



VENICE INTERVENTIONAL
CARDIOLOGY 2016
FOCUS ON
HEART & BRAIN 
VENICE
PALAZZO FRANCHETTI
MAY 5 - 7 2016

Interventional Cardiologists in Acute Stroke...?

The ESC Task Force on Acute Stroke Initiative

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Università di Verona



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Acute i

Newsweek.

06.05.2016



SPECIAL HEALTH ISSUE

IT'S ALL IN YOUR MIND

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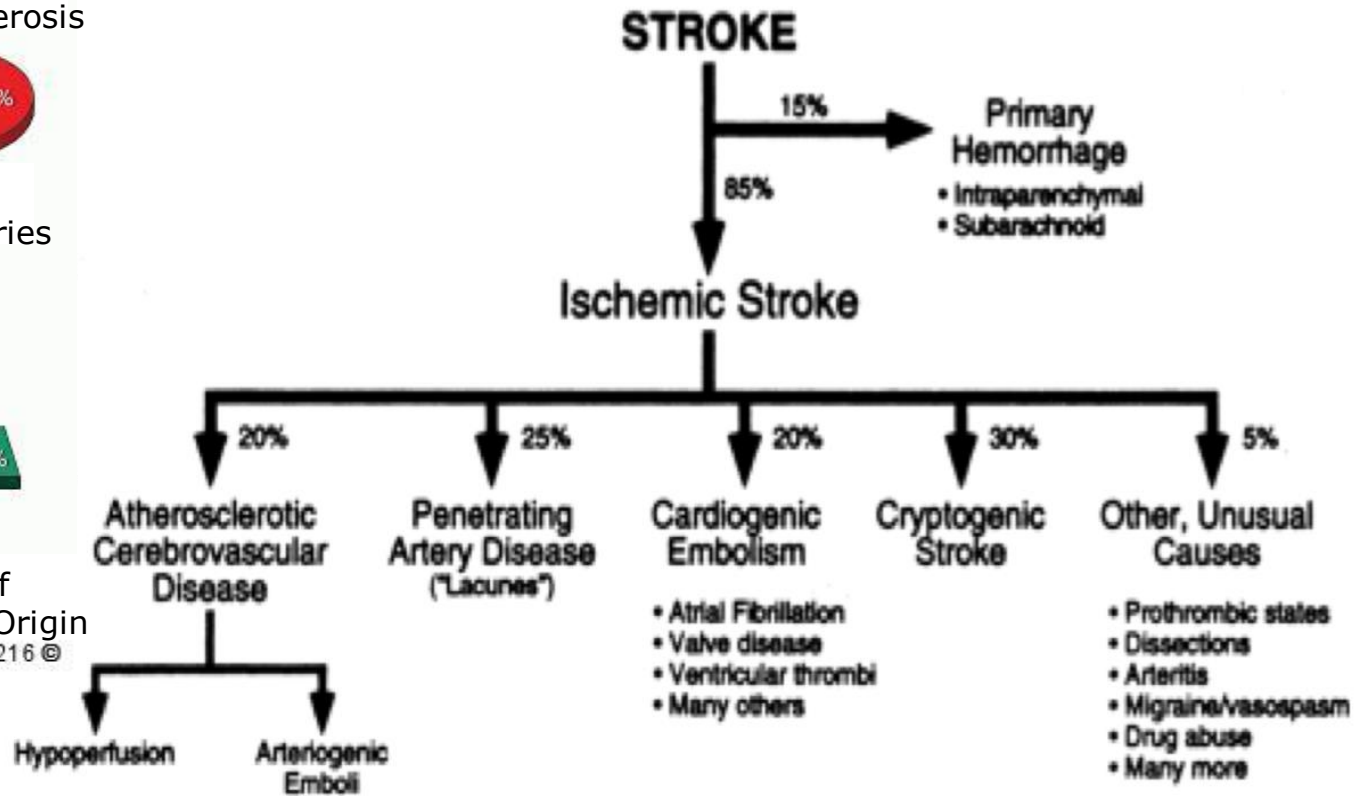
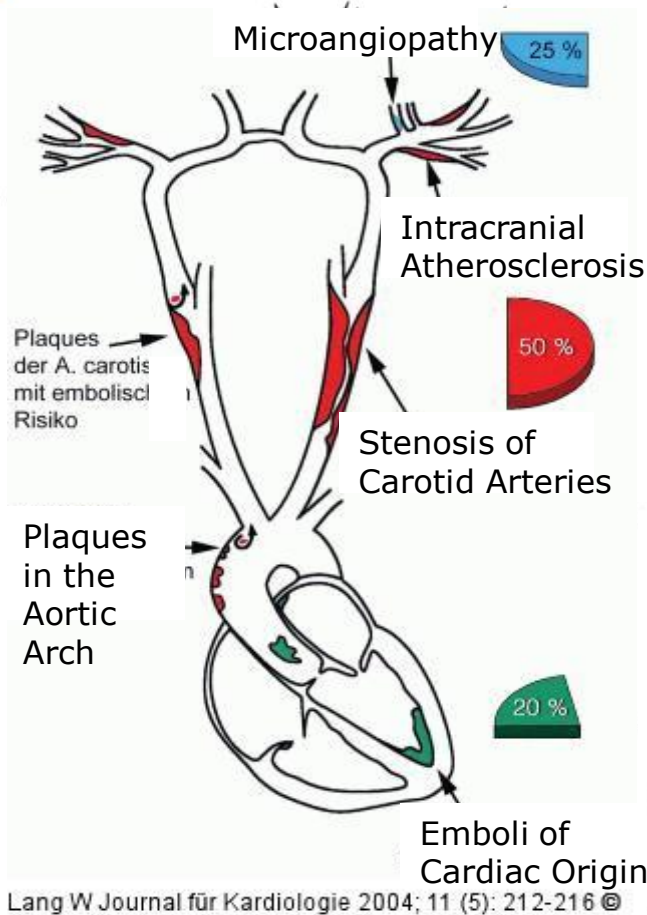
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016 Update
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Terapia), in:
us Cerebrale

Causes of stroke

- Thrombi/Emboli of varying compositions



(López AD, et al. Global and regional burden of disease and risk factors. Systematic analysis of population health data. Lancet. 2006;367:1747-57)

Diagnosis

Initial diagnosis is **clinical** (NIHS Stroke Scale) but immediately assisted by **imaging** with CT scan or MRI

The first step is telling ischemia from hemorrhage

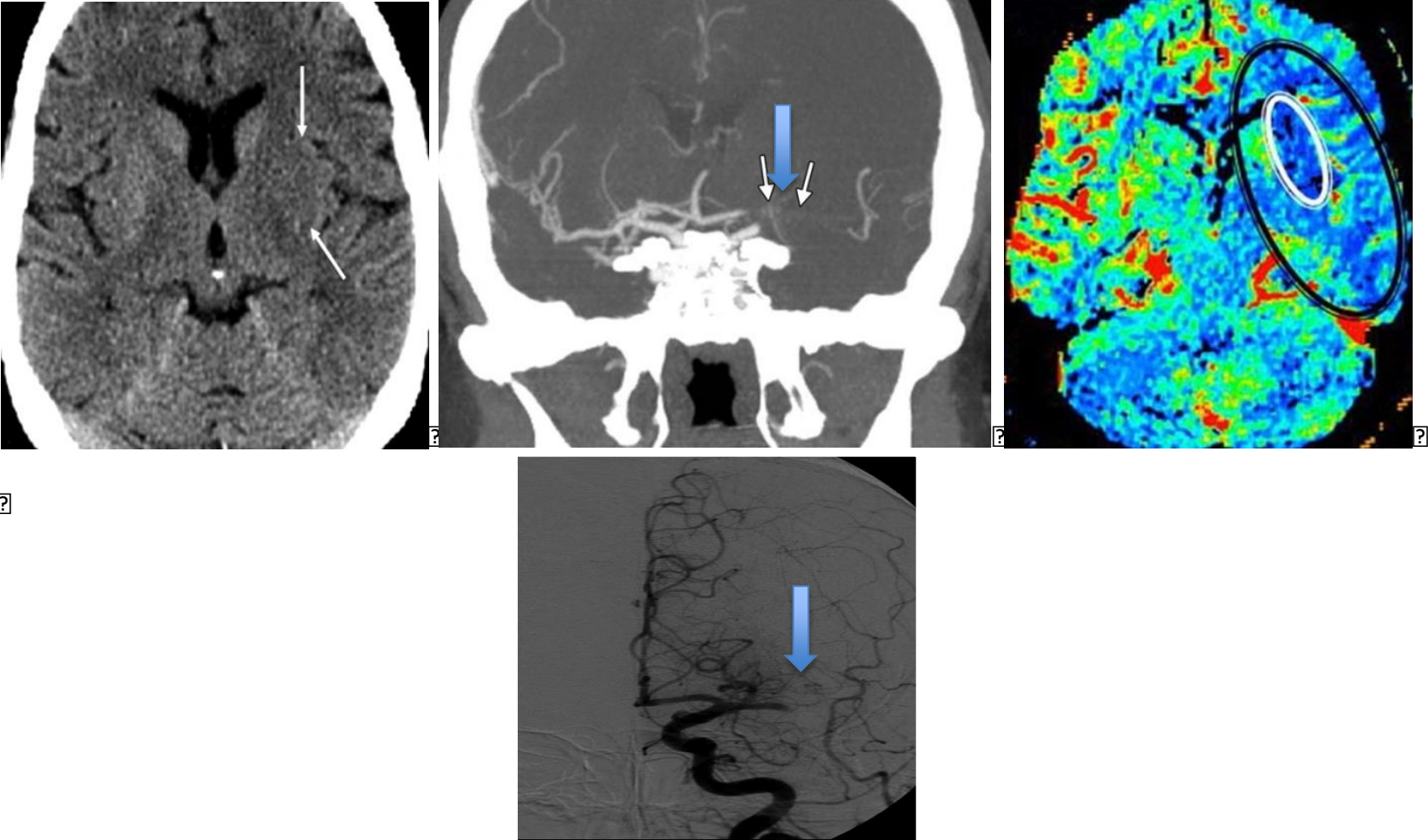
Second step is

- identify the site of vessel occlusion with angio CT
- identify the infarcted area and the area at risk but still viable (penumbra) with a perfusion CT scan

Third step is

- To apply the best suited reperfusion treatment

Figura 3: Immagini TAC di uno stroke. A sinistra TAC diretta che evidenzia area ischemica, in mezzo l'angi-TAC che evidenzia occlusione dell'arteria cerebrale media di sinistra e a destra TAC di perfusione evidenziando area infartuata (ovale piccolo) e la penombra di tessuto a rischio ma salvabile (grande ovale).



Reperfusion treatment:

The "occluded artery" substratum of the **acute ischemic stroke** may have similar therapeutic perspectives compared to the **myocardial infarction**.

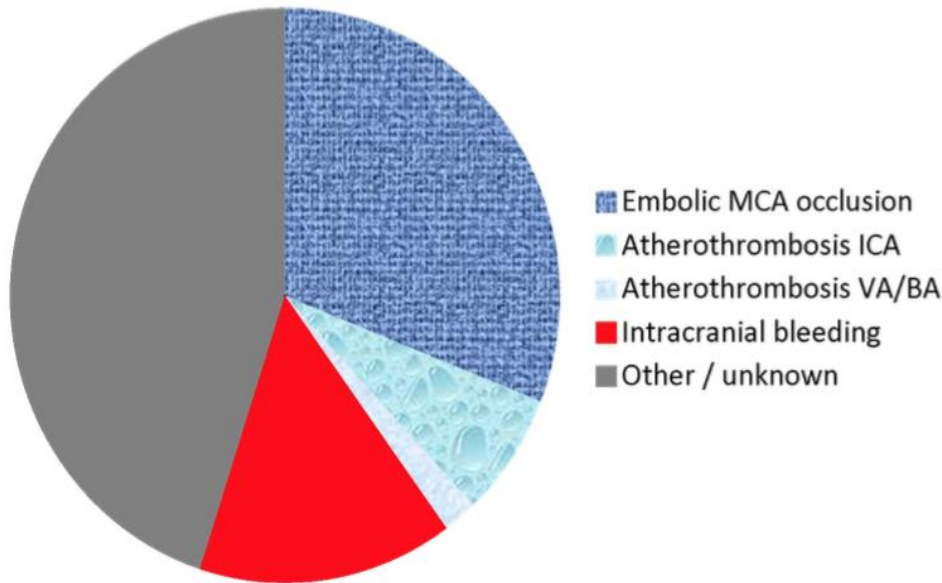
It has been largely demonstrated that outcomes of patients with ischemic strokes that have effective vessel recanalization is much better.

Therefore, to **open the vessel** is a main target.

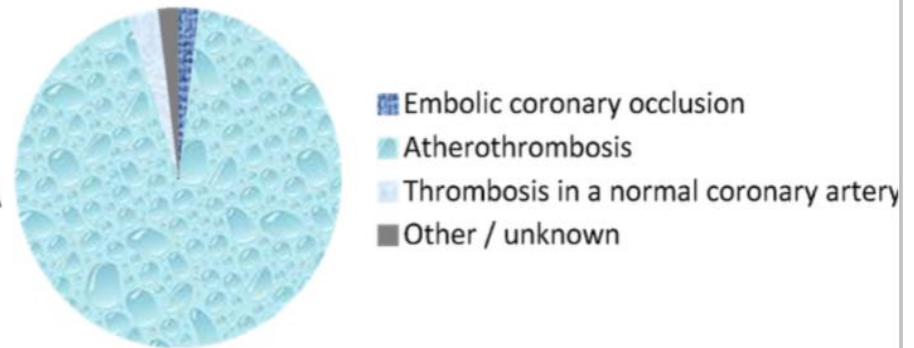
Objective: Open the artery!

Etiology of acute stroke vs. acute MI

Acute stroke (%)



Acute MI (%)



Reperfusion treatment: STEMI and Stroke analogies

Acute ischemic stroke

Time is brain

Efficacy of IVL is about 50%

Early re-occlusion rate w/o heparin is nearly 15-30%

Intra-cranial bleeding 10-15%
Being symptomatic in 5% (this is still acceptable)

Acute Myocardial Infarction

Time is muscle

Efficacy of IVL is about 50%

Early re-occlusion rate w/o heparin is nearly 15-30%

Intra-cranial bleeding in 1%
made the therapy worse
than the disease...

Reperfusion treatment: STEMI and Stroke differences

Acute ischemic stroke

Impact of time delay is obvious

Hemorrhagic extension fatal

Enlargement of the necrotic area:
devastating effects

Complications of endovasc procedures
have a very narrow safety net

No surgical revasc.option

No transplantation option
or cell therapy

Acute Myocardial Infarction

Not “visible”

Hemorrhagic extension silent

reduces EF, but still silent

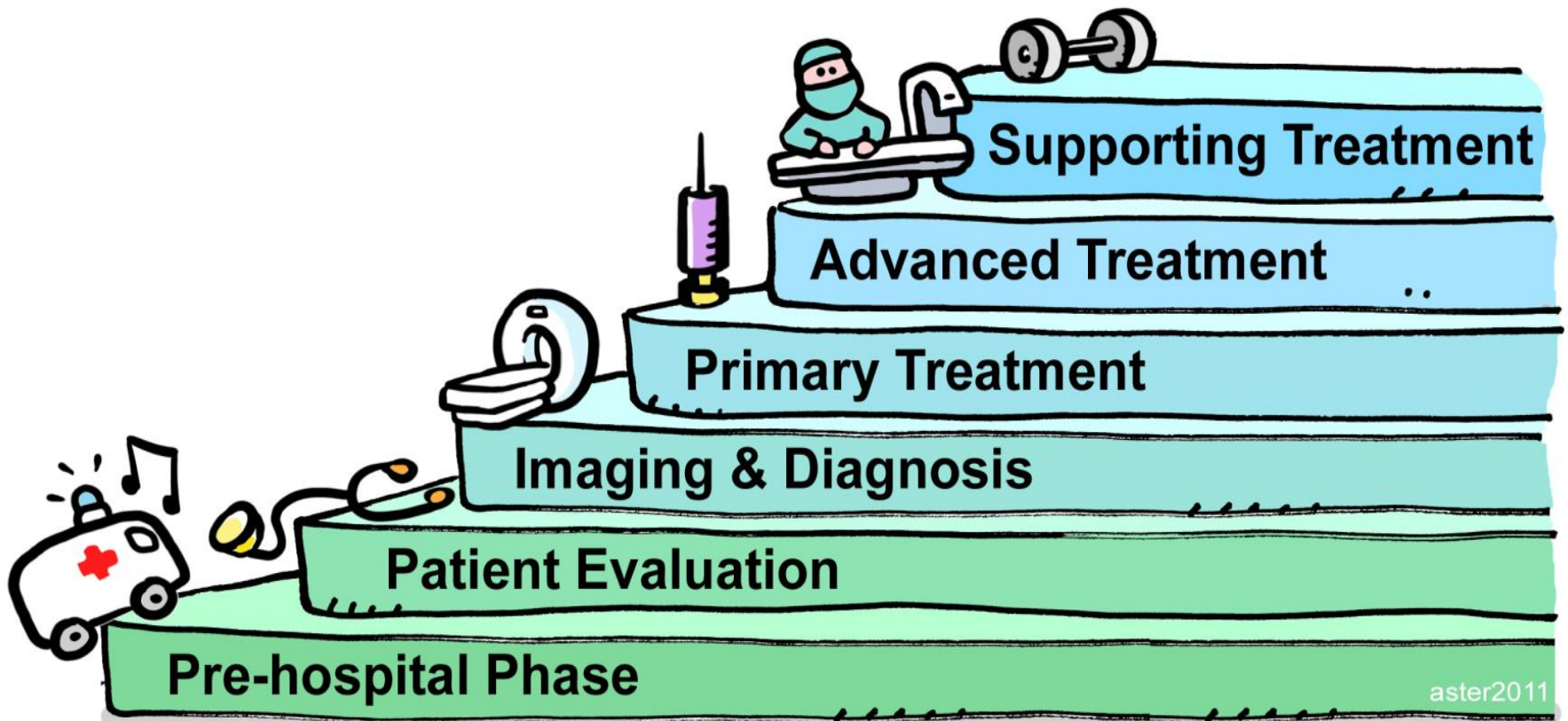
most managed successfully

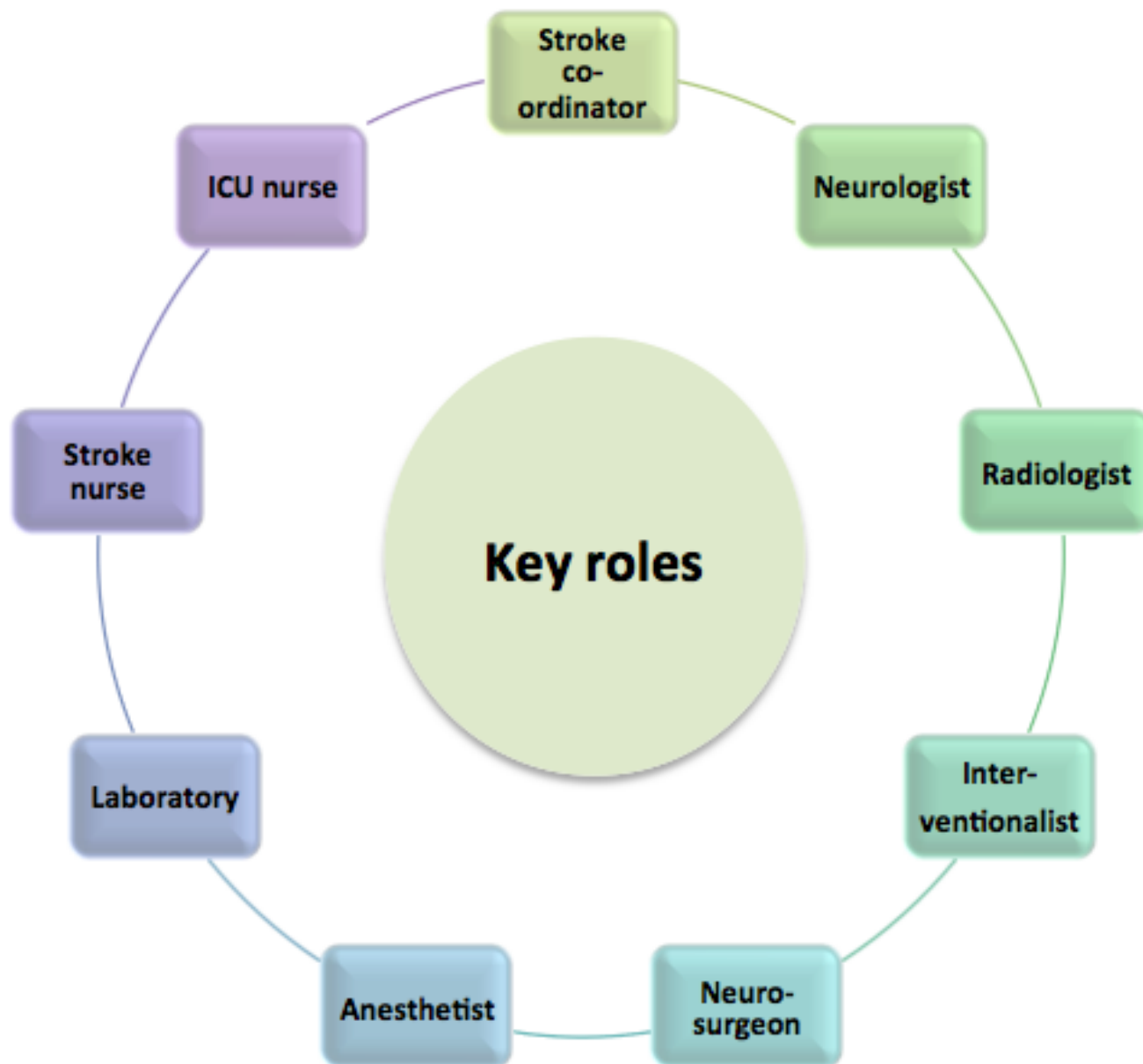
CABG may be performed

Heart can be transplanted or
treated with cell therapy

Another practical issue ...

Diagnosis and treatment of acute stroke is **multi-disciplinary**, therefore, poses organizational challenges to operative protocols:

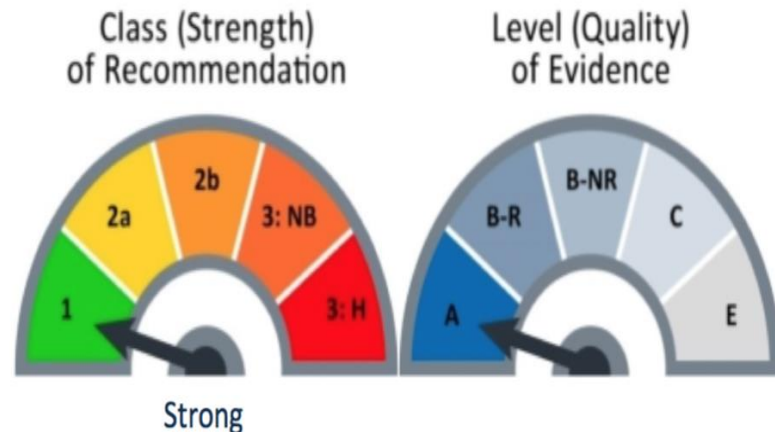
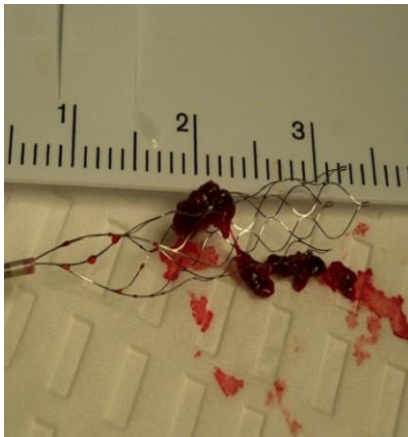




Patients should receive endovascular therapy ***with a stent retriever*** if they meet all the following criteria:

- pre-stroke modified Rankin score (mRS) 0-1
- acute ischemic stroke receiving IV rtPA within 4.5 hours of onset according to guidelines from professional medical societies,
- causative occlusion of the internal carotid artery or proximal middle cerebral artery (M1),
- age 18 years and over,
- National Institutes of Health Stroke Scale (NIHSS) score of 6 or greater,
- Alberta Stroke Program Early Computed Tomography Score (ASPECTS) of 6 or greater, and
- treatment can be initiated (groin puncture) within 6 hours of symptom onset

(Class I; Level of Evidence A).



Critical issues

- Thrombolysis achieve complete reperfusion in 32% of cases
- Outcomes (mRS<2=30-40%)
- Mortality with lysis 25-35-year%

- Device technology: Retrieve >90% first pass with minimal risk
- But, if IVT therapy applicale in large scale:
 - Stoke Units not available everywhere
 - Protocols for rapid trasfer to stroke centers not defined
 - Centers with IVT option very limited
 - Center with EVT capabilities even less

Possible solution

- Multi-disciplinary cooperation among neurologist, radiologist and neuro-radiologists for early diagnosis (clinical and CT-MRI) and treatment.
- **Cardiologists** have challenged “the lytic level of treatment” more than 20 years ago, and have imposed a capillar network of primary PCI 24/24 worldwide

Treatment of STEMI in Europe

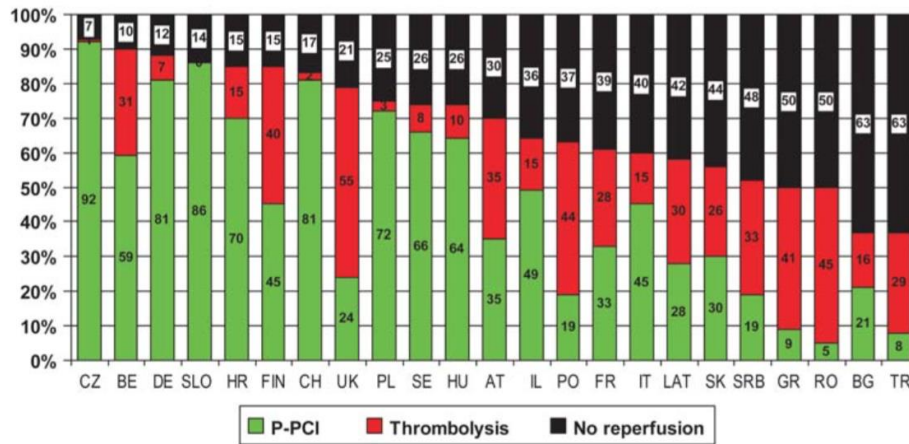


Figure 1 Hospitalized STEMI treatment in Europe (data from national registries or surveys). 100%, all hospitalized STEMI patients in each given country; green colour, STEMI patients treated by primary PCI; red colour, STEMI patients treated by thrombolysis; black colour, STEMI patients not treated with any reperfusion. Countries abbreviations: CZ, Czech Republic; SLO, Slovenia; DE, Germany; CH, Switzerland; PL, Poland; HR, Croatia; SE, Sweden; HU, Hungary; BE, Belgium; IL, Israel; IT, Italy; FIN, Finland; AT, Austria; FR, France; SK, Slovakia; LAT, Latvia; UK, United Kingdom; BG, Bulgaria; PO, Portugal; SRB, Serbia; GR, Greece; TR, Turkey; RO, Romania.

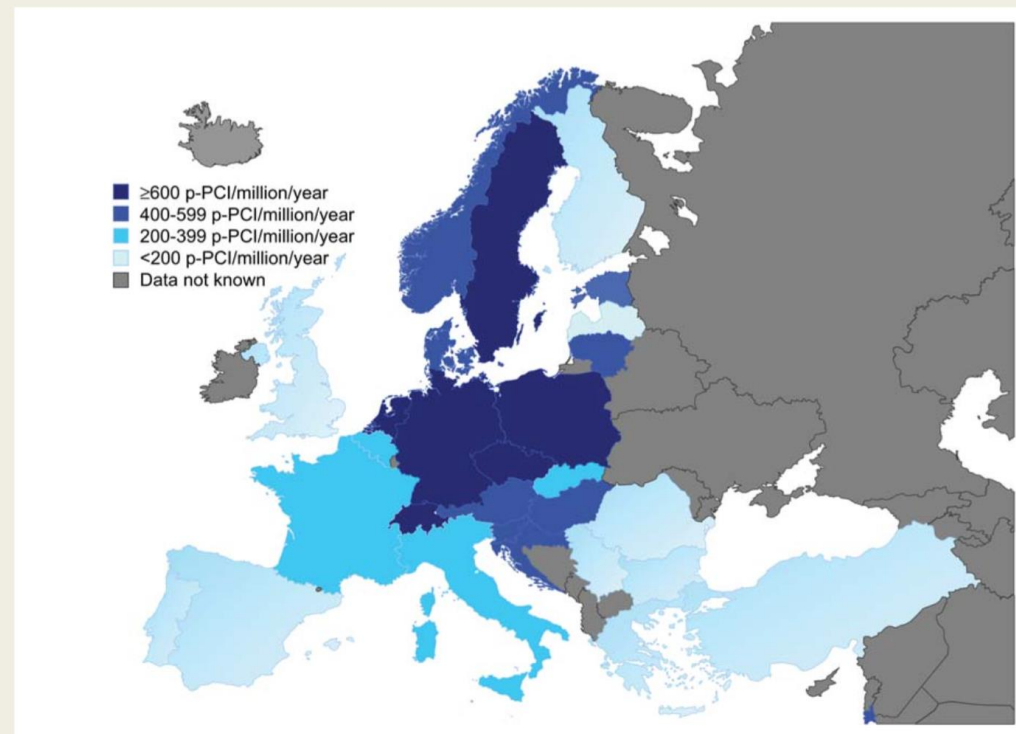


Figure 2 Primary PCIs per year per million inhabitants in European countries. Grey colour, no data available; blue colour, countries parti-

Reperfusion therapy for ST elevation acute myocardial infarction in Europe: description of the current situation in 30 countries. Eur Heart J 2010]

The Possible cooperation: Shared treatment capabilities

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
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Letters

Direct Catheter-Based Thrombectomy for Acute Ischemic Stroke



Outcomes of Consecutive Patients Treated
in Interventional Cardiology Centers
in Close Cooperation With Neurologists

“It is not certain whether available neuroradiology services will be able to meet the expanding needs of the population (facing the fact, that CBT becomes class IA indication). In contrast, interventional cardiology services for acute myocardial infarction are available on a 24/7 basis in almost all European and North American countries, and are becoming more available on other continents. Thus, in places where neuroradiology services are not available, the involvement of interventional cardiologists may be a reasonable option.

Direct mechanical thrombectomy performed by a cardiologist may be considered a treatment option for acute stroke in centers where no neurointerventional services exist. Cardiology centers are able to achieve short CT to catheter laboratory times due to their experience in primary angioplasty for acute myocardial infarction. Outcomes are comparable to endovascular interventions performed in neuroradiology centers.”

TABLE 1 Baseline Characteristics, Time Delays, and Outcomes

Baseline clinical characteristics	
Female	37 (44)
Anterior stroke	82 (97)
Age, yrs	64.8 ± 13.8
Diabetes mellitus	25 (30)
History of hypertension	63 (75)
Clinical evidence of atherosclerosis	37 (44)
Atrial fibrillation (any type, any time)	34 (40)
History of stroke or TIA	9 (11)
Admission NIHSS	18.0 ± 4.1 (median 18, range 6–27)
Time delays: median values, min (IQR: 25–75)	
Stroke onset to CT	90 (55–145)
CT to sheath insertion	64 (24–89)
Sheath insertion to recanalization	53 (41–70)
Stroke onset to sheath insertion	165 (95–260)
Stroke onset to recanalization	236 (202–342)
Procedural data	
Intubation/general anesthesia use	24 (29)
Heparin dose, units	3,570 ± 3,800 (median 2500)
Angiographic and clinical outcomes	
Recanalization rate (TICI 2a/2b/3 flow)	62 (74)
Good neurological outcome at 90 days (mRS ≤2)	35 (42)
90-day mRS among early presenters (stroke onset to sheath insertion time <3 h)	3.15 ± 2.20 (median 2)*
90-day mRS among late presenters (stroke onset to sheath insertion time >3 h)	3.81 ± 2.11 (median 4)*
90-day mortality	27 (32)
Symptomatic intracranial hemorrhage at 7 days (%)	12 (14)

Values are n (%) or mean ± SD, unless otherwise noted. *p = 0.160.

CT = computed tomography; IQR = interquartile range; mRS = modified Rankin scale; NIHSS = National Institutes of Health Stroke Score; TIA = transient ischemic attack; TICI = Thrombolysis In Cerebral Infarction.



**EUROPEAN
SOCIETY OF
CARDIOLOGY®**

ESC mission: to reduce the burden of cardiovascular disease in Europe

B O A R D

President

Fausto Pinto - Portugal

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Jeroen Bax - Netherlands

Secretary/Treasurer

Francesco Cosentino - Sweden

To the attention of Professor Flavio Ribichini

flavio.ribichini@univr.it

04 November 2015

ESC Taskforce on Stroke

10:00 – 16:00, Monday 25 January 2016

ESC Office, 29 B Square de Meeus, 1000 Brussels, Belgium

Attendees:

Valeria Caso, Harry Crijns, Joost De Vries, Hans-Christoph Diener, Wolfram Doehner, Jens Fiehler, Miquel Gallofrè, Iris Grunwald, Alison Halliday, Peter Lanzer, Maggie Lawrence, Mikael Mazighi, Piotr Pieniazek, Flavio Ribichini, Marco Roffi, Catherine Sudlow, Kostas Vemmos, Isabel van Gelder, Lars Wallentin, Petr Widimsky

ESC: Barbara Casadei, Susan Del Gaiso



EUROPEAN
SOCIETY OF
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ESC Council on Stroke

Draft Constitution
V4.0

Article 1 – Form & rationale

The Council on Stroke is established as a Constituent Body of the European Society of Cardiology (ESC) according to the Statutes and By-laws of the ESC. The Council has been developed based on the recommendations of an ESC dedicated Task Force involving representatives of the ESC and Sister Societies. The internal governance of the Council is regulated by ESC Board approved Rules and Regulations.

Education and Training

Multi-speciality education program: for trainees in Cardiology, Neurology, Radiology, Neuro-radiology and Neuro-surgery, to foster Inter-disciplinary approach to stroke.

Standardize accreditation

Stroke Council Meetings (biannually) to monitor outcomes

Workshops (1-2 days) for continuous training on specific issues: Brain imaging, clinical endpoints, AF, stroke and cognitive decline.

Joint ESC/ESO/ESVS/ESNR/ESMINT sessions at Congresses (ESC and ESO)

Research



Development of areas of common interest (inter-disciplinary action).

Role of Cardiac disease and vascular risk factors in the incidence and progression of dementia

Stroke prevention in patients with cardiac co-morbidities

Logistics and patient's pathways of care from FMC to rehabilitation and Post-stroke care (including secondary prevention).

Registry of management of stroke patients in cardiologic centers

Combined actions of ESC ESO in low income european countries

Policy



Join forces for the stroke and MI working platform.

Increase stroke awareness among cardiologic community

ESC representatives in each Country to raise interest on stroke by involving patients organizations, societies, industry (device manufacturers), mass media, hospital administration and politicians involved in health planning.

First ESC Council meeting in Rome at ESC 2016



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A mission for the future is

Challenging the cultural limitation of caring about
“professional interests” versus
the patient’s interest ...

Challenging the cultural limitation of caring about “professional interests” versus the patient’s interest ...

- The brain is not the heart
- But thrombolysis may be not better than EVT performed by cardiologists...
- If expert interventional cardiologist perform EVT after adequate training in a consolidated hub and spoke network

Bringing the team from here ...



....to here.

