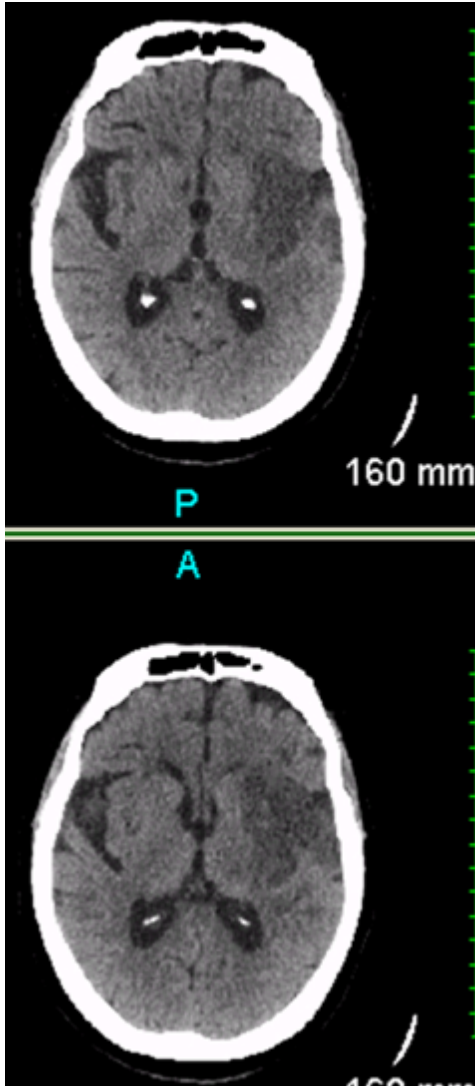
Diagnostic radiologique



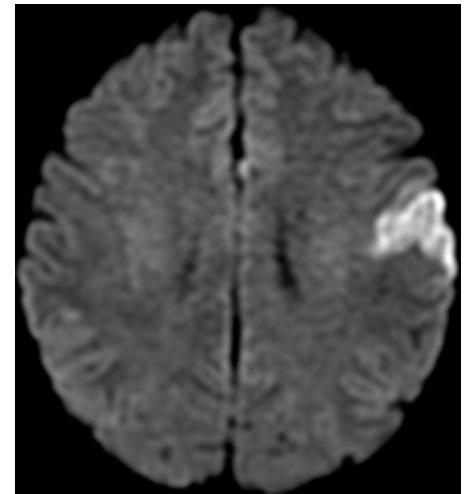
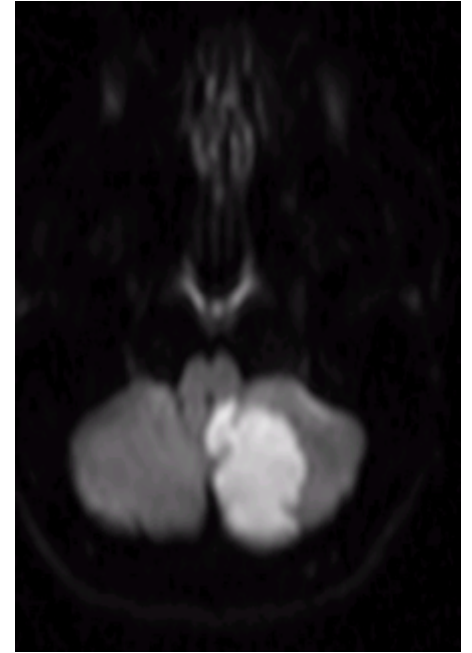
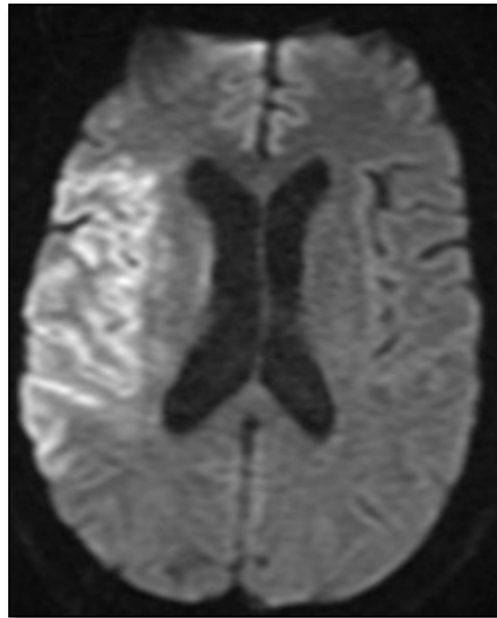
Imagerie AVC

1. Ischémie ou hémorragie
2. Nécrose ischémique : Diffusion en IRM/
Blood Vol en scanner de perfusion
3. Tissu réversible ? Scanner perfusion, IRM :
Perfusion/Diffusion
4. Occlusion d'une artère : AngioTDM /
AngioRM
5. Heure de début ? IRM : Diffusion /Flair

Infarctus cérébral

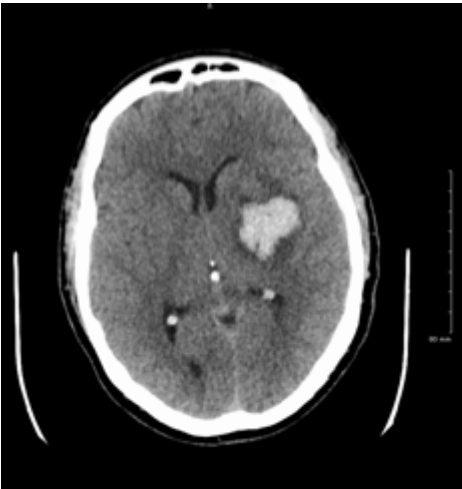


Scanner cérébral

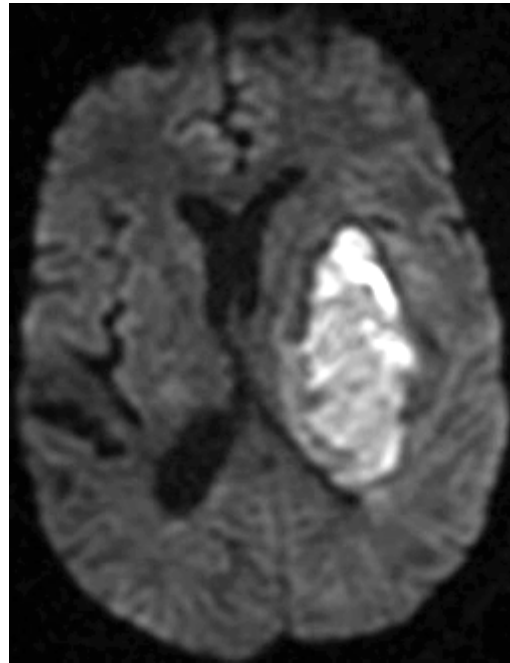


IRM cérébrale
Séquence Diffusion

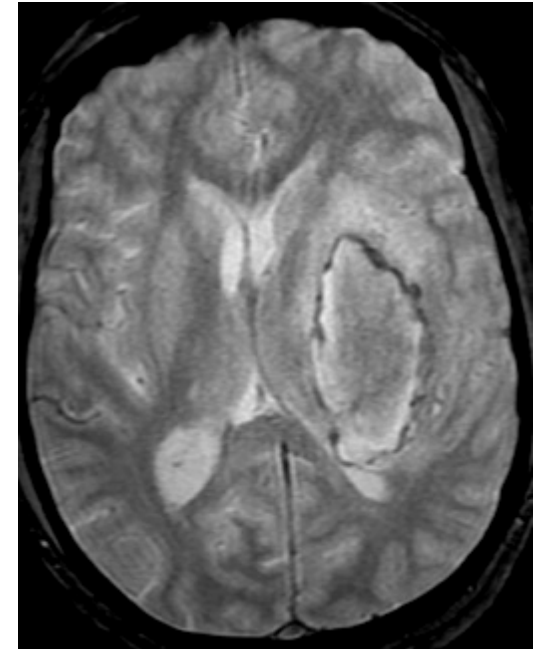
Hémorragie cérébrale



Scanner cérébral



Diffusion B 1000



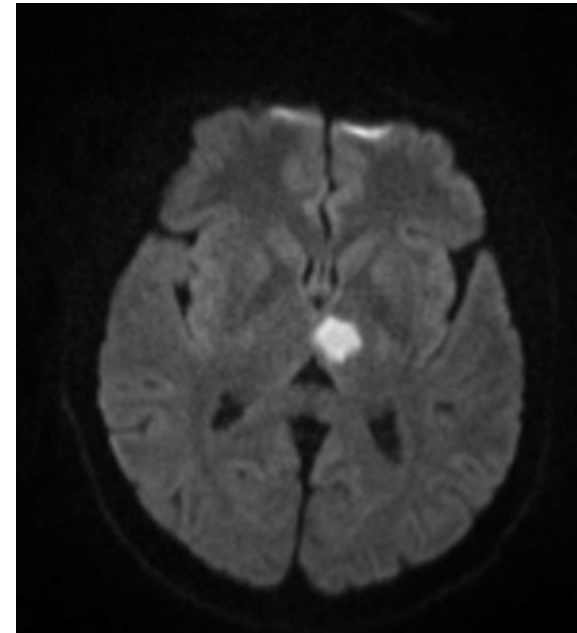
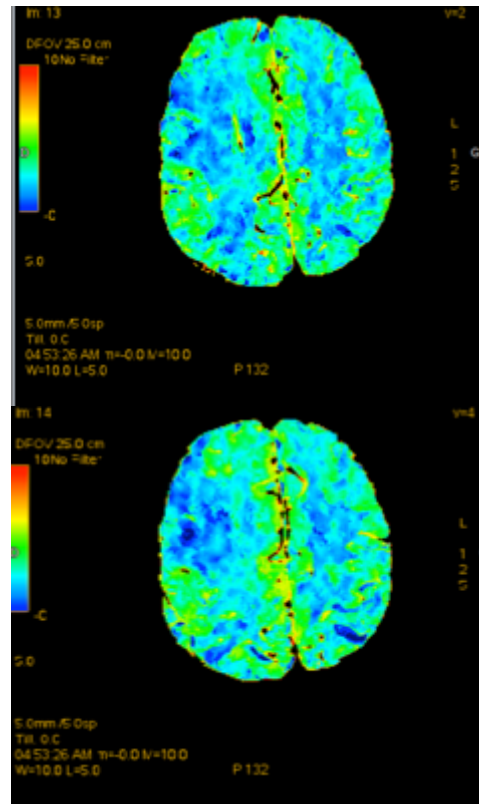
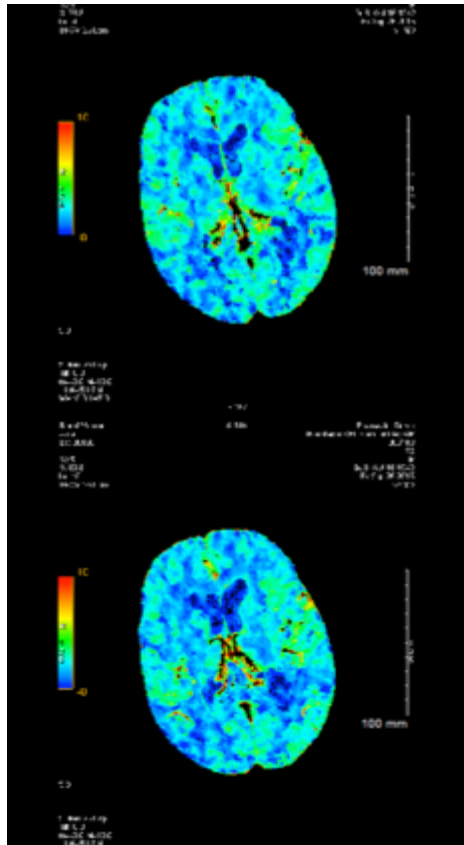
Séquence T2*

IRM cérébrale
Séquence Diffusion

Imagerie AVC

1. Ischémie ou hémorragie
2. Nécrose ischémique : Diffusion en IRM/
Blood Vol en scanner de perfusion
3. Tissu réversible ? Scanner perfusion, IRM :
Perfusion/Diffusion
4. Occlusion d'une artère : AngioTDM /
AngioRM
5. Heure de début ? IRM : Diffusion /Flair

Nécrose ischémique



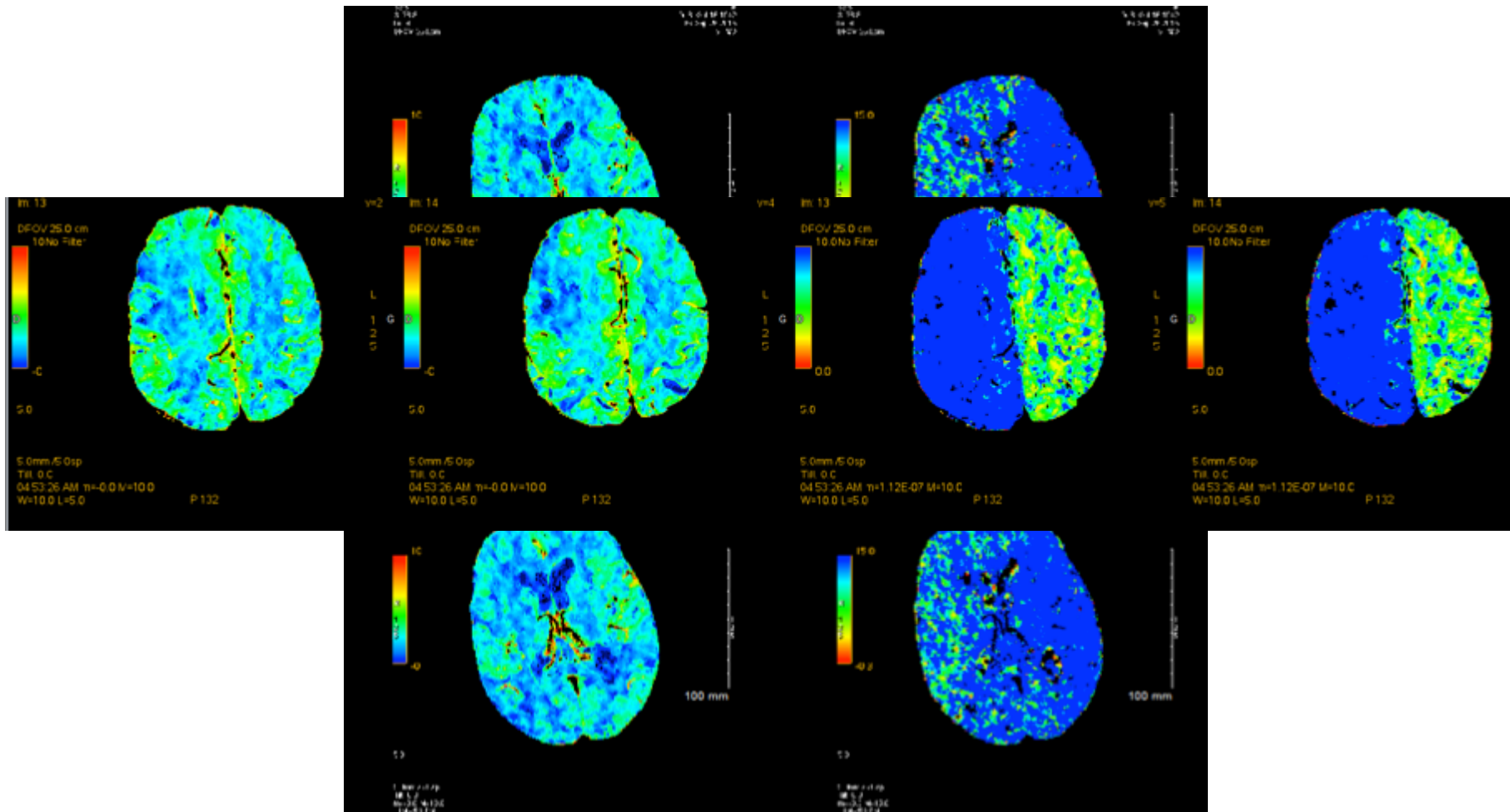
Scanner de perfusion
Volume sanguin

IRM diffusion

Imagerie AVC

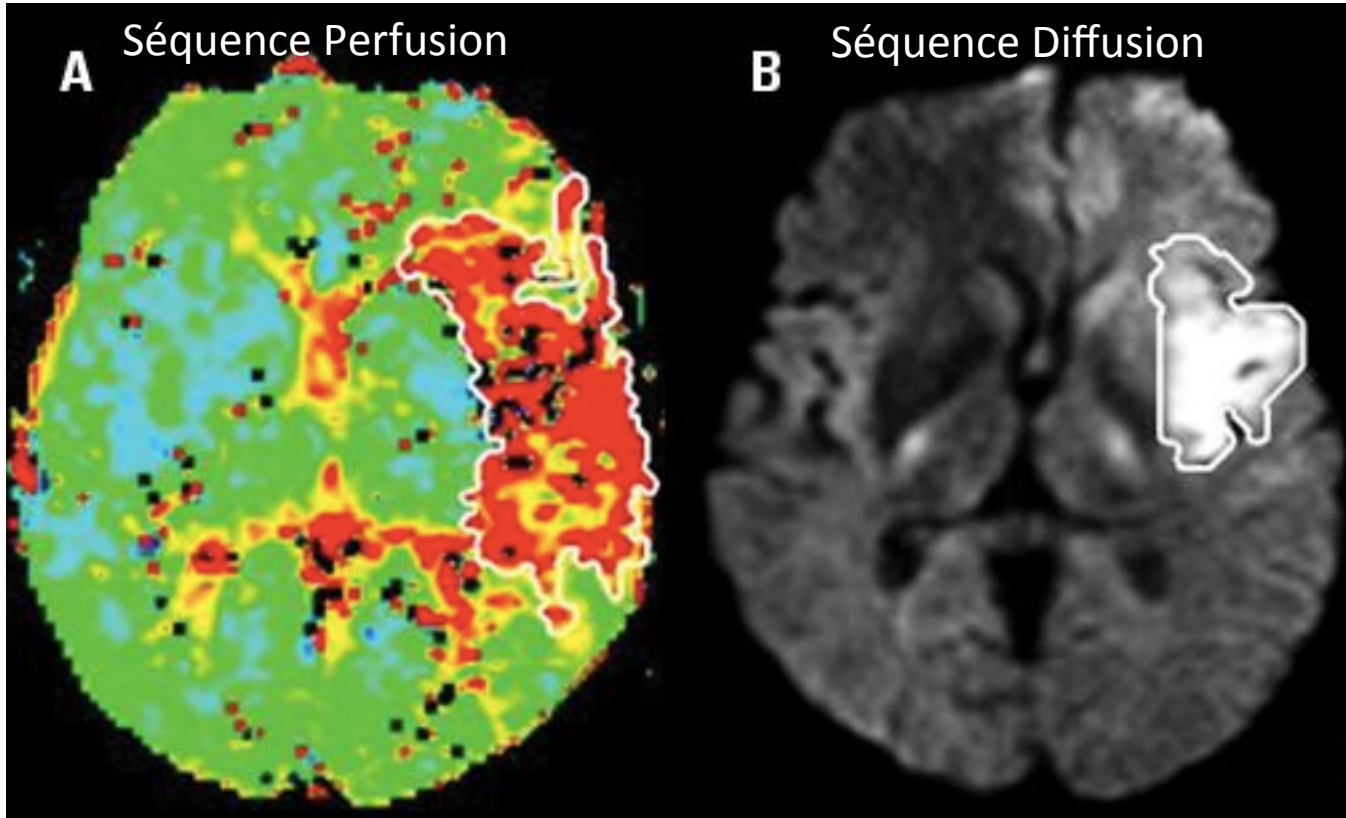
1. Ischémie ou hémorragie
2. Nécrose ischémique : Diffusion en IRM/
Blood Vol en scanner de perfusion
3. Tissu réversible ? Scanner perfusion, IRM :
Perfusion/Diffusion
4. Occlusion d'une artère : AngioTDM /
AngioRM
5. Heure de début ? IRM : Diffusion /Flair

Tissu réversible ? = Mismatch



Scanner cérébral

Tissu réversible ? = Mismatch

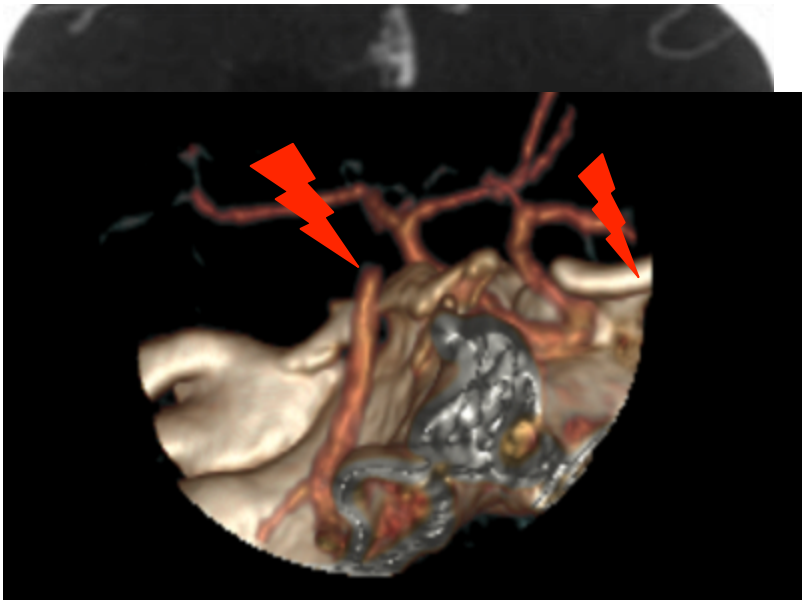


IRM cérébrale

Imagerie AVC

1. Ischémie ou hémorragie
2. Nécrose ischémique : Diffusion en IRM/
Blood Vol en scanner de perfusion
3. Tissu réversible ? IRM : PW/DWI, CT
perfusion
4. Occlusion d'une artère : AngioTDM /
AngioRM
5. Heure de début ? IRM : Diffusion /Flair

Occlusion artérielle ?



Angio-Scanner cérébral

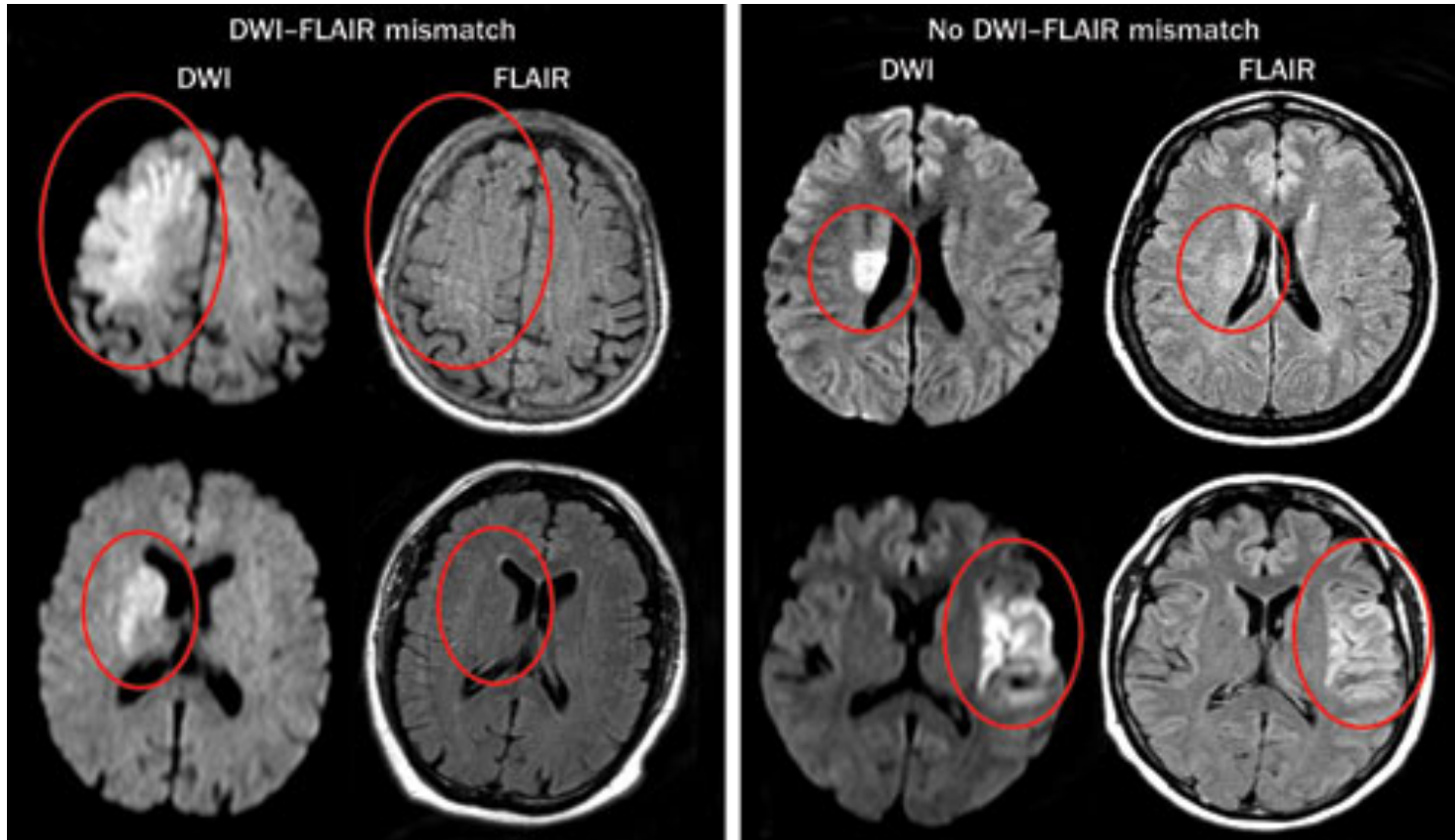


Angio-IRM cérébrale

Imagerie AVC

1. Ischémie ou hémorragie
2. Nécrose ischémique : Diffusion en IRM/
Blood Vol en scanner de perfusion
3. Tissu réversible ? IRM : PW/DWI, CT
perfusion
4. Occlusion d'une artère : AngioTDM /
AngioRM
5. Heure de début ? IRM : Diffusion /Flair

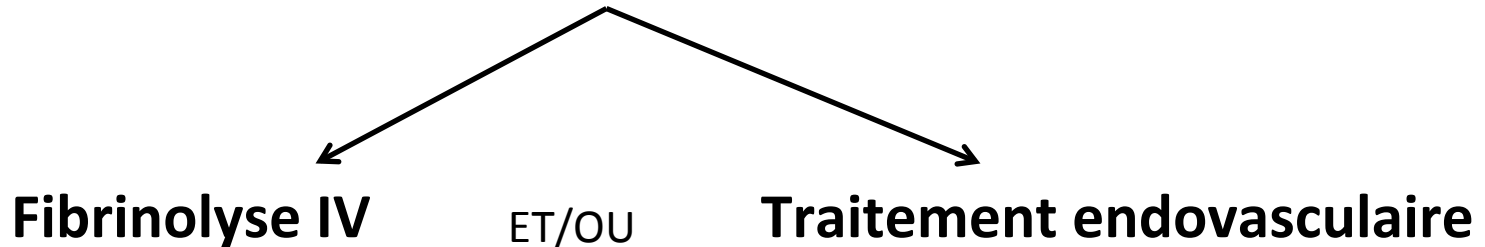
Heure de début inconnue = IRM



Valeur prédictive positive symptômes < 4H30 =
83%

Prise en charge thérapeutique

- INFARCTUS CÉRÉBRAL : Traitements de reperfusion

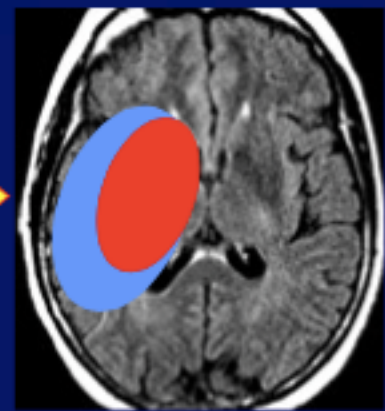
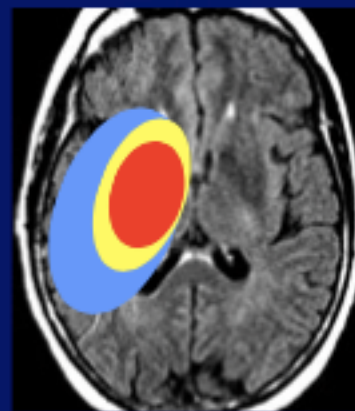
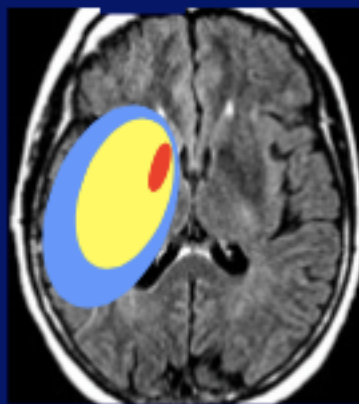
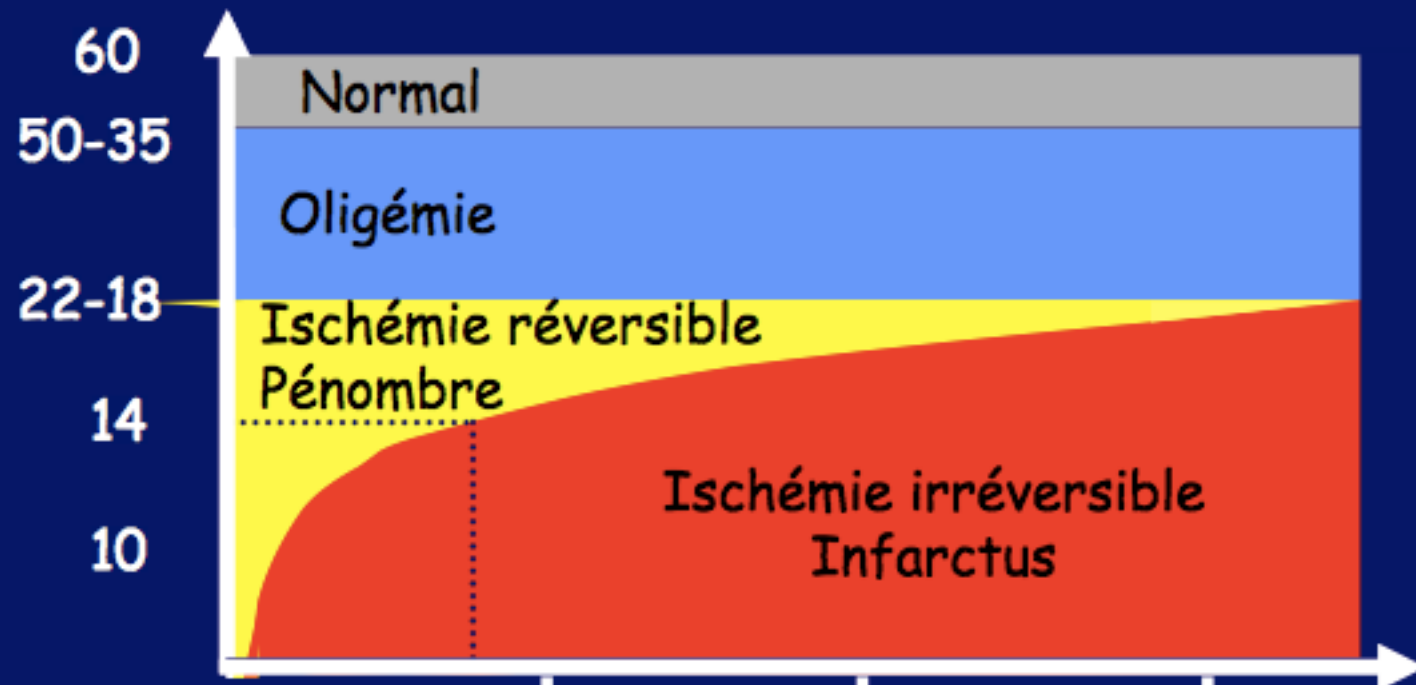


- HÉMORRAGIE CÉRÉBRALE : Étude INTERACT

Infarctus cérébral : traitements de reperfusion

- Réduire la taille de l'infarctus en réduisant la durée et l'intensité de l'ischémie
- Ainsi améliorer le pronostic fonctionnel

DSC ml/100gr/min



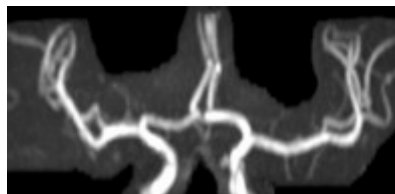
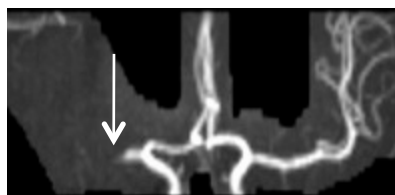
Infarctus cérébral : Thrombolyse intraveineuse

- AMM depuis 2003
- avec Altéplase, IVSE, 1H, 0.9 mg/kg
 - Essais négatifs avec Desmoteplase, Tenecteplase et Urokinase
- Dans les 3H⁽¹⁾ puis 4H30⁽²⁾ depuis le début des symptômes
- Pas de limite d'âge

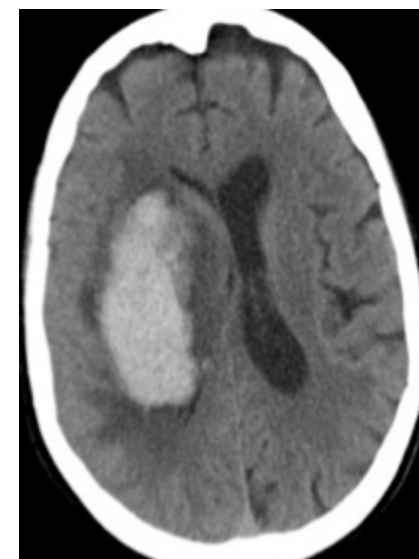
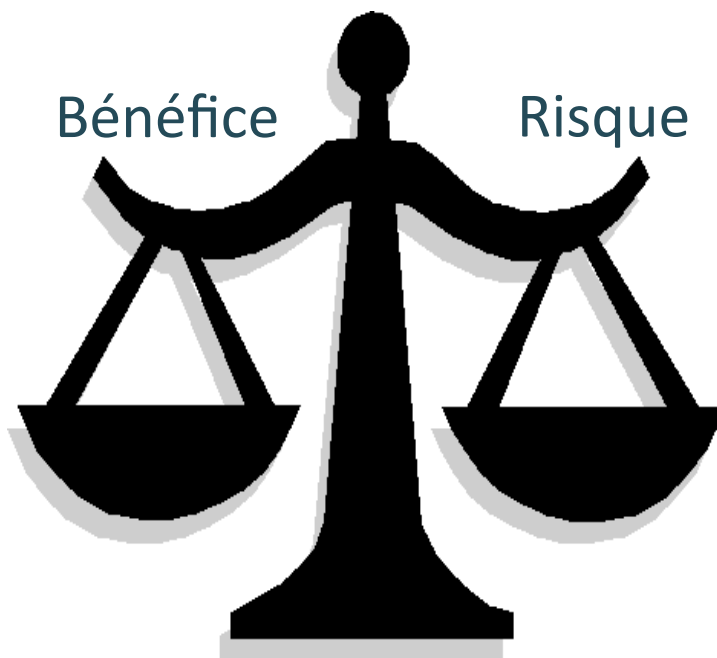
(1) N Engl J Med 1995; 333:1581-7

(2) N Engl J Med 2008;359:1317-29

Infarctus cérébral : Thrombolyse intraveineuse



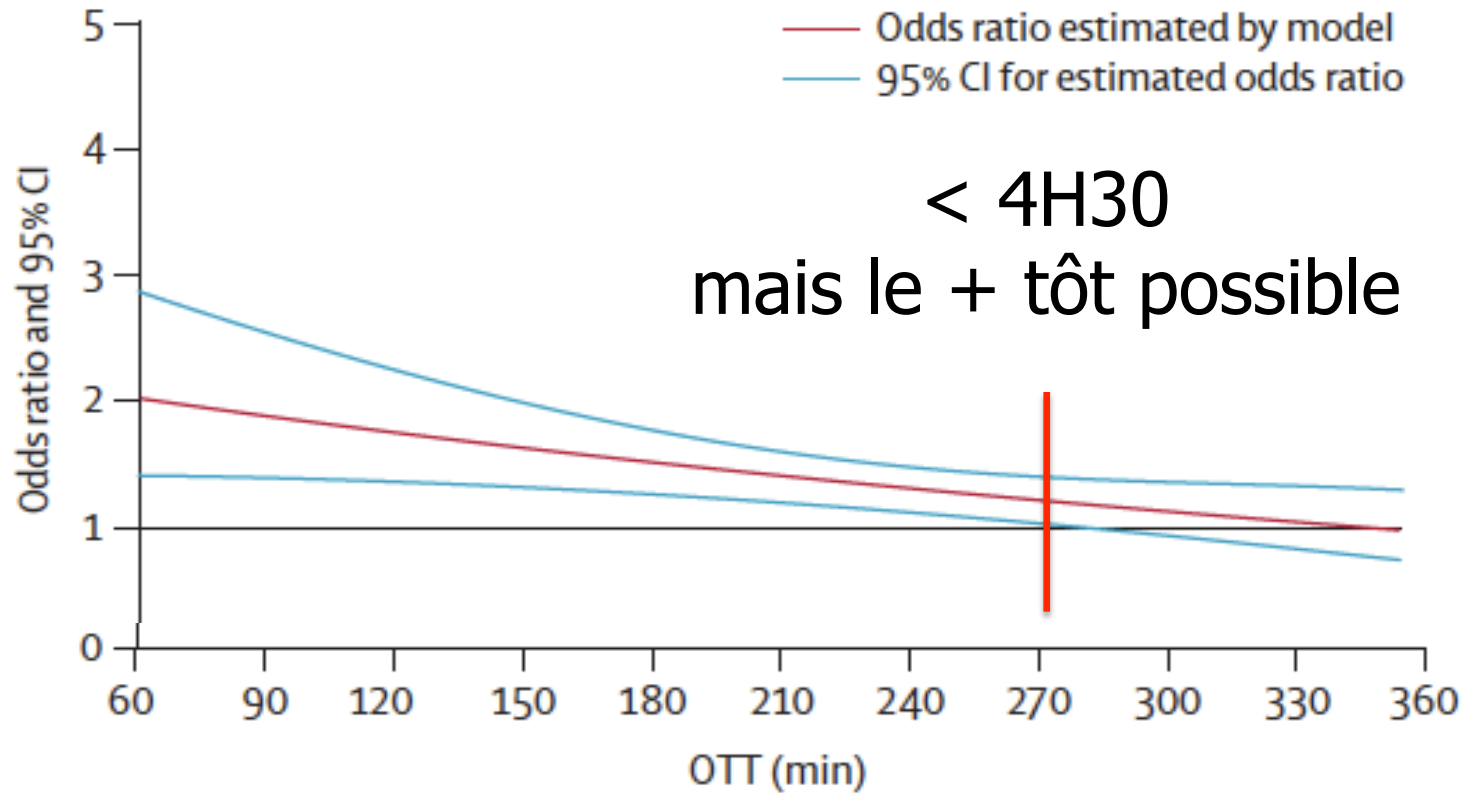
Recanalisation
artérielle
(**<50%**)



Risque
hémorragique
(**6-8%**)

1 « décès-dépendance » évité pour 7 patients traités

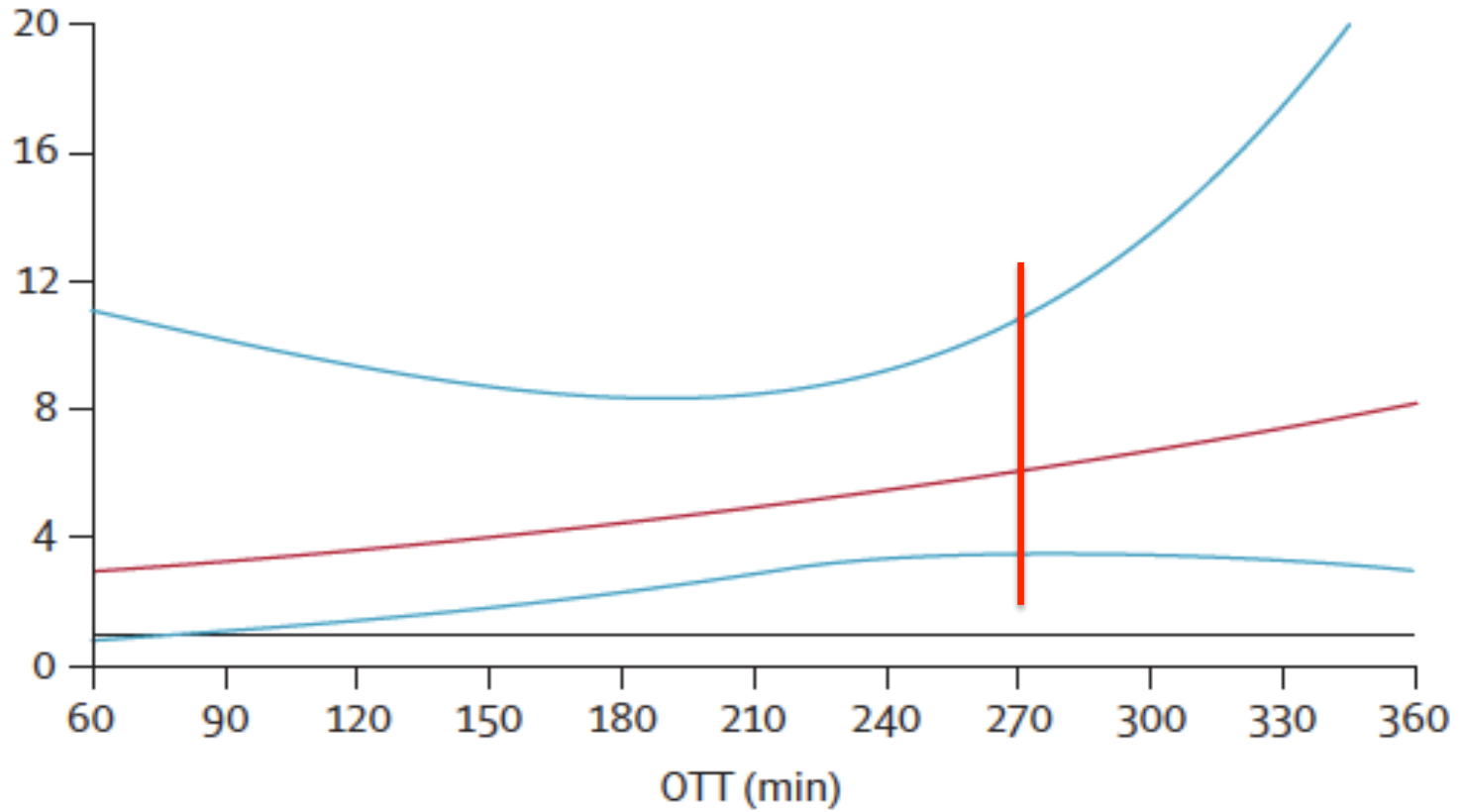
A Modified Rankin score 0-1



< 4H30
mais le + tôt possible

< 4H30
mais le + tôt possible

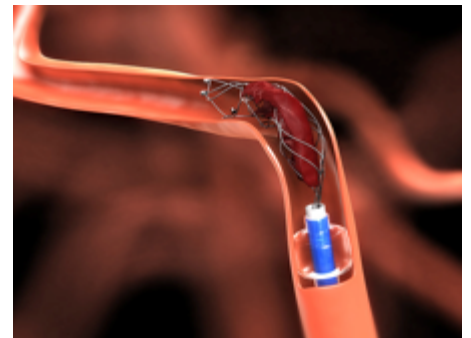
D Parenchymal haemorrhage type 2



Infarctus cérébral : Traitement endovasculaire

- Thrombectomie mécanique seule
- Ou associée à une thrombolyse in situ
- Ou associée à une thrombolyse intraveineuse

- 3 études négatives en 2013
- 5 études positives en 2015



Stent-Retriever Thrombectomy after Intravenous t-PA vs. t-PA Alone in Stroke

Jeffrey L. Saver, M.D., Mayank Goyal, M.D., Alain Bonafe, M.D., Hans-Christoph Diener, M.D., Ph.D., Elad I. Levy, M.D., Vitor M. Pereira, M.D., Gregory W. Albers, M.D., Christophe Cognard, M.D., David J. Cohen, M.D., Werner Hacke, M.D., Ph.D., Olav Jansen, M.D., Ph.D., Tudor G. Jovin, M.D., Heinrich P. Mattle, M.D., Raul G. Nogueira, M.D., Adnan H. Siddiqui, M.D., Ph.D., Dileep R. Yavagal, M.D., Blaise W. Baxter, M.D., Thomas G. Devlin, M.D., Ph.D., Demetrius K. Lopes, M.D., Vivek K. Reddy, M.D., Richard du Mesnil de Rochemont, M.D., Oliver C. Singer, M.D., and Reza Jahan, M.D., for the SWIFT PRIME Investigators*

A Randomized Trial of Intraarterial Treatment for Acute Ischemic Stroke

O.A. Berkhemer, P.S.S. Fransen, D. Beumer, L.A. van den Berg, H.F. Lingsma, A.J. Yoo, W.J. Schonewille, J.A. Vos, P.J. Nederkoorn, M.J.H. Wermer, M.A.A. van Walderveen, J. Staals, J. Hofmeijer, J.A. van Oostayen, G.J. Lycklama à Nijeholt, J. Boiten, P.A. Brouwer, B.J. Emmer, S.F. de Bruijn, L.C. van Dijk, L.J. Kappelle, R.H. Lo, E.J. van Dijk, J. de Vries, P.L.M. de Kort, W.J.J. van Rooij, J.S.P. van den Berg, B.A.A.M. van Hasselt, L.A.M. Aerden, R.J. Dallinga, M.C. Visser, J.C.J. Bot, P.C. Vroomen, O. Eshghi, T.H.C.M.L. Schreuder, R.J.J. Heijboer, K. Keizer, A.V. Tielbeek, H.M. den Hertog, D.G. Gerrits, R.M. van den Berg-Vos, G.B. Karas, E.W. Steyerberg, H.Z. Flach, H.A. Marquering, M.E.S. Sprengers, S.F.M. Jenniskens, L.F.M. Beenen, R. van den Berg, P.J. Koudstaal, W.H. van Zwam, Y.B.W.E.M. Roos, A. van der Lugt, R.J. van Oostenbrugge, C.B.L.M. Majoie, and D.W.J. Dippel, for the MR CLEAN Investigators*

Étude MR CLEAN N Engl J Med. 2015 Jan 1;372(1):11-20
 Étude EXTEND IA N Engl J Med. 2015 Mar 12;372(11):1009-18
 Étude ESCAPE N Engl J Med. 2015 Mar 12;372(11):1019-30
 Étude SWIFT-PRIME N Engl J Med. 2015 Jun 11;372(24):2285-95
 Étude REVASCAT N Engl J Med. 2015 Jun 11;372(24):2296-306

Thrombectomy within 8 Hours after Symptom Onset in Ischemic Stroke

T.G. Jovin, A. Chamorro, E. Cobo, M.A. de Miquel, C.A. Molina, A. Rovira, L. San Román, J. Serena, S. Abilleira, M. Ribó, M. Millán, X. Urra, P. Cardó, E. López-Cancio, A. Tomasello, C. Castaño, J. Blasco, L. Aja, L. Dorado, H. Quesada, M. Rubiera, M. Hernández-Pérez, M. Goyal, A.M. Demchuk, R. von Kummer, M. Gallofré, and A. Dávalos, for the REVASCAT Trial Investigators*



Endovascular Therapy for Ischemic Stroke with Perfusion-Imaging Selection

B.C.V. Campbell, P.J. Mitchell, T.J. Kleinig, H.M. Dewey, L. Churilov, N. Yassi, R.J. Dowling, M.W. Parsons, T.J. Oxley, T.Y. Wu, M. Brooks, M. F. Miteff, C.R. Levi, M. Krause, T.J. Harrington, K.C. Faulder, M. Priglinger, T. Ang, R. Scoop, P.A. Barber, B. McGuinness, J.G. Phan, W. Chong, R.V. Chandra, C.F. Bladin, M. Badve, H. Rice, H. Ma, P.M. Desmond, G.A. Donnan, and S.M. Davis, for the EXTEND-IA Investigators*

Études	Nombre patients (groupe intervention)
MR CLEAN	502 (233)
ESCAPE	315 (165)
EXTEND	70 (35)
SWIFT-PRIME	196 (98)
REVASCAT	206 (103)

Études	Imageries utilisées	Critères exclusion radiologique
MR CLEAN	TDM angioTDM IRM angioRM	Hémorragie Hypodensité > 1/3 ACM, Dissection
ESCAPE	TDM, AngioTDM	Aspect < 6 Collatérales pauvres
EXTEND	TDM, TDM perfusion AngioTDM IRM angioRM	Mismatch : ratio < 1.2 ou < 10 ml Nécrose > 70ml
SWIFT-PRIME	TDM angioTDM IRM angioRM	Aspect < 6
REVASCAT	TDM angioTDM IRM angioRM	Aspect <7 TDM Aspect <6 IRM Aspect < 9 TDM-IRM 80-85 ans

Études	% RTPA IV Groupe intervention
MR CLEAN	87% (203)
ESCAPE	72% (120)
EXTEND	100% (35)
SWIFT-PRIME	100% (98)
REVASCAT	68% (70)



MR CLEAN
Intervention
Contrôles

1H25
1H27

3H24
3H16

4H20

-

ESCAPE
Intervention
Contrôles

1H50
2H05

2H49
2H52

3H05

4H01

EXTEND
Intervention
Contrôles

2H07
2H25

2H36
3H01

3H30

4H08

SWIFT-PRIME
Intervention
Contrôles

1H50
1H57

3H10
3H08

3H44

4H12

REVASCAT
Intervention
Contrôles

1H57
1H45

3H43
3H46

4H29

5H55


Infarctus cérébral : Traitement endovasculaire

Les clés du succès :

- Sélection des patients avec zone de nécrose de petite taille et zone de pénombre étendue ou bonne collatéralité
- Rapidité de prise en charge des patients
- Délai admission – traitement < 60 minutes
- Utilisation stent retriever
- Recanalisation complète ou quasi

Infarctus cérébral : Traitement endovasculaire

Procédure anesthésie :

- En urgence
- Le plus vite possible
- Patient peu coopérant
 -  patient aphasique
- ATCD, traitements médicamenteux, notion de jeûne difficiles à préciser
- Quelle anesthésie ?

Conscious Sedation versus General Anesthesia during Endovascular Acute Ischemic Stroke Treatment: A Systematic Review and Meta-Analysis

W. Brinjikji, M.H. Murad, A.A. Rabinstein, H.J. Cloft, G. Lanzino, and D.F. Kallmes

Table 2: Meta-analysis results: categoric outcomes

	OR GA vs CS	95% CI	P Value
Death	2.59	1.87–3.58	<.01
Good functional outcome ^a	0.43	0.35–0.53	<.01
Successful recanalization	0.49	0.33–0.72	<.01
sICH	1.34	0.95–1.87	.09
aICH	1.24	0.94–1.62	.12
Other vascular complications	1.22	0.68–2.18	.5
Respiratory complications	2.09	1.36–3.23	<.01

Note:—aICH indicates asymptomatic intracranial hemorrhage; sICH, symptomatic intracranial hemorrhage.

^a Modified Rankin scale score of ≤ 2 .

Conscious Sedation versus General Anesthesia during Endovascular Acute Ischemic Stroke Treatment: A Systematic Review and Meta-Analysis

W. Brinjikji, M.H. Murad, A.A. Rabinstein, H.J. Cloft, G. Lanzino, and D.F. Kallmes

- Agents anesthésiques inhalés
 - Hypoperfusion cérébrale puis aggravation de l'ischémie cérébrale
- Hypotensions et fluctuations rapides de la TA sous AG, notamment à l'induction
- Biais induit par la gravité initiale de l'infarctus cérébral
- Études randomisées ?

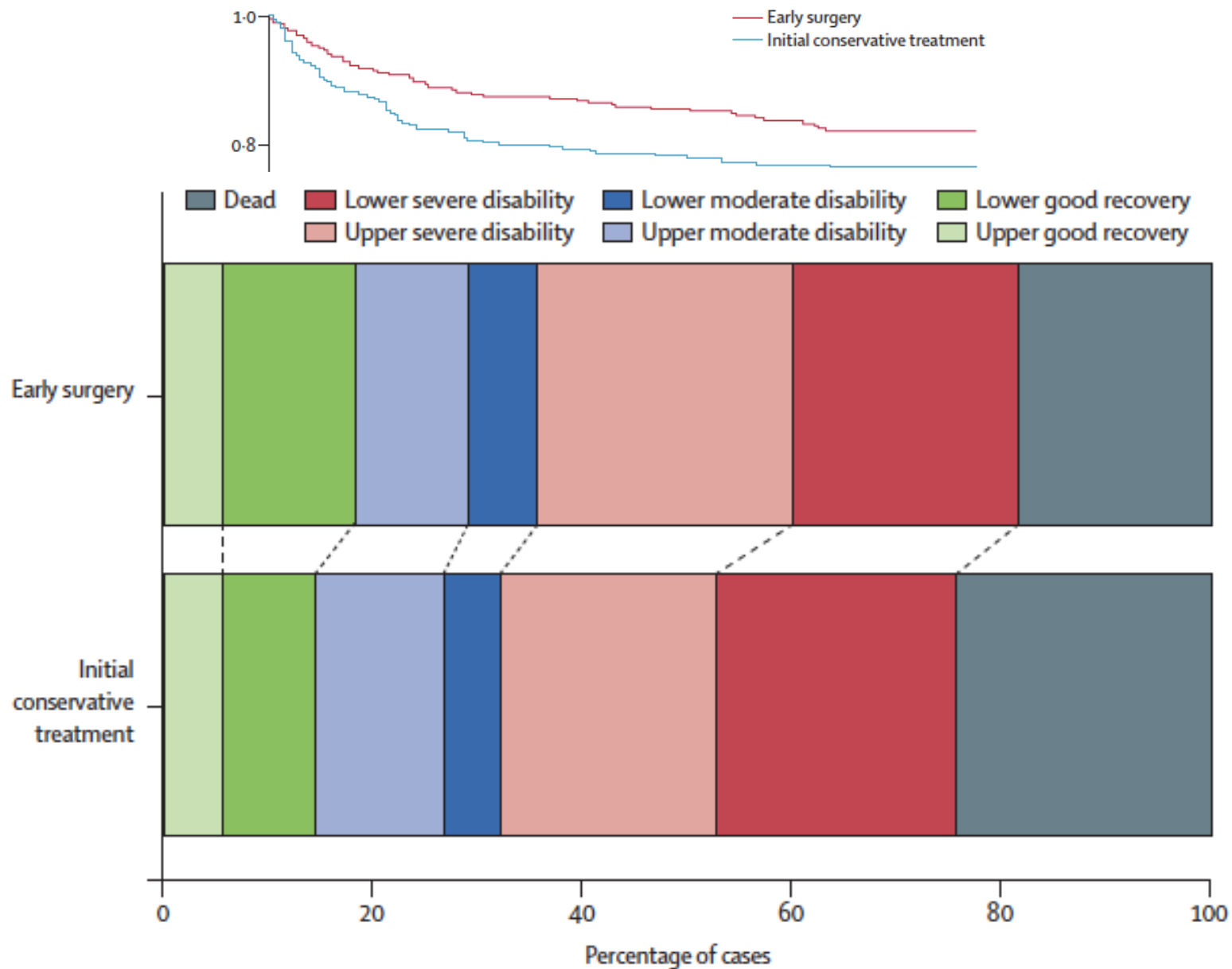
Hémorragie cérébrale

Lutter contre l'expansion de l'hématome intracérébral car :

- Volume de l'hémorragie = facteur prédictif de mortalité
- Augmentation du volume dans les 1ères H = facteur de mauvais pronostic

Hémorragie cérébrale

- TTT Hémostatique Facteur VII (*Mayer, NEJM 2008*
15;358(20):2127-37)
 - placebo 268, 20 µg/kg rFVIIa 276, 80 µg/kg rFVIIa 297 patients
 - Symptômes < 4H
 - Pas d'amélioration pronostic fonctionnel
- TTT chirurgical : Stich II (*Mendelow Lancet 2013; 382: 397–408*)
 - Chirurgie dans les 12H
 - Pas de différence significative sur pronostic fonctionnel



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Rapid Blood-Pressure Lowering in Patients with Acute Intracerebral Hemorrhage

Craig S. Anderson, M.D., Ph.D., Emma Heeley, Ph.D., Yining Huang, M.D., Jiguang Wang, M.D., Christian Stapf, M.D., Candice Delcourt, M.D., Richard Lindley, M.D., Thompson Robinson, M.D., Pablo Lavados, M.D., M.P.H., Bruce Neal, M.D., Ph.D., Jun Hata, M.D., Ph.D., Hisatomi Arima, M.D., Ph.D., 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*

ABSTRACT

BACKGROUND

Whether rapid lowering of elevated blood pressure would improve the outcome in patients with intracerebral hemorrhage is not known.

METHODS

We randomly assigned 2839 patients who had had a spontaneous intracerebral hemorrhage within the previous 6 hours and who had elevated systolic blood pressure to receive intensive treatment to lower their blood pressure (with a target systolic level of <140 mm Hg within 1 hour) or guideline-recommended treatment (with a target systolic level of <180 mm Hg) with the use of agents of the physician's choosing. The primary outcome was death or major disability, which was defined as a score of 3 to 6 on the modified Rankin scale (in which a score of 0 indicates no symptoms, a score of 5 indicates severe disability, and a score of 6 indicates death) at 90 days. A prespecified ordinal analysis of the modified Rankin score was also performed. The rate of serious adverse events was compared between the two groups.

RESULTS

Among the 2794 participants for whom the primary outcome could be determined, 719 of 1382 participants (52.0%) receiving intensive treatment, as compared with 785 of 1412 (55.6%) receiving guideline-recommended treatment, had a primary outcome event (odds ratio with intensive treatment, 0.87; 95% confidence interval [CI], 0.75 to 1.01; $P=0.06$). The ordinal analysis showed significantly lower modified Rankin scores with intensive treatment (odds ratio for greater disability, 0.87; 95% CI, 0.77 to 1.00; $P=0.04$). Mortality was 11.9% in the group receiving intensive treatment and 12.0% in the group receiving guideline-recommended treatment. Nonfatal serious adverse events occurred in 23.3% and 23.6% of the patients in the two groups, respectively.

CONCLUSIONS

In patients with intracerebral hemorrhage, intensive lowering of blood pressure did not result in a significant reduction in the rate of the primary outcome of death or severe disability. An ordinal analysis of modified Rankin scores indicated improved functional outcomes with intensive lowering of blood pressure.

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Anderson at the George Institute for Global Health, Royal Prince Alfred Hospital and the University of Sydney, P.O. Box M201, Missenden Rd., Sydney NSW 2050, Australia, or at canderson@georgeinstitute.org.au.

*Investigators in the second Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial (INTERACT2) are listed in the Supplementary Appendix, available at NEJM.org.

This article was published on May 29, 2013, at NEJM.org.

N Engl J Med 2013;368:2355-65.
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Rapid Blood-Pressure Lowering in Patients with Acute Intracerebral Hemorrhage

Variable	Intensive Blood-Pressure Lowering (N=1399)	Guideline-Recommended Blood-Pressure Lowering (N=1430)	Odds Ratio (95% CI)	P Value
Primary outcome: death or major disability — no./total no. (%) [†]	719/1382 (52.0)	785/1412 (55.6)	0.87 (0.75–1.01)	0.06
Secondary outcomes				
Score on the modified Rankin scale — no./total no. (%) [‡]			0.87 (0.77–1.00)	0.04
0: No symptoms at all	112/1382 (8.1)	107/1412 (7.6)		
1: No substantive disability despite symptoms	292/1382 (21.1)	254/1412 (18.0)		
2: Slight disability	259/1382 (18.7)	266/1412 (18.8)		
3: Moderate disability requiring some help	220/1382 (15.9)	234/1412 (16.6)		
4: Moderate–severe disability requiring assistance with daily living	250/1382 (18.1)	268/1412 (19.0)		
5: Severe disability, bed-bound and incontinent	83/1382 (6.0)	113/1412 (8.0)		
6: Death by 90 days	166/1382 (12.0)	170/1412 (12.0)		
Death — no./total no. (%)	166/1394 (11.9)	170/1421 (12.0)	0.99 (0.79–1.25)	0.96

Hémorragie cérébrale : Préconisations SFNV

- Hémorragie cérébrale, non traumatique, non malformative
 - $\leq 6H$
 - PA systolique > 150 mmHg
- ➔ Baisse de la PA systolique, cible < 140 mmHg, en moins de 60 minutes, à maintenir pendant 7 j minimum

Pas d'agent spécifique recommandé

Éviter la variabilité tensionnelle

FIN

Merci de votre attention