UNIVERSITÀ DEGLI STUDI DI TORINO

TURIN
October
24th-26th
2019

31 GIORNATE
CARDIOLOGICHE TORINESI

## THE REVOLUTION OF CARDIOVASCULAR RISK

*Chairpersons*: F. Nardi, P. Noussan

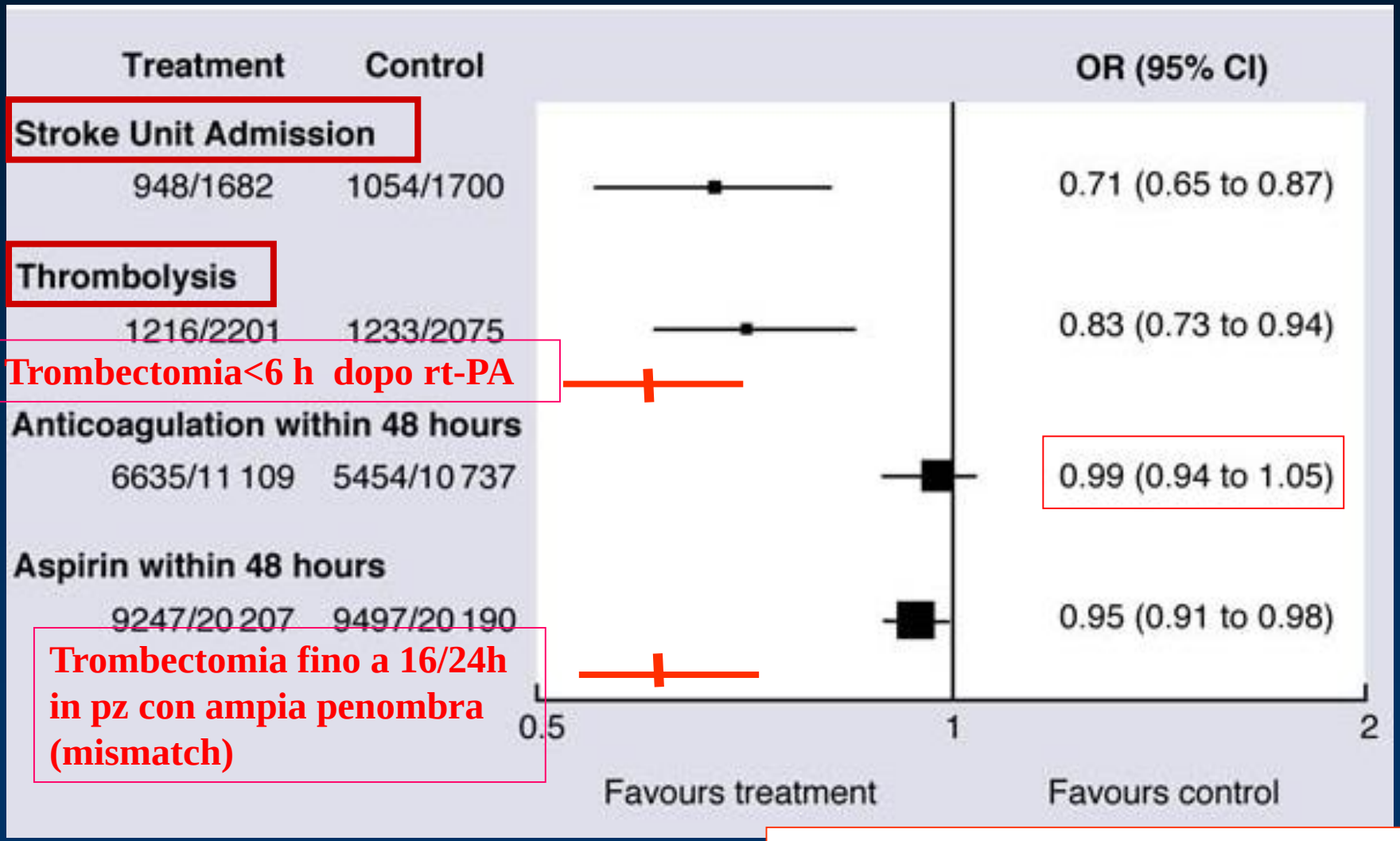
*Expert Discussants*: E. Antonielli D'Oulx, C. Cervasel, P. Dellavesa, P. Mulatero, F. Rabbia, A. Ravera

| | |
|---|---|
| 14:00 | Early Prevention is key S. Marra |
| 14:10 | Non traditional risk factors for CAD A. Lerman |
| 14:20 | Practical implications of hypertension Guidelines F. Veglio |
| 14:30 | Identification of patients with a previous acute coronary syndrome at high atherothrombotic risk P. Perrone Filardi |
| 14:40 | PCSK9 inhibitors: from large trials to clinical practice M. Feola |
| 14:50 | Practical implication of Acute Ischemic Stroke Guidelines P. Cerrato |

**PAOLO CERRATO**

**Stroke Unit Molinette**

# TRATTAMENTI PER L'ICTUS ISCHEMICO ACUTO

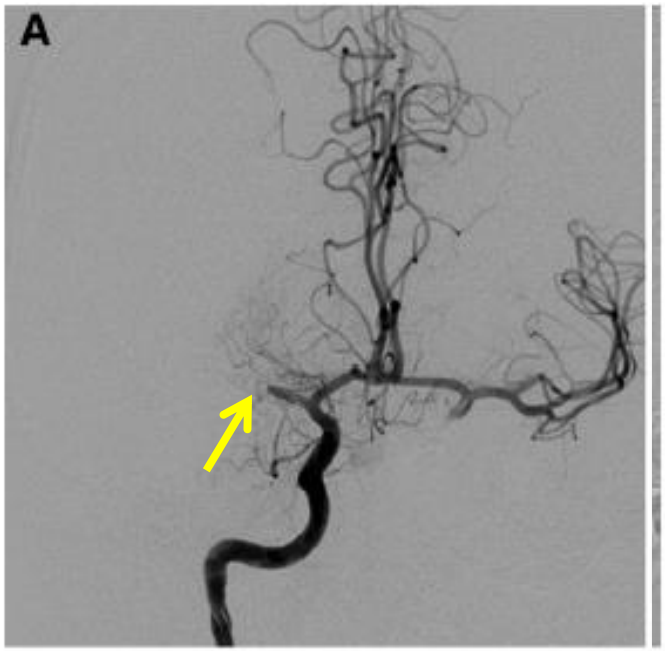


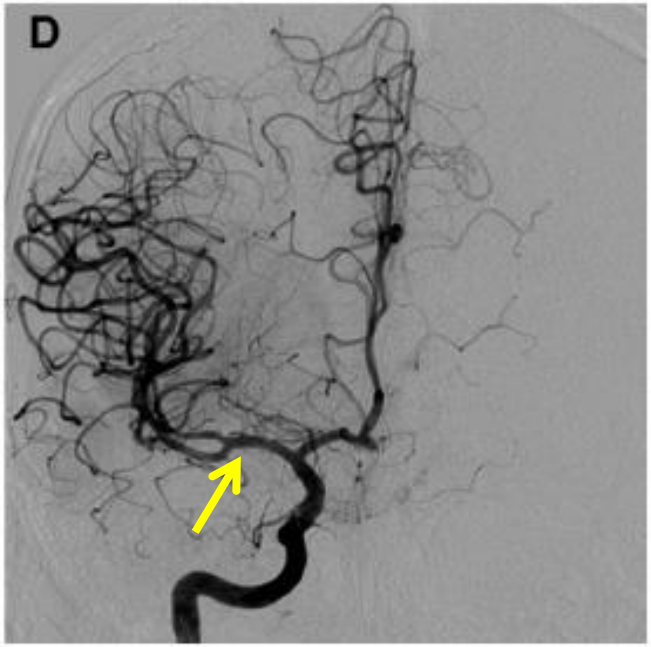

Clinical evidence, Issue 2, 2002

# Coma tetraplegia
# Occlusione basilare


Occlusione
ACM- M1

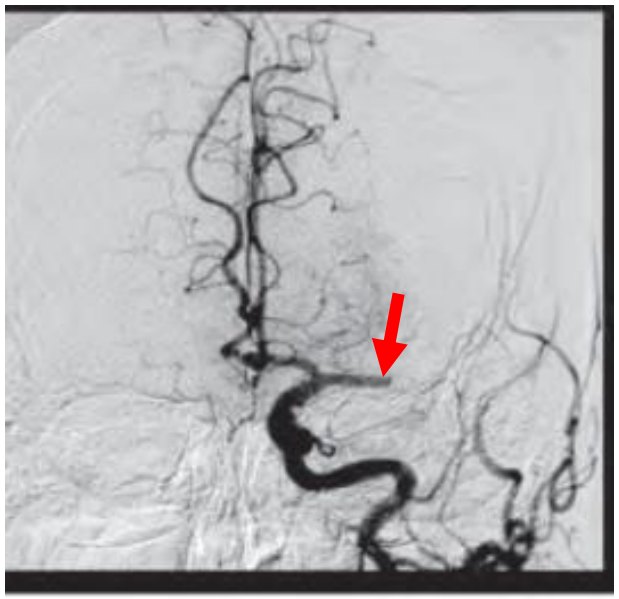
EON
Emiplegia dx
Afasia
NIHSS=21



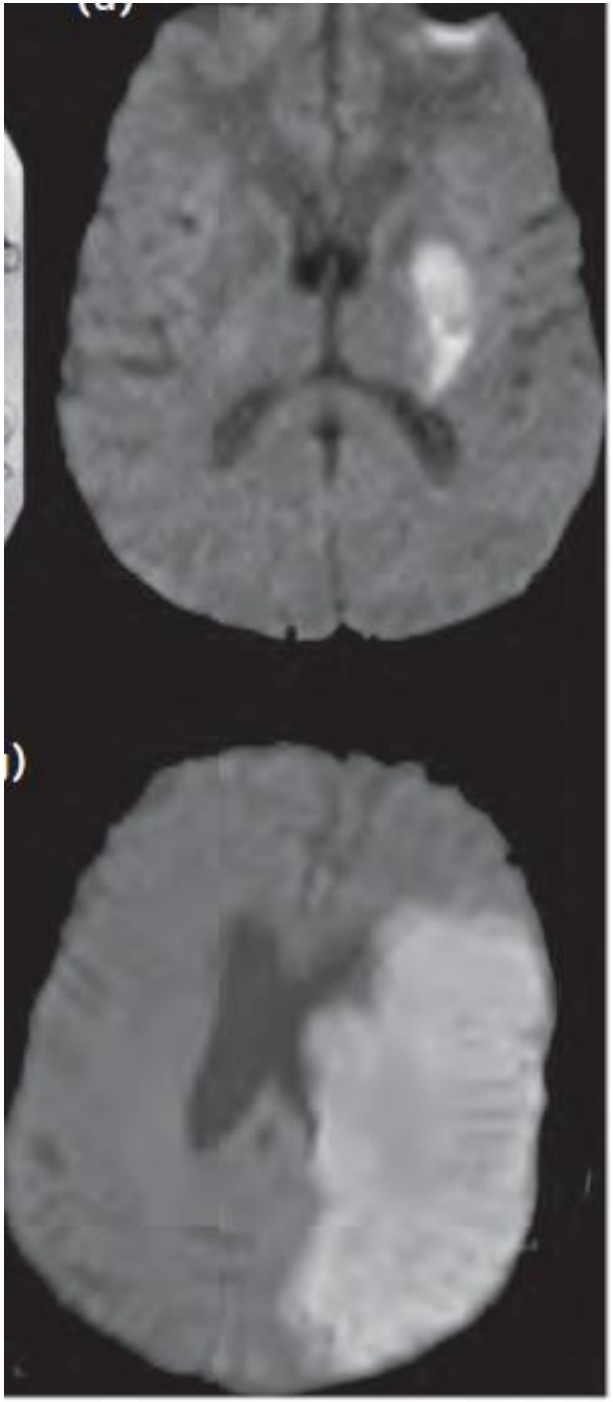



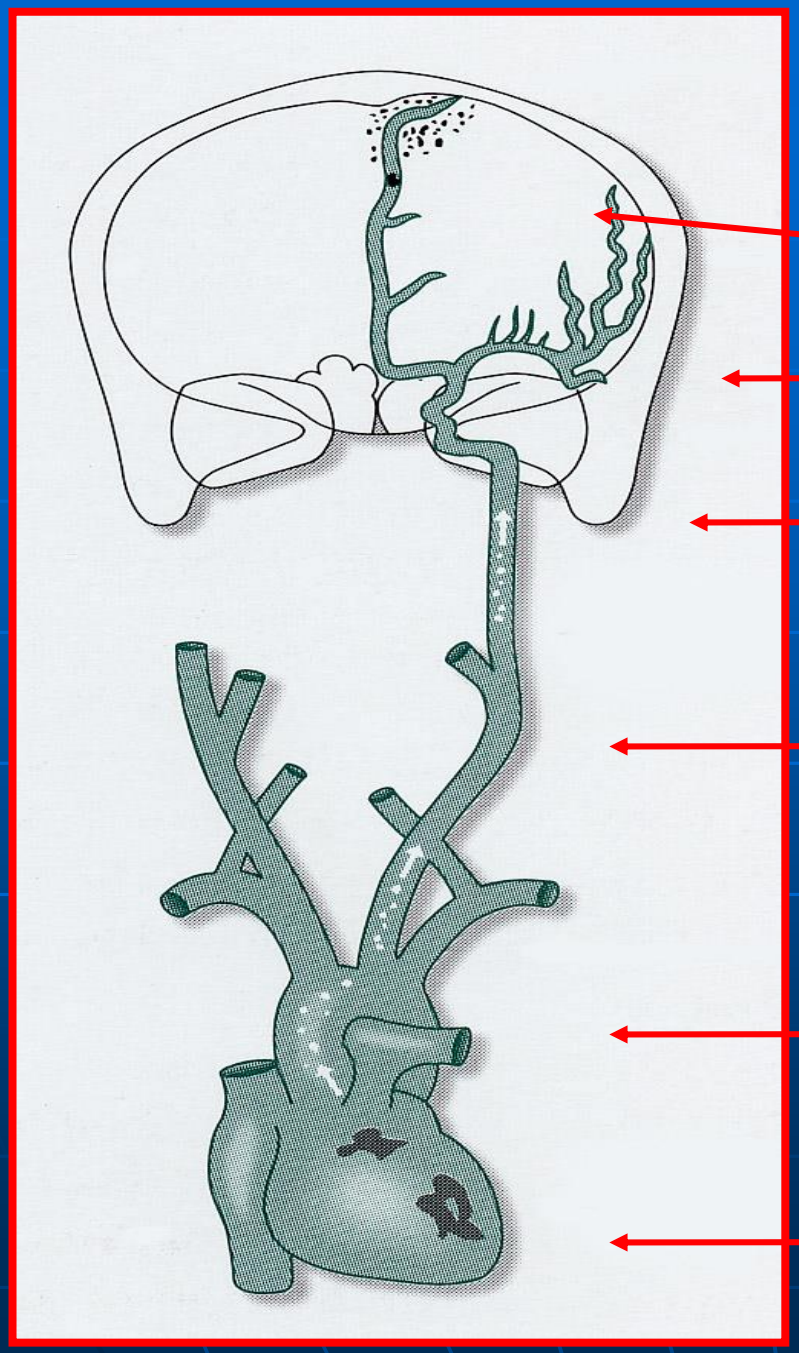

Completa ricanalizzazione
della ac media dopo trombolisi
combinata

**Ricanalizzazione SI**

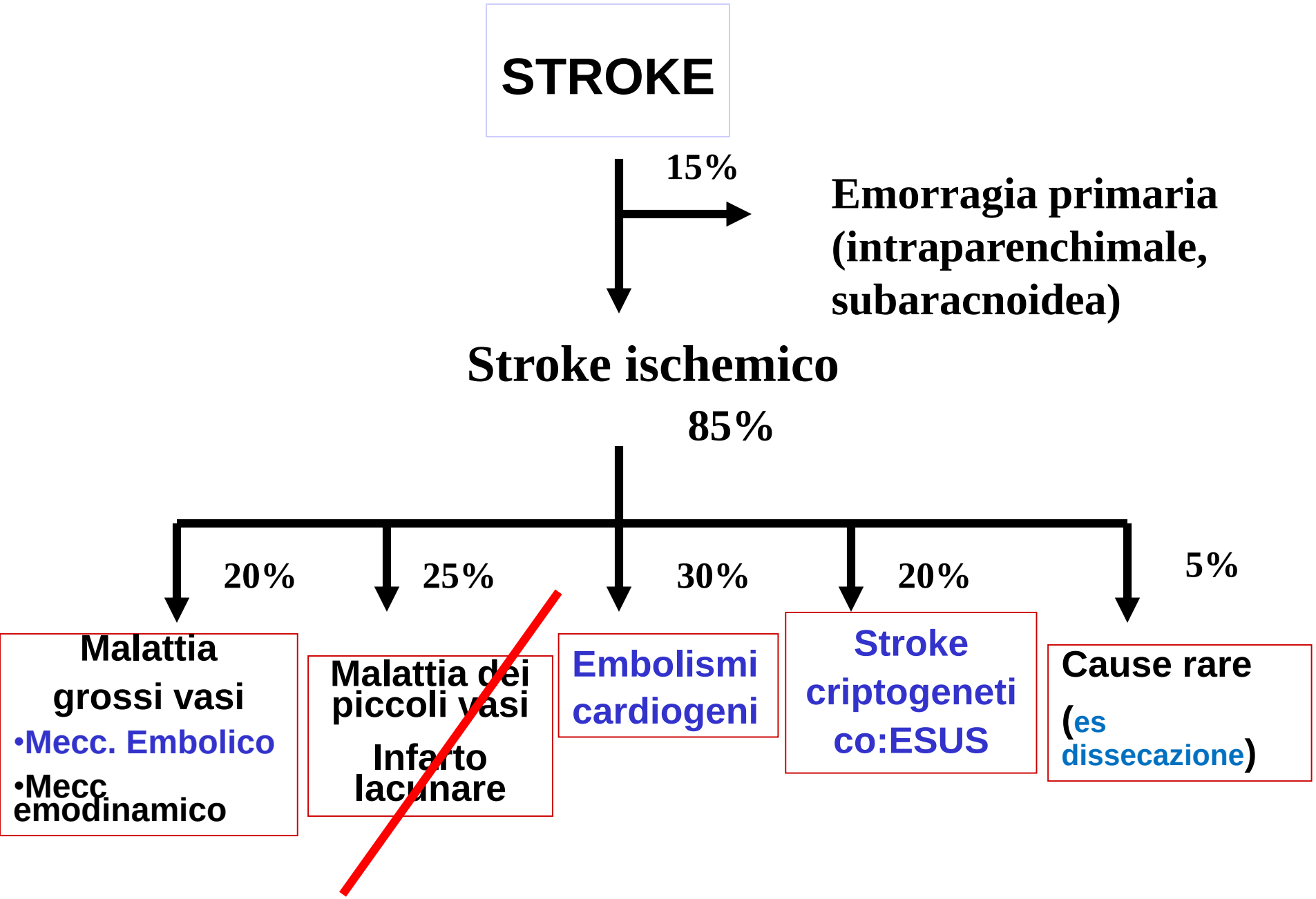


**Ricanalizzazione NO**





| Mechanism Subtype | Prevalence |
|---|---|
| Borderzone | 5 % |
| Lacunar | 20 % |
| Cryptogenic | 20 % |
| Artery-to-artery embolism | 20 % |
| Aortic arch atheroma | 15 % |
| Cardiac embolism | 20 % |


STROKE
15%
Emorragia primaria (intraparenchimale, subaracnoidea)
Stroke ischemico
85%
20%
25%
30%
20%
5%
Malattia grossi vasi
•Mecc. Embolico
•Mecc emodinamico
Malattia dei piccoli vasi
Infarto lacunare
Embolismi cardiogeni
Stroke criptogenetico:ESUS
Cause rare
(es dissecazione)

# ICTUS ISCHEMICO
# TERAPIA DELLA FASE ACUTA

1. **TROMBOLISI**
2. **TERAPIA ANTITROMBOTICA**
3. **CITOPROTEZIONE**
4. **TERAPIA COMPLICANZE NEUROLOGICHE**
5. **TERAPIA DI SUPPORTO E DELLE COMPLICANZE INTERNISTICHE**

# TROMBOLISI

→**Somministrazione EV di rt-PA entro 4,5 ore dall'esordio dei sintomi (dal 1997 in USA)**

→ **Rimozione endovascolare di trombo occludente (tromboli IA mediante trombectomia) entro 6 ore, dopo aver eseguito trombolisi EV (dal 2005)**

→ **Trombolisi IA primaria in pz con controindicazionui assolute alla trombolisi EV (meno validata dai trials)**

# ICTUS ISCHEMICO
# TERAPIA DELLA FASE ACUTA

1. **TROMBOLISI (EV. IA, Combinata)** — **118, PS, NRD INTERV**
2. **GESTIONE DELLA PA SISTEMICA (PS, SU)**
3. **TERAPIA ANTITROMBOTICA (PREVENZIONE RECIDIVE A BREVE TERMINE)**
4. **PREVENZIONE E TERAPIA DELLE COMPLICANZE INTERNISTICHE E NEUROLOGIHE**

**Stroke Unit**

# 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

| | | |
|---|---|---|
| 16. In patients eligible for IV alteplase, benefit of therapy is time dependent, and treatment should be initiated as quickly as possible. | I | A |

# TROMBOLISI EV
## CRITERI *ASSOLUTI* DI ESCLUSIONE

| |
|---|
| Insorgenza dell'ictus > 4.5 ore |
| Segni precoci di ischemia alla TAC (ASPECT score ≤ 6) |
| Emorragia intracranica alla TAC cerebrale o sospetto clinico di ESA, anche se TAC normale |
| Terapia con dicumarolici e/o INR > 1,7 |
| Terapia con "nuovi" anticoagulanti orali (DOAC: Direct Oral AntiCoagulant) (potrebbe fare eccezione il Dabigatran se disponibile antagonista)(*) |
| Somministrazione di eparina nelle precedenti 24 ore o aPTT eccedente il limite normale superiore del laboratorio |
| Conta piastrinica < 100.000/$mm^3$ (**) |
| Diatesi emorragica nota o alto rischio emorragico per comorbidità |
| Sanguinamento grave in atto o recente |
| Neoplasia con aumentato rischio emorragico |
| Retinopatia emorragica |
| Endocardite batterica, pericardite |
| Pancreatite acuta |
| Glicemia < 50 o > 400 se il deficit regredisce con la correzione della glicemia |
| Sanguinamento urinario o gastro-intestinale (< 3 mesi per ISO-SPREAD, < 21 gg per AHA/ASA) |
| Malattia ulcerosa del tratto gastroenterico (<3 mesi) |

# TROMBOLISI EV

## CRITERI *RELATIVI* DI ESCLUSIONE

| |
|---|
| Ora di insorgenza non nota (esordio al risveglio o non testimoniato) |
| Rapido miglioramento dei sintomi |
| Ictus grave clinicamente (es. NIHSS >25) e/o sulla base di adeguate tecniche di neuroimmagini |
| Aneurisma cerebrale non rotto |
| Recente intervento chirurgico maggiore o trauma maggiore non cranico |
| Trauma cranico significativo negli ultimi 3 mesi |
| Recente (entro 3 mesi) infarto del miocardio |
| Crisi comiziale all'esordio dell'ictus |
| Ictus ischemico negli ultimi 3 mesi |
| Pregressa emorragia intracranica |
| Malformazione vascolare intracranica |
| Gravidanza |
| Menorragia |
| Masse intracardiache |
| Demenza, significativa disabilità precedente, neoplasia maligna |
| Puntura lombare (< 7 gg) |

# NNT and NNH con r-TPA

Number Needed to Treat
(NNT) per morte disabiltà

| | |
|---|---|
| < 4,5 h | 16 |
| < 3 h | 7 |
| < 1,5 h | 3 |

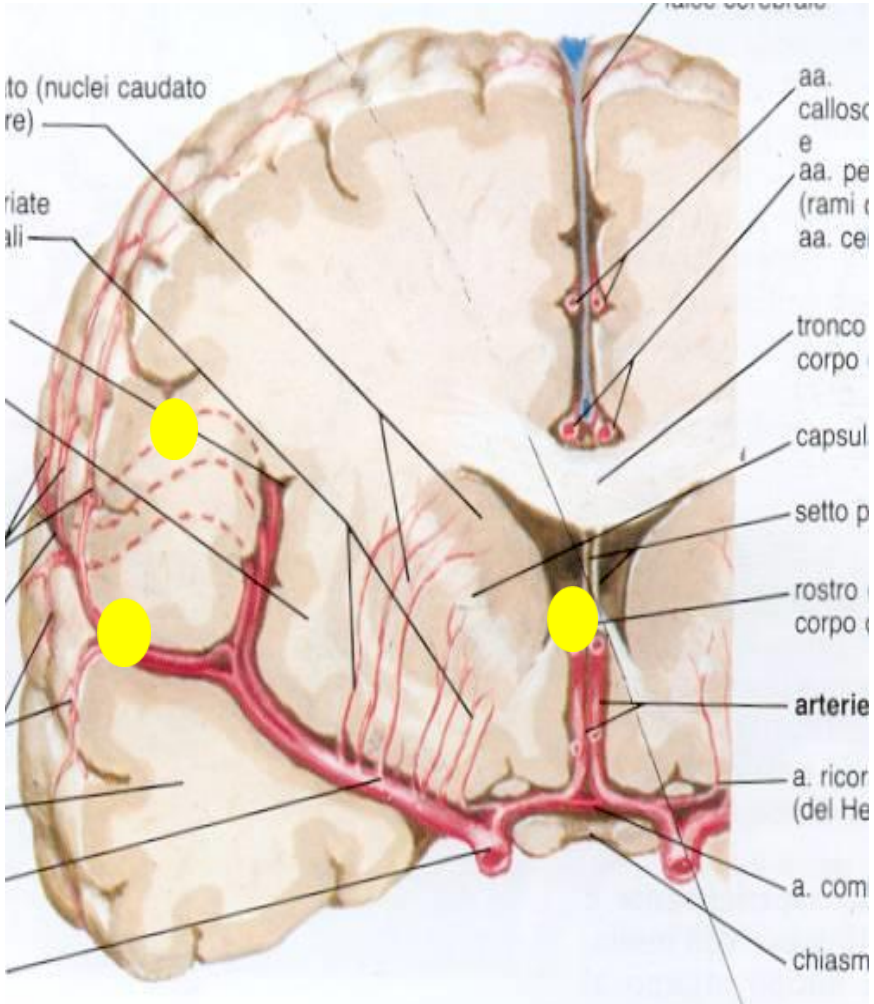
Number Needed to Harm 34
(NNH per emorragia sintomatica)

# TROMBOLSI EV

## (vantaggi)

- **Facile**
- **Richiede pochi esami (TC, ematochimici)**
- **Eseguibile in tutti i DEA un minimo attrezzati**
- **Eseguibile in poco tempo**
- **Efficace in rami distali (oltre M1) meno in prossimali e in presenza di quadri clinici meno gravi (NIHSS<10)**

Sono i limiti della trombolisi IA



# TROMBOLSI EV (limiti)

**Alcuni casi ricanalizzano con difficoltà solo con rt-PA ev**

- **Occlusione ICA al collo**
- **Occlusione prossimale (tratto M1 della ac media e carotide intracranica) con grosso trombo**

**Non eseguibile nei pz a rischio di emorragie sistemiche o cerebrali in relazione all'rt-PA**

Sono i candidati alla trombolisi IA dopo/durante la trombolisi ev (combinata)

Sono i candidati alla trombectomia meccanica primaria

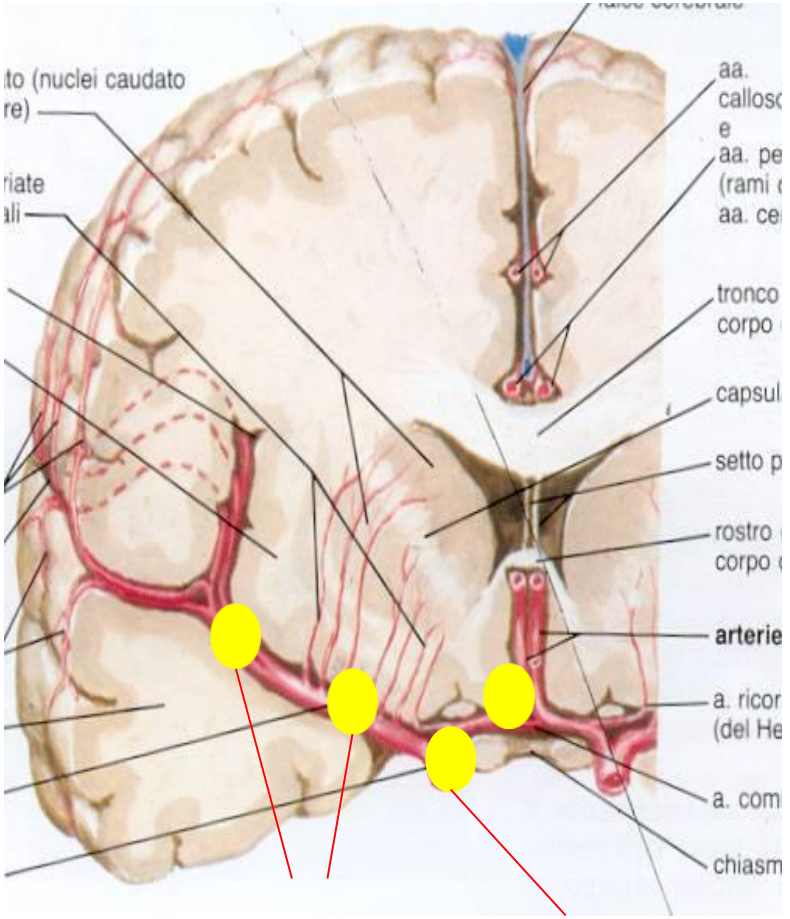
# TROMBOLISI IA (vantaggi)

- **Visualizzazione vaso occluso per cui tratto solo i pz con vaso chiuso (di grosso calibro)**

- **Eseguibile senza farmaco (trombectomia meccanica) senza rischio emorragie sistemiche o correlate all'rt-PA**

- **finestra temporale: fino a 6 ore (art cerebrale media) e fino a 24 ore in presenza di tessuto salvabile (penombra)**

- **efficace in occlusioni prossimali e/o da parte di trombo-emboli di elevate dimensioni**



# TROMBOLISI IA (svantaggi)

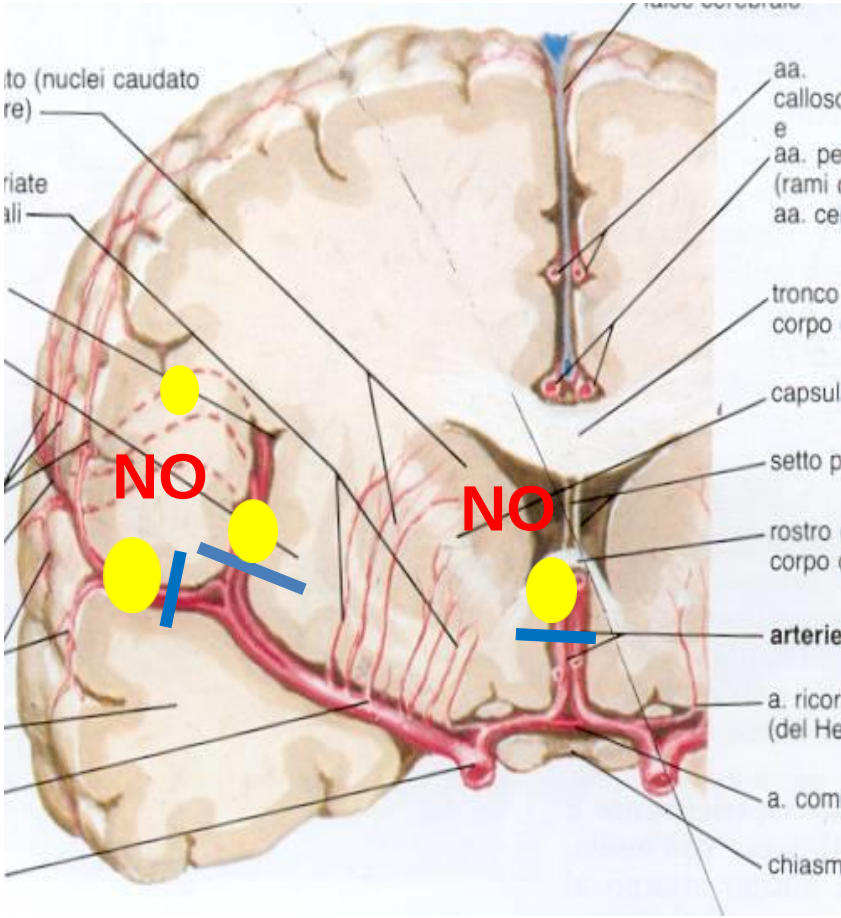
-Invasività della procedura

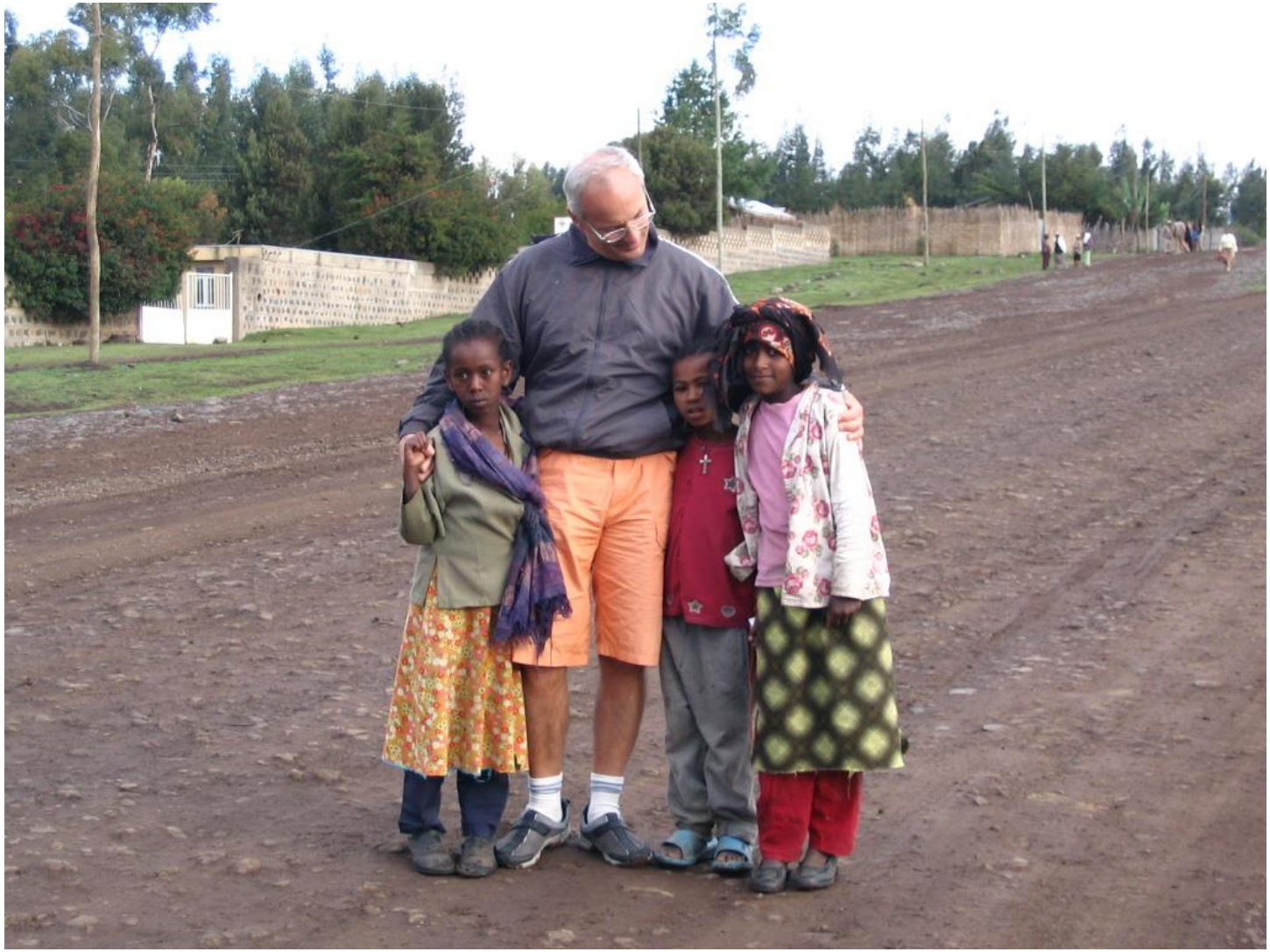
-Non eseguibile per occlusioni rami distali (da M2 in poi)

-Problemi organizzativi (modello spoke and Hub)

-Perdita di tempo (almeno 1 ora in più) se fatta dopo rt-PA

-Scarsa disponibilità di servizi di neuroradiologia interventistica e di operatori esperti





# 2015: 5 «magici « studi

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JANUARY 1, 2015 VOL. 372 NO. 1

## 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*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Randomized Assessment of Rapid Endovascular Treatment of Ischemic Stroke

M. Goyal, A.M. Demchuk, B.K. Menon, M. Eesa, J.L. Rempel, J. Thornton, D. Roy, T.G. Jovin, R.A. Willinsky, B.L. Sapkota, D. Dowlatshahi, D.F. Frei, N.R. Kamal, W.J. Montanera, A.Y. Poppe, K.J. Ryckborst, F.L. Silver, A. Shuaib, D. Tampieri, D. Williams, O.Y. Bang, B.W. Baxter, P.A. Burns, H. Choe, J.-H. Heo, C.A. Holmstedt, B. Jankowitz, M. Kelly, G. Linares, J.L. Mandzia, J. Shankar, S.-I. Sohn, R.H. Swartz, P.A. Barber, S.B. Coutts, E.E. Smith, W.F. Morrish, A. Weill, S. Subramaniam, A.P. Mitha, J.H. Wong, M.W. Lowerison, T.T. Sajobi, and M.D. Hill for the ESCAPE Trial Investigators*

ORIGINAL ARTICLE

## 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, B. Yan, R.J. Dowling, M.W. Parsons, T.J. Oxley, T.Y. Wu, M. Brooks, M.A. Simpson, F. Miteff, C.R. Levi, M. Krause, T.J. Harrington, K.C. Faulder, B.S. Steinfort, M. Priglinger, T. Ang, R. Scroop, P.A. Barber, B. McGuinness, T. Wijeratne, T.G. Phan, W. Chong, R.V. Chandra, C.F. Bladin, M. Badve, H. Rice, L. de Villiers, H. Ma, P.M. Desmond, G.A. Donnan, and S.M. Davis, for the EXTEND-IA Investigators*

ORIGINAL ARTICLE

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, B. Yan, R.J. Dowling, M.W. Parsons, T.J. Oxley, T.Y. Wu, M. Brooks, M.A. Simpson, F. Miteff, C.R. Levi, M. Krause, T.J. Harrington, K.C. Faulder, B.S. Steinfort, M. Priglinger, T. Ang, R. Scroop, P.A. Barber, B. McGuinness, T. Wijeratne, T.G. Phan, W. Chong, R.V. Chandra, C.F. Bladin, M. Badve, H. Rice, L. de Villiers, H. Ma, P.M. Desmond, G.A. Donnan, and S.M. Davis, for the EXTEND-IA Investigators*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## 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. Cardona, 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*

ABSTRACT

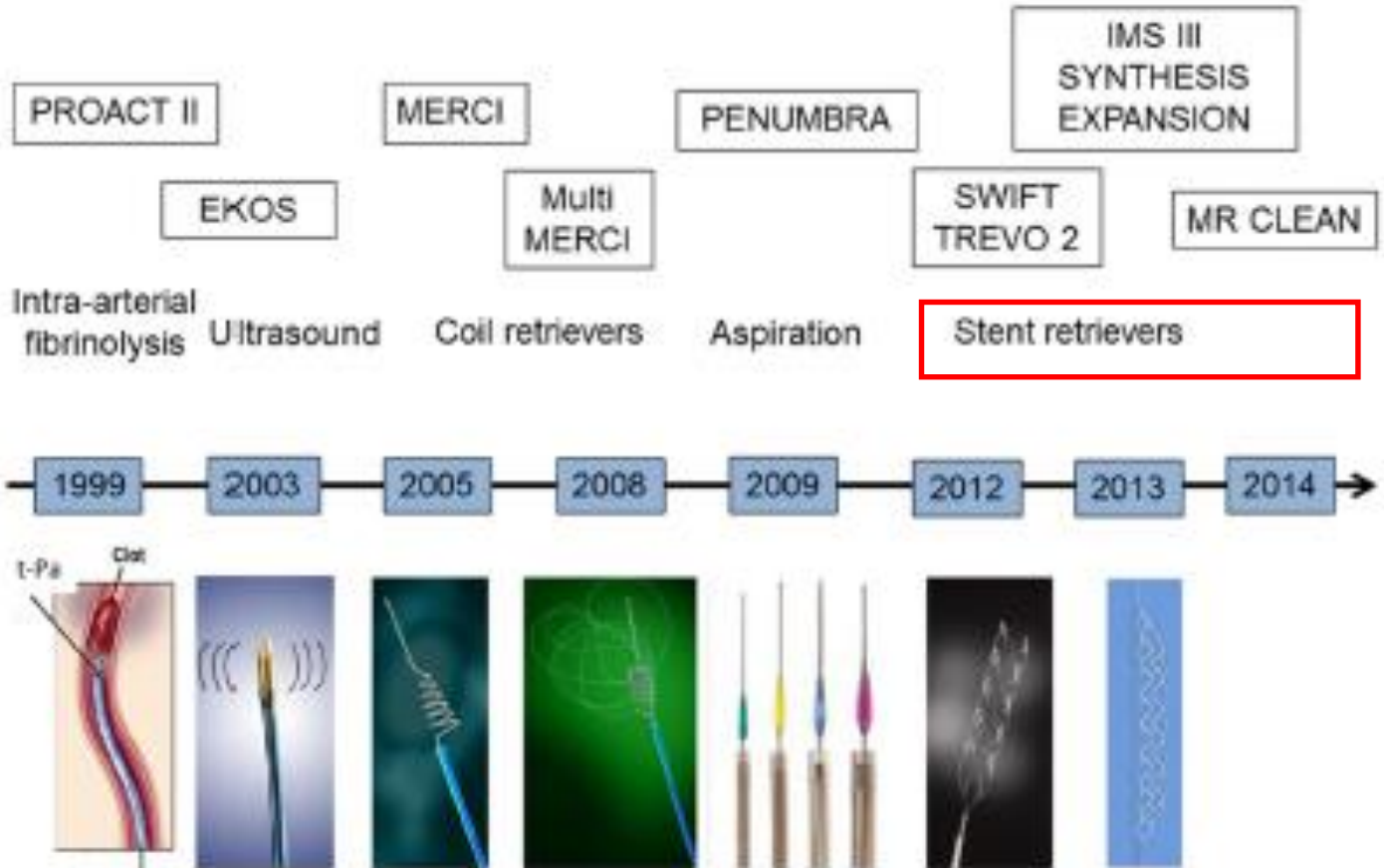
Topical Review

Section Editors: Ajay K. Wakhloo, MD, PhD, and Laurent Pierot, MD, PhD

# Techniques for Endovascular Treatment of Acute Ischemic Stroke

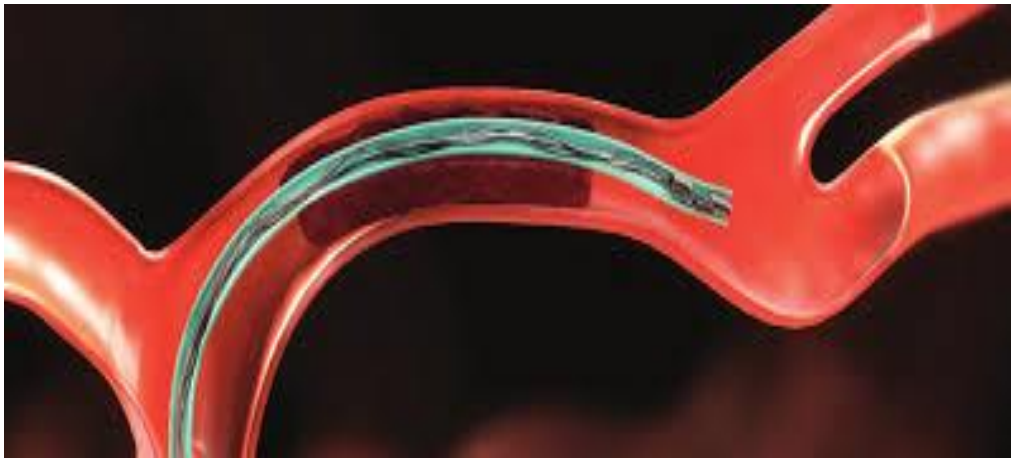
## From Intra-Arterial Fibrinolytics to Stent-Retrievers

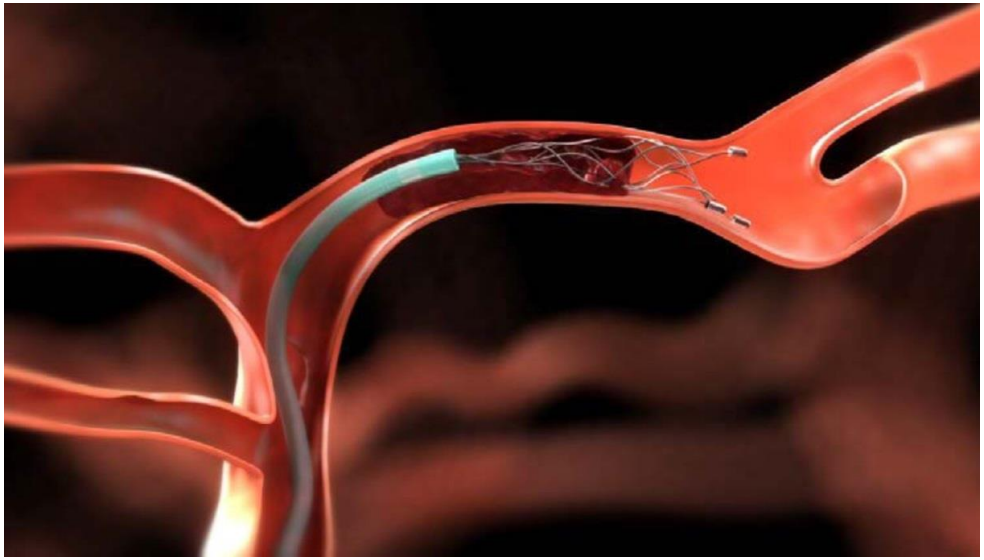
Laurent Pierot, MD, PhD; Sébastien Soize, MD; Azzedine Benaissa, MD; Ajay K. Wakhloo, MD, PhD



# Stent-retriever

**Lo stent  viene usato non per dilatare in vaso ma per rimuovere l'embolo (trombectomia) occludente dopo dopo averlo «trapassato» il trombo……pertanto si chiamano**





The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JUNE 11, 2015 VOL. 372 NO. 24

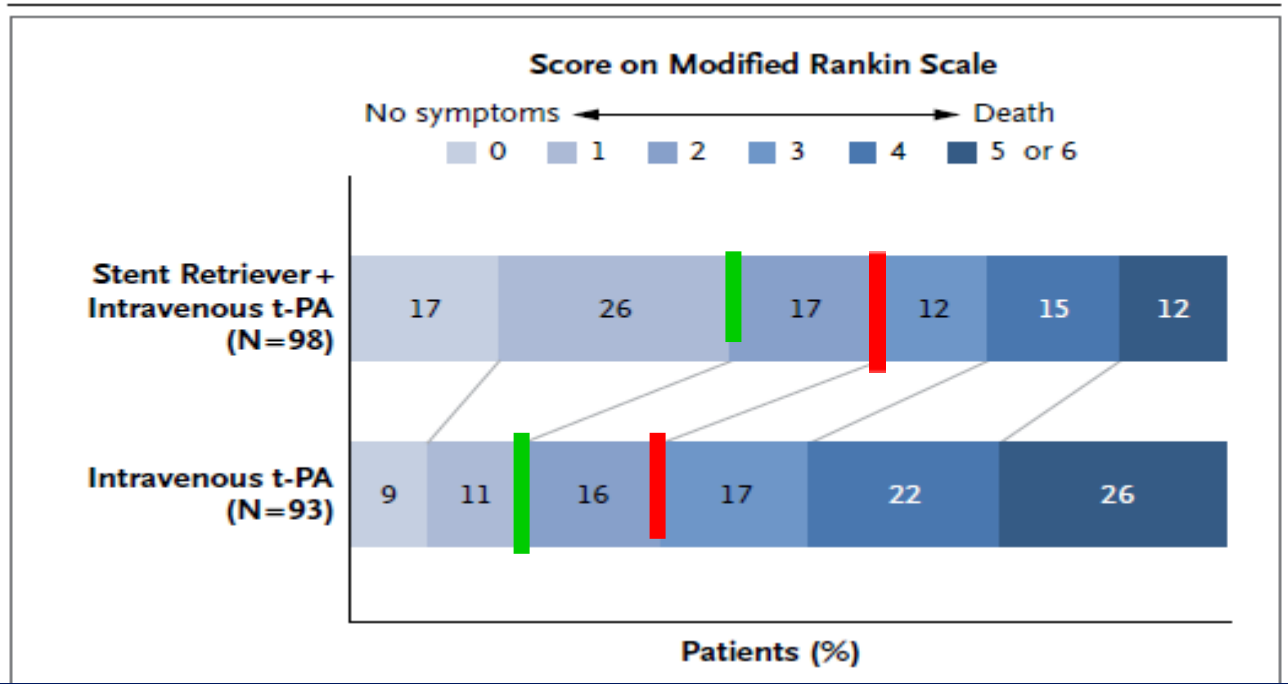
# Stent-Retriever Thrombectomy after Intravenous t-PA vs. t-PA Alone in Stroke

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*

## SWIFT-PRIME

## NNT=4

**Puntura arteria**
**3 H 45 min**
**Ricanalizzazione 4 h e 12 m**



# 3.7. Mechanical Thrombectomy

| 3.7. Mechanical Thrombectomy | COR | LOE |
|---|---|---|
| 1. Patients eligible for IV alteplase should receive IV alteplase even if EVTs are being considered. | I | A |
| 2. In patients under consideration for mechanical thrombectomy, observation after IV alteplase to assess for clinical response should not be performed. | III: Harm | B-R |
| 10. As with IV alteplase, reduced time from symptom onset to reperfusion with endovascular therapies is highly associated with better clinical outcomes. To ensure benefit, reperfusion to TICI grade 2b/3 should be achieved as early as possible within the therapeutic window. | I | B-R |

## Criteri di inclusione x trombolisi IA

- Età > 18 anni
- Dimostrazione strumentale all'angio-CT, di occlusione di un grosso vaso intracranico prossimale (ICA incracranica, M1), congruo con il quadro clinico,
- Punteggio ASPECTS ≥ 6 **Esclusi pz con estesi segni precoci**
- NIHSS≥ 6 **Esclusi deficit molto lievi**
- **Assenza di significativa disabilità prece**dente (mRS precedente 0-2,ossia pz autosufficiente)
- Intervallo temporale tra l'esordio dei sintomi e il termine presumibile della procedura di IAT non superiore alle 6 ore (deve **giungere in sala angiografica entro 5 ore dall'esordio**)
- **Assenza di segni precoci ASPECT** ≥ 6**,Deficit grave ( NIHSS > 10) e ampio tessuto ancora salvabile –Mismatch- fino a 16-24 ore**

# NNT con trombolisi

Number Needed to Treat (NNT)

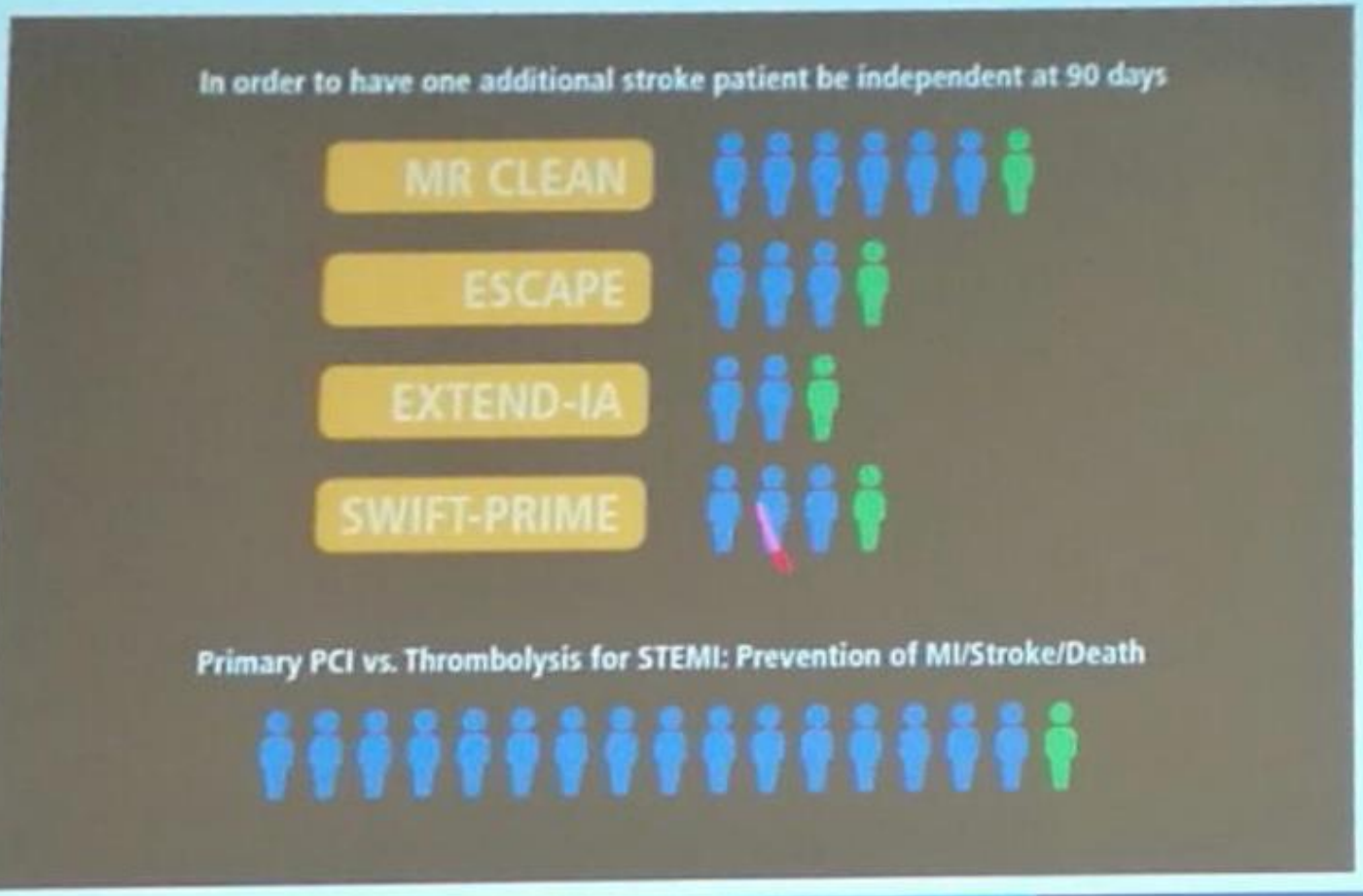
- t-PA < 4,5 h 16
- t-PA < 3 h 7
- t-PA< 1,5 h 3

- Trombolisi ( IA primaria) combinata < 6 h 3-4

- Trombectomia > 6 ore-24 ore 2-3 in pz con ampia penombra -mismatch

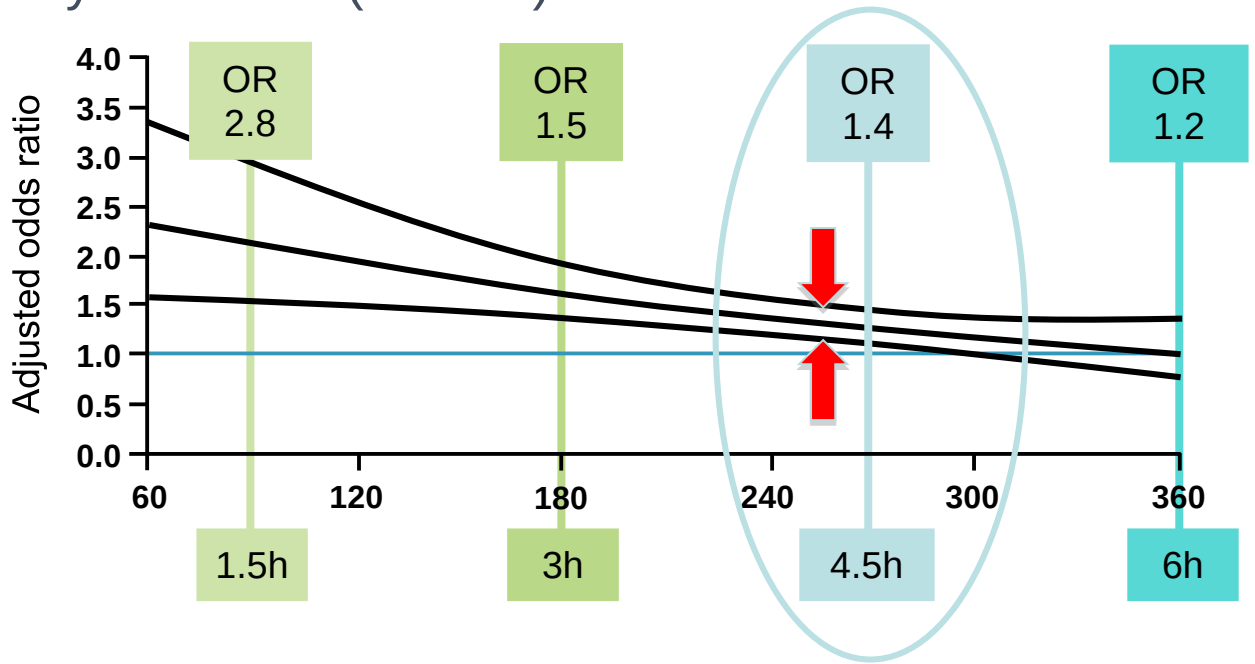
Aspirina 80

# NUMBER NEEDED TO TREAT



# Early Treatment Remains Essential

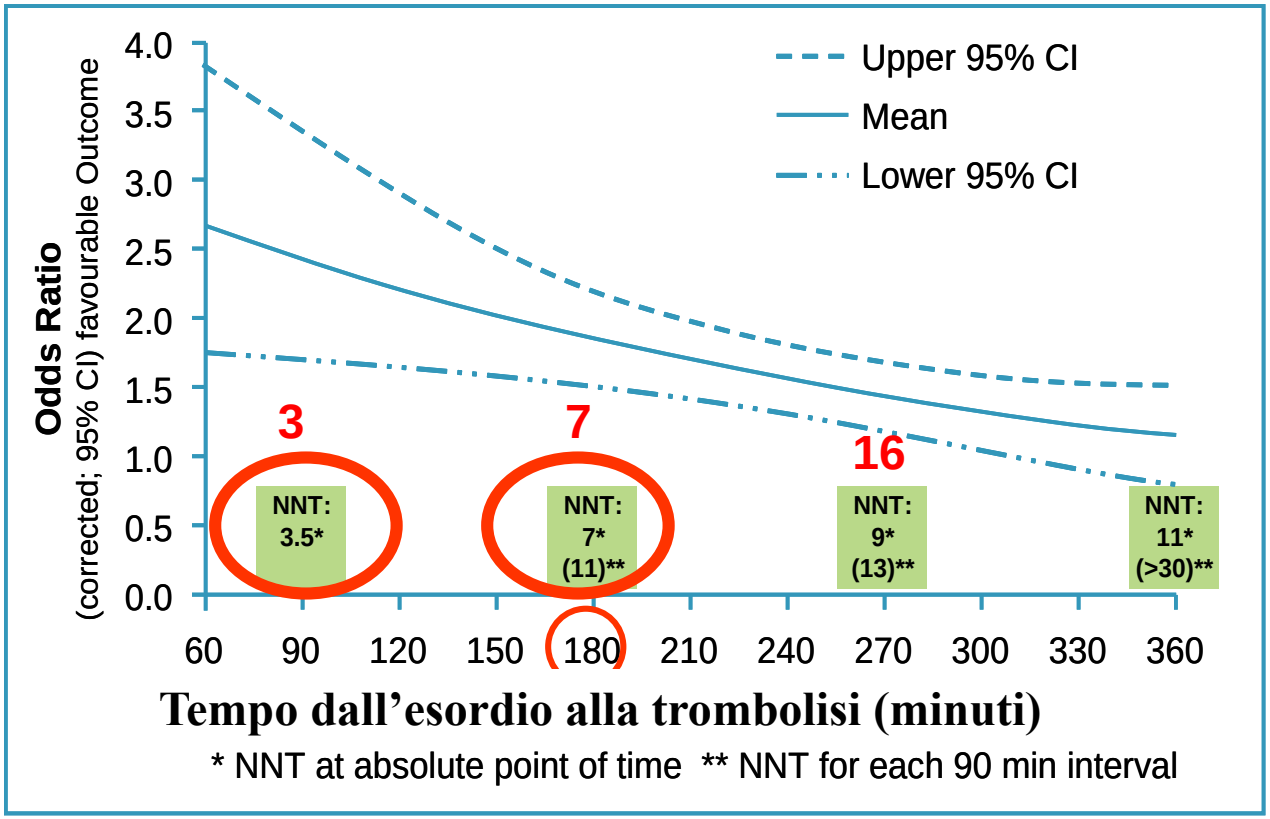
- The effect size (OR 1.4) in the 3-4.5h is confirmed by ECASS III, and the confidence intervals will significantly narrow in the new pooled analysis, however, the differnce in effect size compared with early treatment (OR 2.8) remains




OR, odds ratio

Hacke et al. Lancet 2004; 363: 768–74

# Time is Brain


**1.9 milioni di neuroni muoiono ogni minuto in cui l'ictus non viene trattato**

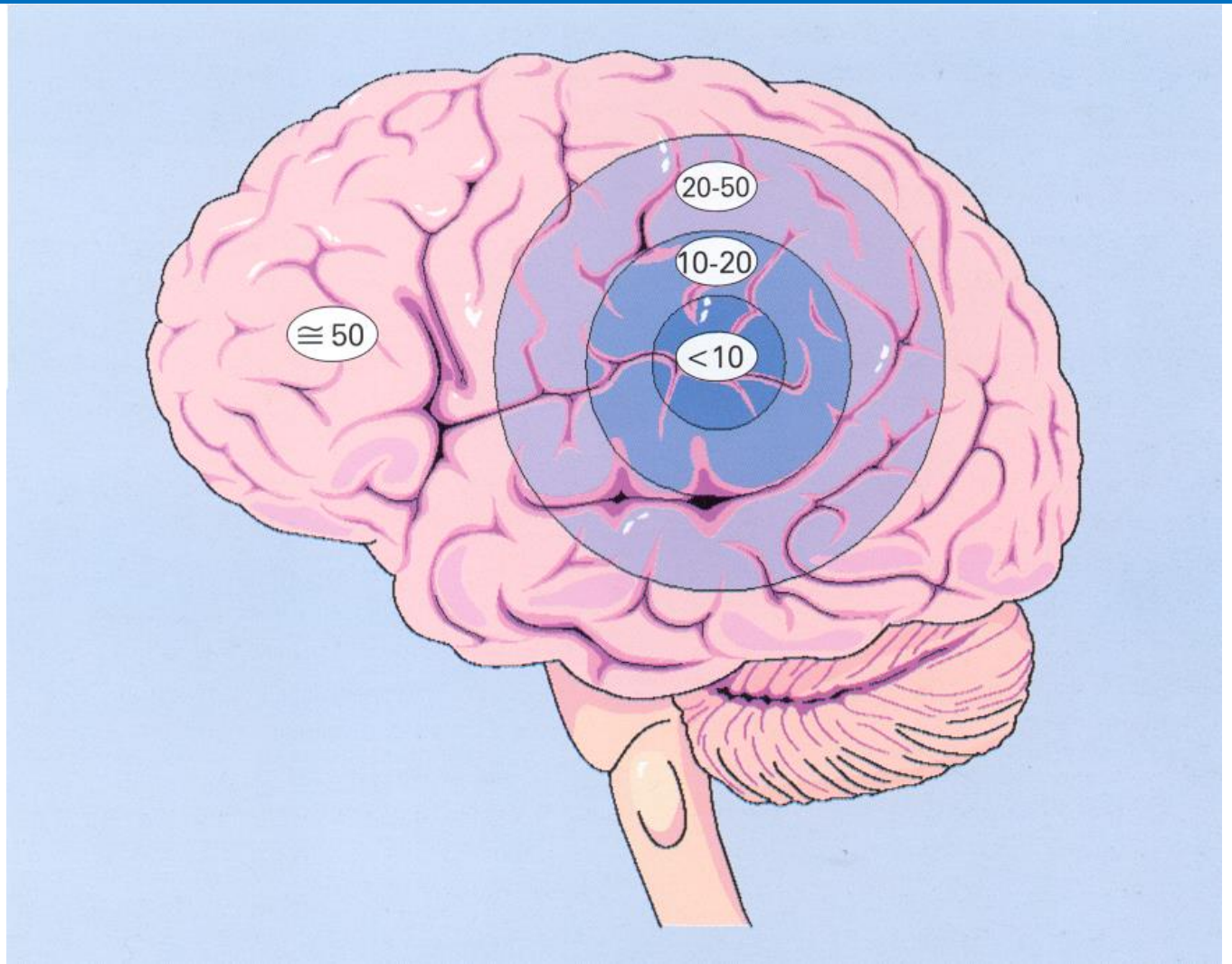
*Saver, Stroke 2006*

# TROMBOLISI :novità dal 2018

→ **Trombolisi IA (trombectomia) primaria fino a 24 ore in presenza di persistente tessuto ancora salvabile (ampia penombra o mismatch alla neuroimmagini avanzate)**

→ **Trombolisi EV con rt-PA fino a 9 ore in presenza di persistente tessuto ancora salvabile (ampia penombra o mismatch alla neuroimmagini avanzate)**

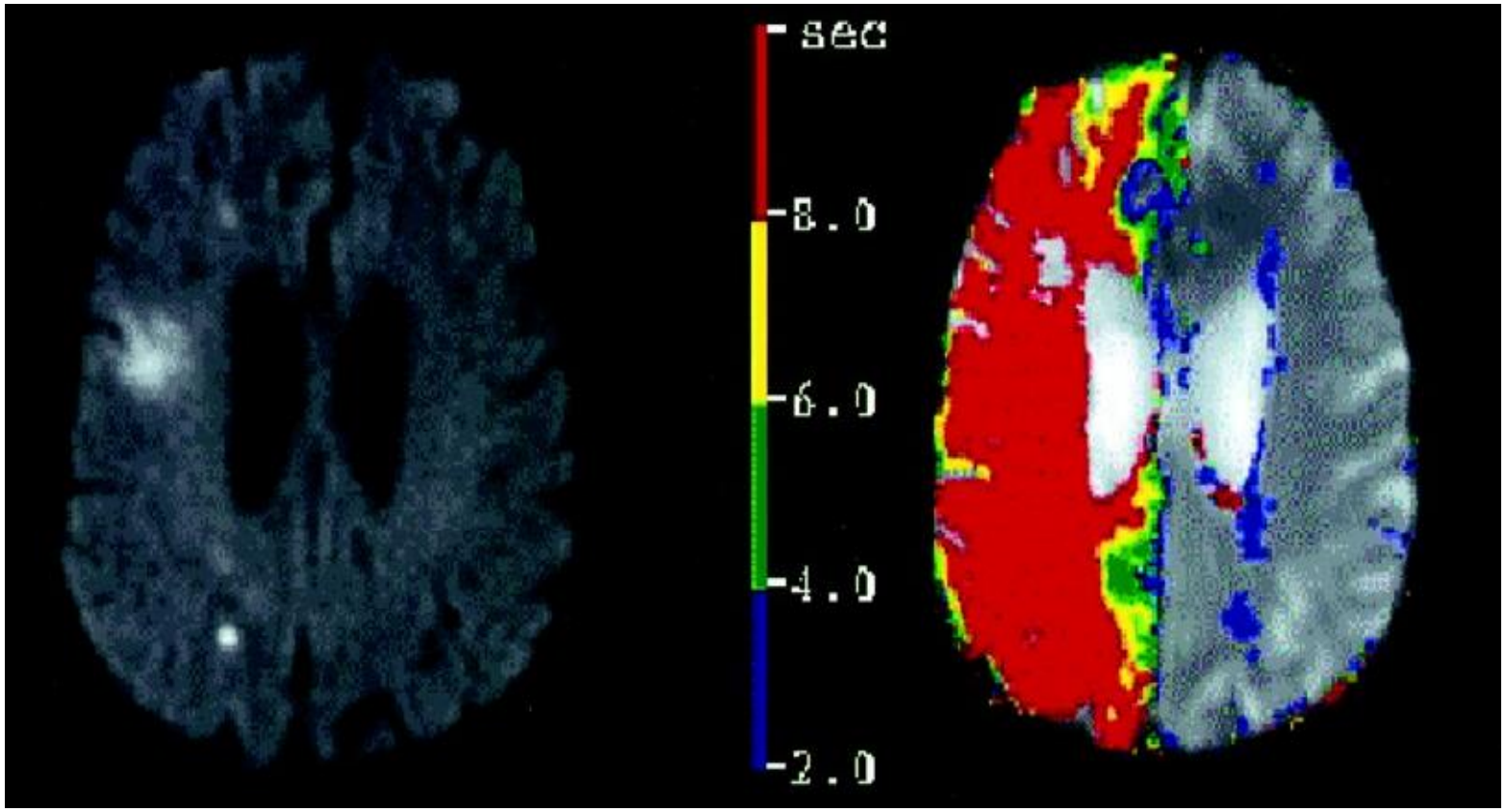
# Il core (ischemia irreversibile) e la penombra (tessuto salvabile) prodotti dall'ischemia cerebrale focale



# Mismacht positivo in RMN

**RMN DW1**
sequenza in diffusione

**RMN sequenza**
**Di perfusione**



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

# 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, G. Zaharchuk, S. Kim, J. Carrozzella, Y.Y. Palesch, A.M. Demchuk, R. Bammer, P.W. Lavori, J.P. Broderick, and M.G. Lansberg, for the DEFUSE 3 Investigators*

**2018 STUDIO DEFUSE 3**

# Assenza di disabilità residua

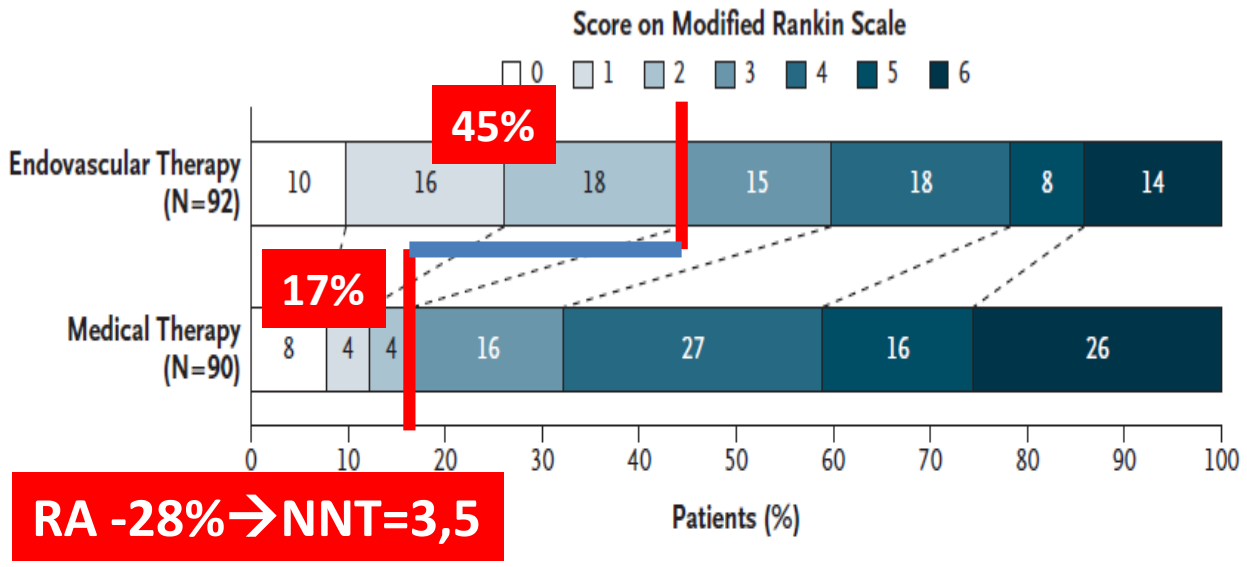



**Figure 2. Scores on the Modified Rankin Scale at 90 Days.**

Patients in the endovascular-therapy group received endovascular therapy plus standard medical therapy. Patients in the medical-therapy group received standard medical therapy alone. Scores on the modified Rankin scale range from 0 to 6, with 0 indicating no symptoms, 1 no clinically significant disability, 2 slight disability, 3 moderate disability, 4 moderately severe disability, 5 severe disability, and 6 death. There was a significant difference favoring the endovascular-therapy group over the medical-therapy group in the overall distribution of scores (unadjusted common odds ratio, 2.77; 95% CI, 1.63 to 4.70; P<0.001).

# LG americane del gennaio 2018

| 3.7. Mechanical Thrombectomy (Continued) | COR | LOE |
|---|---|---|
| 7. In selected patients with AIS within 6 to 16 hours of last known normal who have LVO in the anterior circulation and meet other DAWN or DEFUSE 3 eligibility criteria, mechanical thrombectomy is recommended. | I | A |
| 8. In selected patients with AIS within 6 to 24 hours of last known normal who have LVO in the anterior circulation and meet other DAWN eligibility criteria, mechanical thrombectomy is reasonable. | IIa | B-R |

# NNT con trombolisi

Number Needed to Treat (NNT)

- t-PA < 4,5 h 16
- t-PA < 3 h 7
- t-PA< 1,5 h 3

- Trombolisi (o IA primaria) combinata < 6 h 3-4

- Trombolisi IA primaria > 6 ore e
- fino a 24 ore in pz con ampia penombra -mismatch 2-3

Aspirina 80

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MAY 9, 2019 VOL. 380 NO. 19

# Thrombolysis Guided by Perfusion Imaging up to 9 Hours after Onset of Stroke

H. Ma, B.C.V. Campbell, M.W. Parsons, L. Churilov, C.R. Levi, C. Hsu, T.J. Kleinig, T. Wijeratne, S. Curtze, H.M. Dewey, F. Miteff, C.-H. Tsai, J.-T. Lee, T.G. Phan, N. Mahant, M.-C. Sun, M. Krause, J. Sturm, R. Grimley, C.-H. Chen, C.-J. Hu, A.A. Wong, D. Field, Y. Sun, P.A. Barber, A. Sabet, J. Jannes, J.-S. Jeng, B. Clissold, R. Markus, C.-H. Lin, L.-M. Lien, C.F. Bladin, S. Christensen, N. Yassi, G. Sharma, A. Bivard, P.M. Desmond, B. Yan, P.J. Mitchell, V. Thijs, L. Carey, A. Meretoja, S.M. Davis, and G.A. Donnan, for the EXTEND Investigators*

**2019 STUDIO EXTEND I**

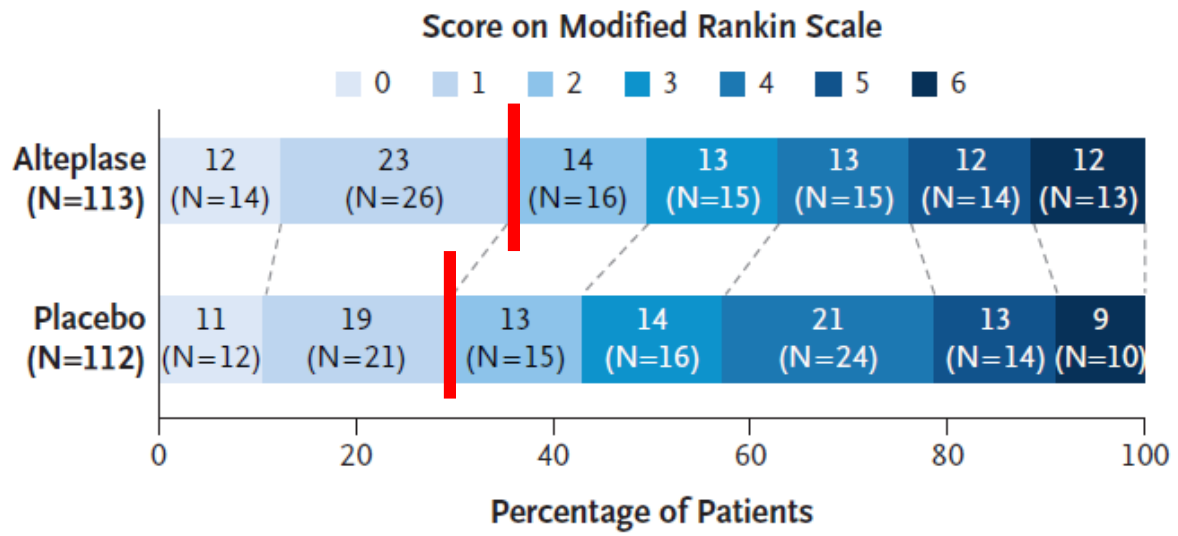



**Figure 1. Scores on the Modified Rankin Scale at 90 Days.**

Shown is the distribution of the scores on the modified Rankin scale at 90 days for all patients (intention-to-treat analysis). Scores range from 0 to 6, with 0 indicating no neurologic deficit, 1 no clinically significant disability (return to all usual activities), 2 slight disability (able to handle own affairs without assistance but unable to carry out all previous activities), 3 moderate disability requiring some help (e.g., with shopping, cleaning, and finances 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 (requiring constant nursing care and attention), and 6 death. The primary outcome of a score of 0 or 1 on the modified Rankin scale occurred in a higher percentage of patients in the alteplase group than in the placebo group. A secondary ordinal analysis of the distribution of scores on the modified Rankin scale at 90 days did not show a significant between-group difference in functional improvement (common odds ratio, 1.55; 95% confidence interval, 0.96 to 2.49). Percentages may not total 100 because of rounding.

**Good Outcome**
**49% alteplase**
**43% placebo**

**-6%**

**NNT= 18**

# Sospetto ictus

Sistema 118→**codice ictus** e allerta su centro abilitato alla trombolisi EV

DEA (HUB e spoke):

-**TC cranio, ematochimici, valutazione criteri di esclusione**
→ **trombolisi EV** nel minor tempo possibile (**entro 4,5 ore** dall'esordio)

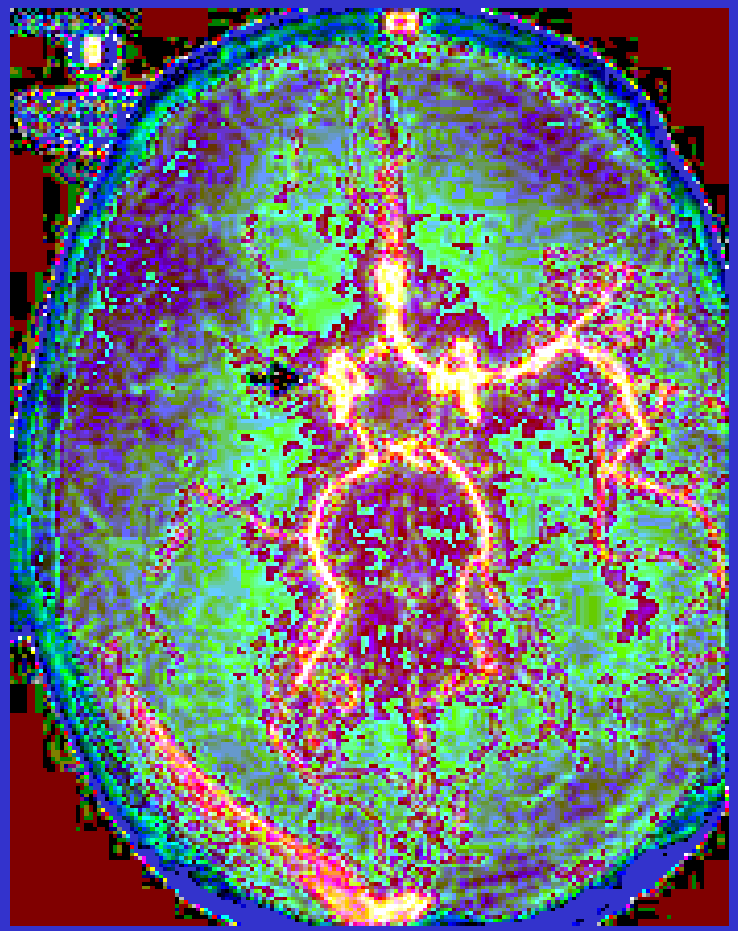
-**Angio-CT vasi extra-intracranici, valutazione di eligibilità (criteri clinici di inclusione)** → **invio tempestivo alla sala angiografica del centro HUB** in presenza di una occlusione vascolare aggredibile con **trombolisi IA entro 6 ore)**

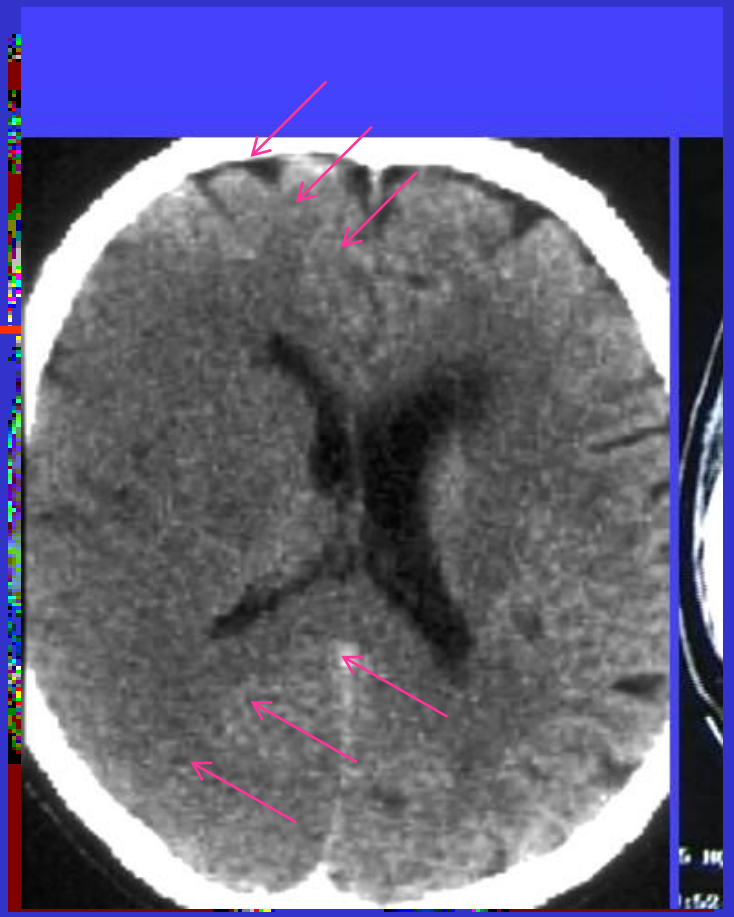
-**Neuroimmagini avanzate (TC perfusionale o RMN)** per valutare tessuto ancora salvabile (penombra) → **trombolisi IA fino a 24 ore**

-**Stroke Unit**→Gestione post del pz in area dedicata (**per tutti i pz !!!!!!)**

**Angio-TC: Occlusione dell'arteria cerebrale media**

**TC cranio: vasta ischemia emisferica precoce–NO trombolisi**





# Cost-Effectiveness of Solitaire Stent Retriever Thrombectomy for Acute Ischemic Stroke

## Results From the SWIFT-PRIME Trial (Solitaire With the Intention for Thrombectomy as Primary Endovascular Treatment for Acute Ischemic Stroke)

*Conclusions*—Among patients with acute ischemic stroke enrolled in the SWIFT-PRIME trial, SST increased initial treatment costs, but was projected to improve quality-adjusted life-expectancy and reduce healthcare costs over a lifetime horizon compared with tPA.

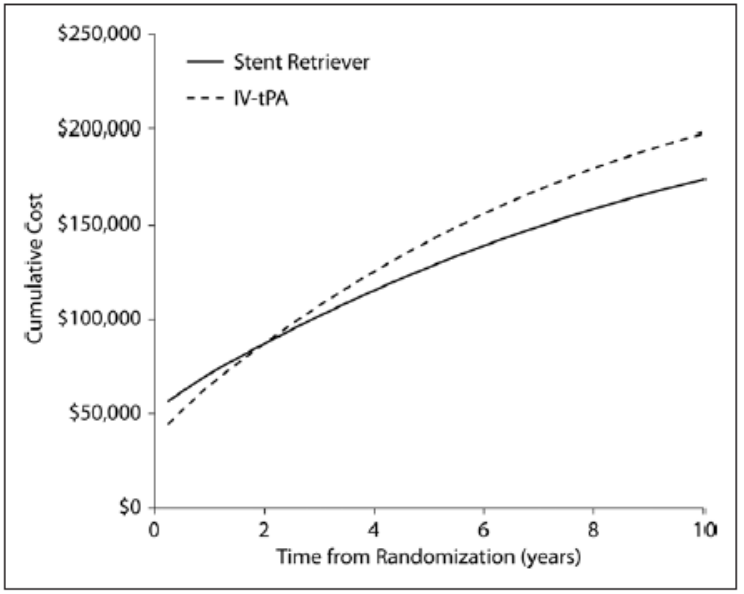



**Figure 3.** Time to breakeven point where long-term costs associated with stent retriever thrombectomy are exceeded by higher long term costs in the intravenous tissue-type plasminogen activator (IV tPA)–alone group.

## *Antonello da Messina*

## *San Girolamo nello studio*

# Bernini: David

REVIEW

# Mothership versus drip and ship for thrombectomy in patients who had an acute stroke: a systematic review and meta-analysis

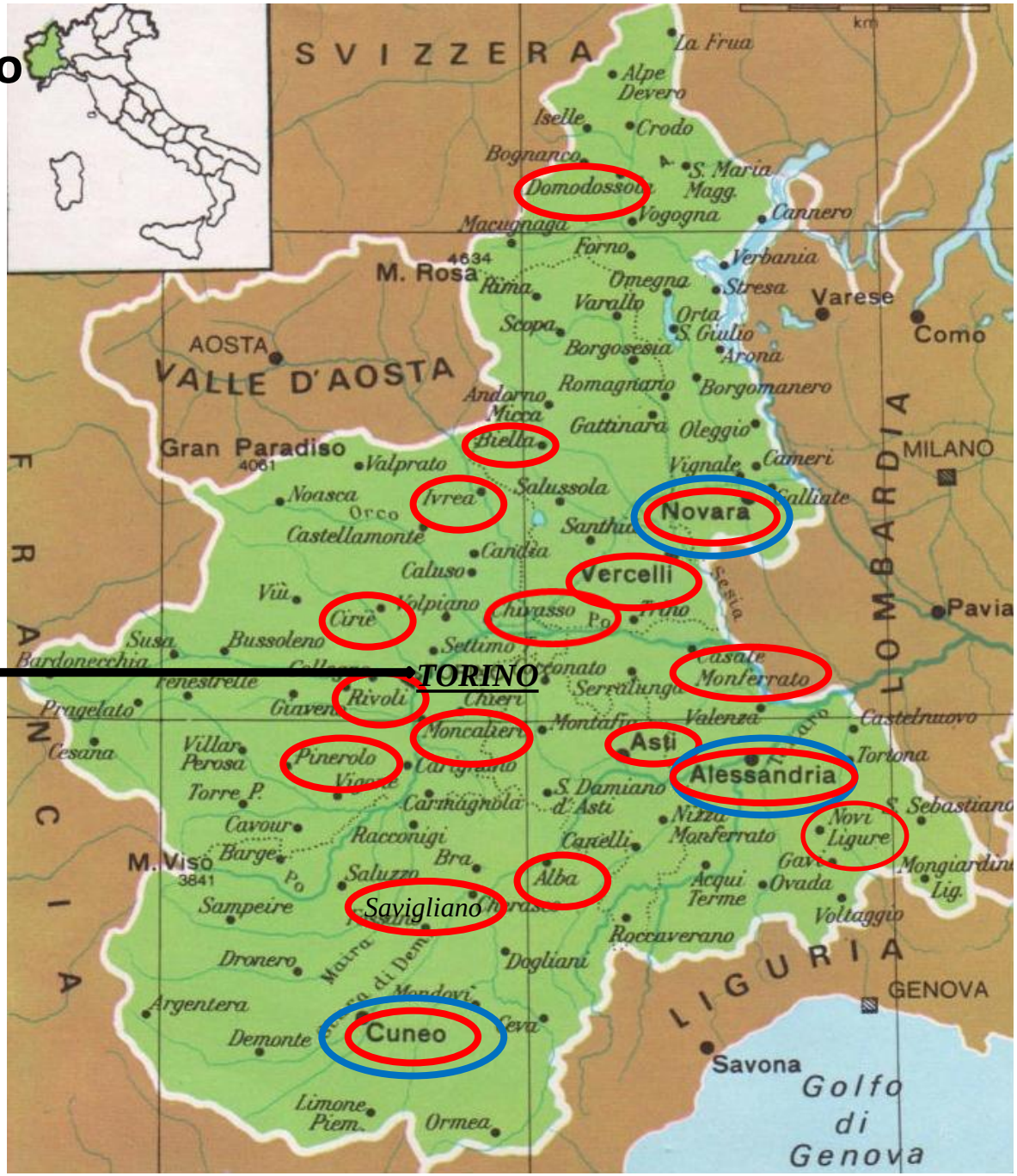
**Conclusions** Patients who had an acute ischemic stroke admitted directly to a comprehensive stroke center (MS patients) with endovascular capacities may have better 90-day outcomes than those receiving DS treatment. However, major limitations of current evidence (ie, retrospective studies and selection bias) suggest a need for adequately powered studies. Multicenter randomized controlled trials are expected to answer this question.

- Mauriziano
- San Luigi

Citta salute-Molinette

G. Bosco

- Martini
- Maria Vittora
- Gradenigo




- ❑ SU 1 livello
- ❑ HUB/SU Complesse 2 livello

**Totale:**

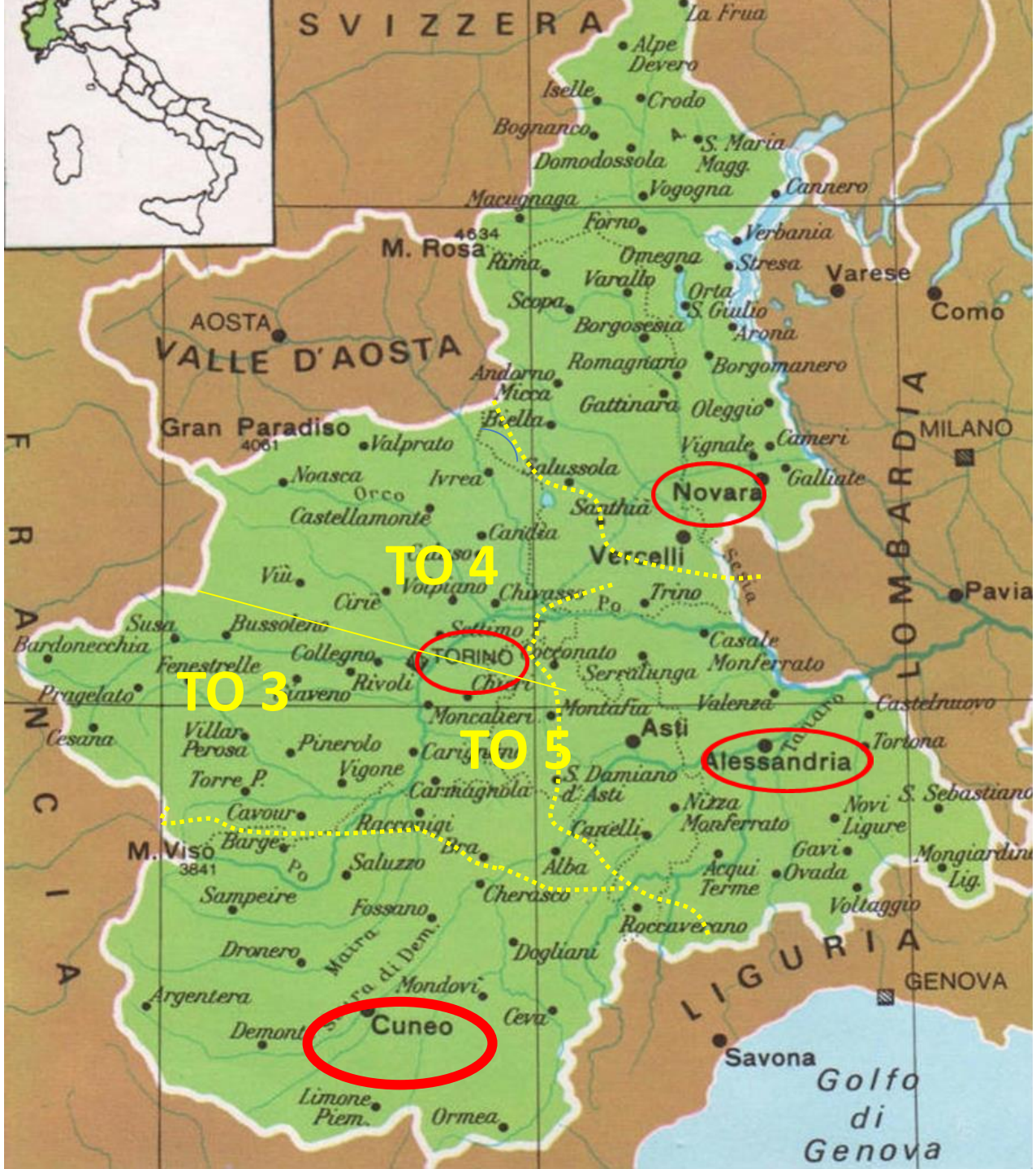
**24 centri abilitati alla EV**

**21 SU base**

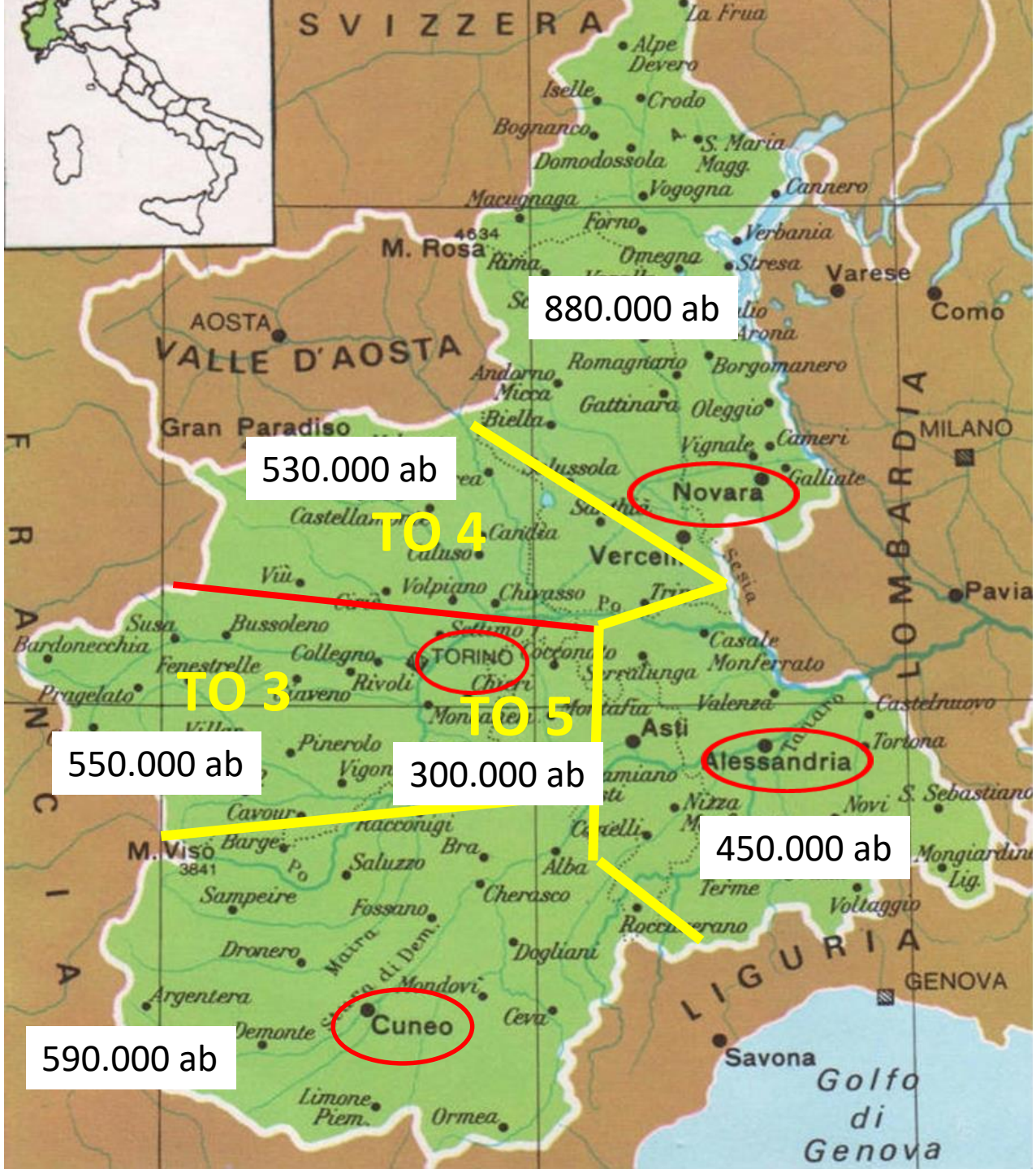
**5 SU complesse/** HUB per Trombolisi IA

**Rete trombolisi IA**

5 HUB in Piemonte con relative macroaree di riferimento



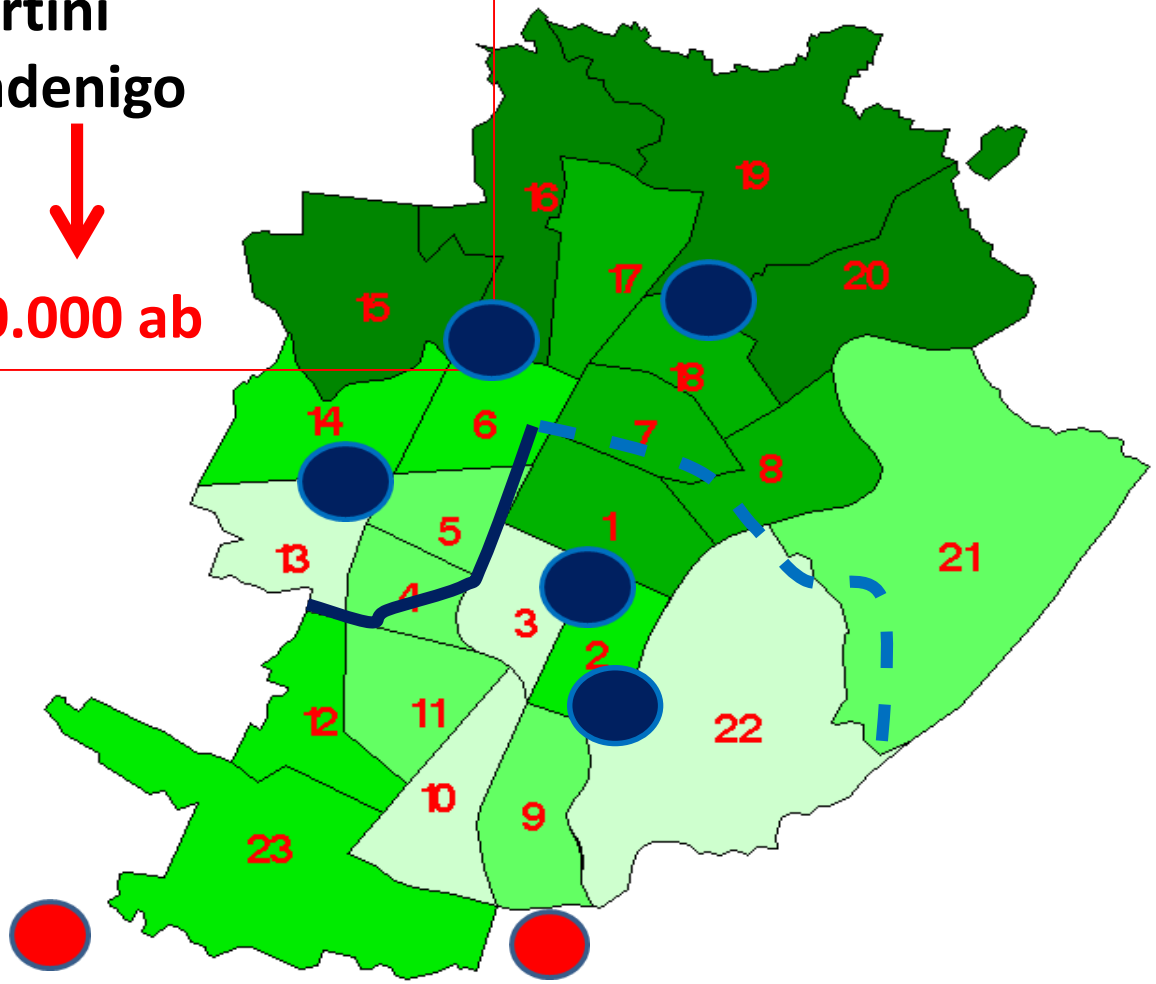
# Trombolisi IA Aree sovrazonali dei 5 HUB



# Trombolisi IA: urbana

**ASL CITTA DI TORINO**
**G Bosco**
**Maria vittoria**
**Martini**
**Gradenigo**

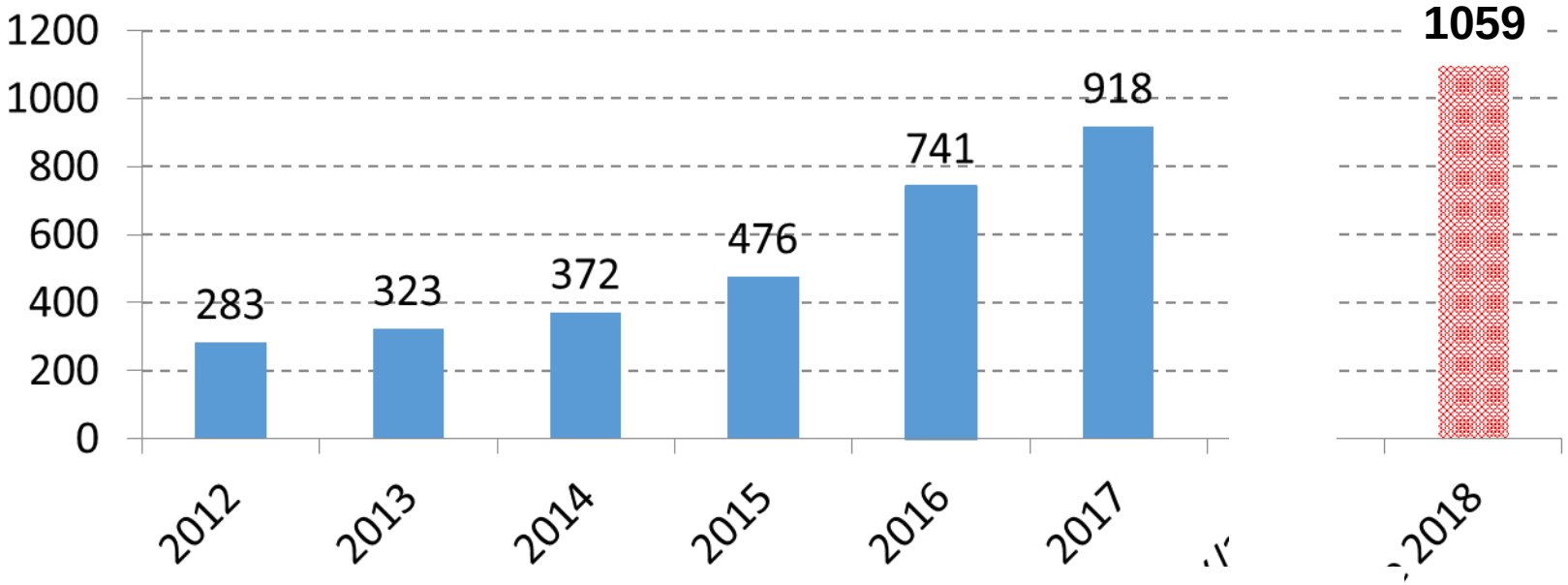
**500.000 ab**




**400.000 ab**

- **Citta della salute**
- **Mauriziano**

# Trombolisi sistemiche – Regione Piemonte
# Numero di Pazienti Trattati



# 2016-2018: Trombolisi IA in Piemonte

| | | | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Citta salute | | | 77 | 106 | 131: 72 comb, 59 IAP |
| G. Bosco | | | 49 | 53 | 88: 55 comb, 33 IAP |
| Novara | | | 25 | 56 | 77: 49 comb, 28 IAP |
| Alessandria | | | 18 | 29 | 21, 10 comb ; 11 IAP |
| Cuneo | | | 1 | 5 | 35: 20 Comb, 15 IAP |
| **Totale** | | | 170 | 249 | 352: 206 combinate<br>146 IA Primarie |


Frontiers consolident
Indépendance