Acute Stroke Treatment 2018:
Highlights of Progress and
How Best to Treat Strokes from
Acute ICA Occlusion

Whom do we treat?

Stroke Symptoms

Ischemic Stroke 80-85%
Hemorrhagic Stroke 15-20%
Cerebral Bleeding 2/3
Subarachnoidal Bleeding 1/3

The 2 Types of Carotid Occlusions

Carotid-T occlusion
Carotid bifurcation occlusion

No conflict of interest in connection with this presentation.

How to Establish the Diagnosis …
How to Select the Patients for TE?

Native CT
- ischemic or hemorrhagic stroke?
- other cerebral pathologies?
CT-Angiography
- Localisation of occlusion
- Extent of occlusion
CT-Perfusion
- Vital tissue for rescue
**CT is the first line diagnostic test for the emergency evaluation of acute stroke due to speed of imaging, widespread availability and low cost.**

*Use the ASPECT Score!*


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**CT Findings in Acute Ischemic Stroke**

1. Focal parenchymal hypodensity
2. Cortical swelling with sulcal effacement and loss of gray-white matter differentiation
3. Hyperdense MCA sign


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**Time Window**

*Time is brain, but the old time window of 4.5 hours is out!*

DAWN Trial. NEJM 2017.

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**Stent & Suction Thrombectomy**

In the meanwhile we have 6 different stent retrievers approved.

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**Technique of Carotid Thrombectomy**

- no orthograde flow during TE
- blocked CCA
- underpressure during thrombus extraction


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**Carotid-T Occlusion**

Guidewire is exchanged for the stent retriever, microcatheter is pulled back to deploy the stent.
Carotid-T Occlusion

J. B. m-52  Hemiplegic left side for 6 hrs  CT

Carotid-T Occlusion

J. B. m-52  Hemiplegic for 6 hrs  Perfusion

Carotid-T Occlusion

J. B. m-52  Hemiplegic for 6 hrs  CTA

Carotid-T Occlusion

J. B. m-52  Hemiplegic for 6 hrs  Before and after TE

Carotid-T Occlusion

J. B. m-52  Hemiplegic for 6 hrs
Patient is asymptomatic after TE
Control CT 24h after TE

Carotid Bifurcation Occlusion
Perfusions study: still good blood volume

- Transit time
- Flow
- Blood volume

M. O. m-64

Carotid Bifurcation Occlusion

CAS preferrable in the acute situation*

*Own experiences with more than 172 thrombectomies of carotid arteries

CT-Angio 4w after CAS & TE

Carotid Bifurcation Occlusion

Residual thrombus after first TE - good result after second TE with the Solitaire Stent Retriever

M. O. m-64

Carotid Bifurcation Occlusion

D.E. f-62  Hemiplegic for 4 hours

CTA right ICA & MCA occluded

Solitaire® 6 mm

Thrombectomy ICA

D.E. f-62  Hemiplegic for 4 hours

CAS & TE

Thrombectomy ICA

Bifurcational disease or carotid-T occlusion?

D.E. f-62  Hemiplegic for 4 hours

CAS & TE

Thrombectomy ICA

Solitaire® 6 mm
Thrombectomy ICA

B.G. f-66  Aphasic and hemiplegic for 4 hrs   Opacification of ICA stump

Thrombectomy ICA

B.G. f-66  Aphasic and hemiplegic for 4 hrs    MRT after 6 days

Stent Retriever or Aspiration alone?

The investigators concluded that the present study provides class 1 evidence for the noninferiority of the 3D stent retriever with aspiration versus aspiration alone in AIS. Future trials should evaluate whether these results can be generalized to other stent retrievers.

Raul G. Nogueira et al. JAMA Neurology 2018

Social Influence

Results of the 2014 PURE study showed that clinical outcomes after stroke were substantially poorer in low-income and middle-income countries than in high-income countries.

Peter Langhorne et al. on behalf of the INTERSTROKE collaborators: Practice patterns and outcomes after stroke across countries at different economic levels. INTERSTROKE: an international observational study. Lancet 2018; 391: 2019–27

What did we do to improve the treatment options worldwide?

We founded WIST.

WIST = World Federation for Interventional Stroke Treatment

➢ Theoretical training
➢ Practical Training
➢ Certification

What is new 2018 …

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

Reviewers: Evidence-based, integrity, and endorsed by the American Heart Association and American Stroke Association

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

The American Academy of Neurology offers the value of this guideline as an educational tool for neurologists.
What is new 2018 …

The guidelines detail
- prehospital care
- urgent and emergency evaluation
- intravenous and intra-arterial therapies
- in-hospital management
- secondary prevention measure

Stroke. 2018;49:e46–e99. DOI: 10.1161/STR.0000000000000158