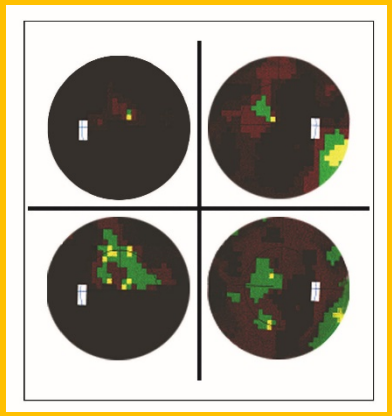
Therapies of Non-AION (ocular stroke) based on etiology specific etiopathomechanism

What kind of therapy is suggested ?
Which specialist should treat these patients ?



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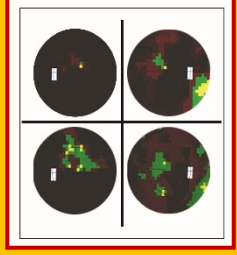
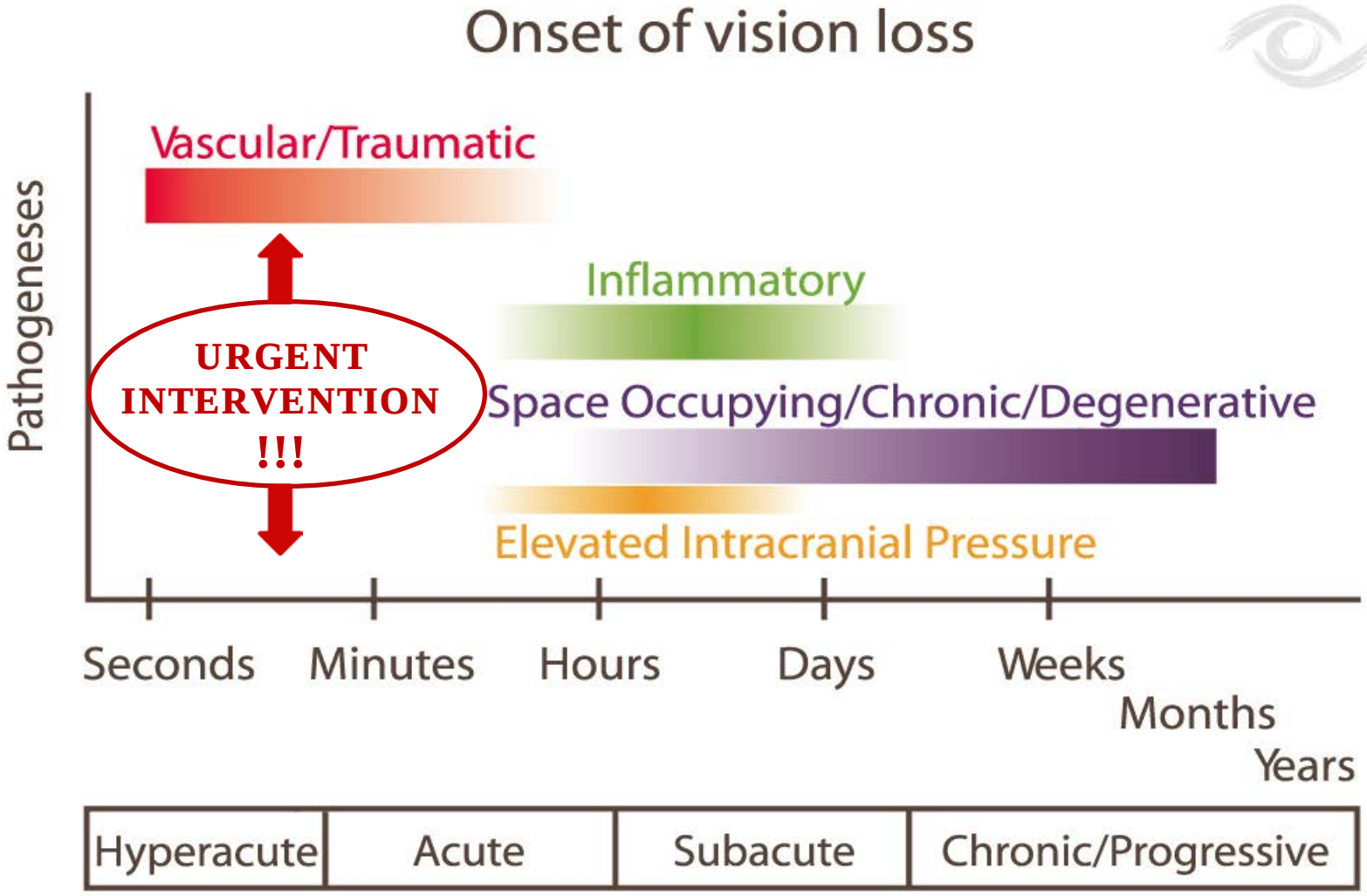
What is the importance of

- **early recognition**
  &
- **systemic therapy**

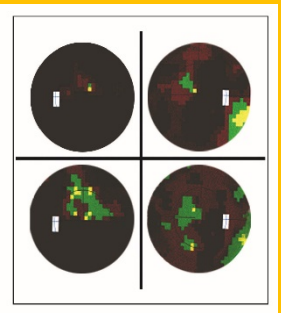
of NA-AION (Ocular Stroke)



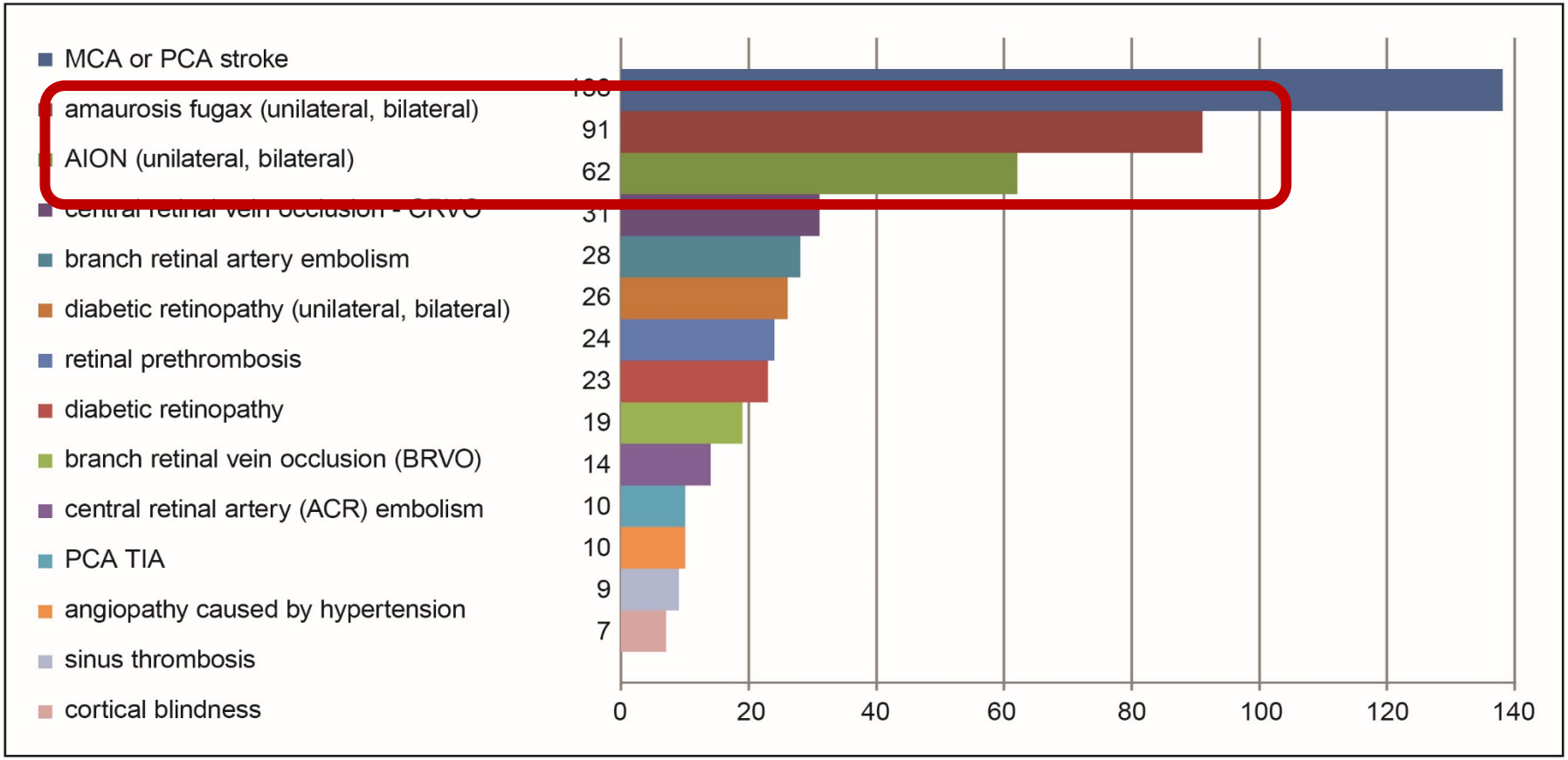


Source: Schiefer, Wilhelm, Hart (Eds.). Clinical Neuro-Ophthalmology - A Practical Guide. Springer, Berlin/Heidelberg/New York, 2007.

Ocular symptoms *of retinal & papillar vascular disorders – patient groups (on the basis of data about 514 pts)*

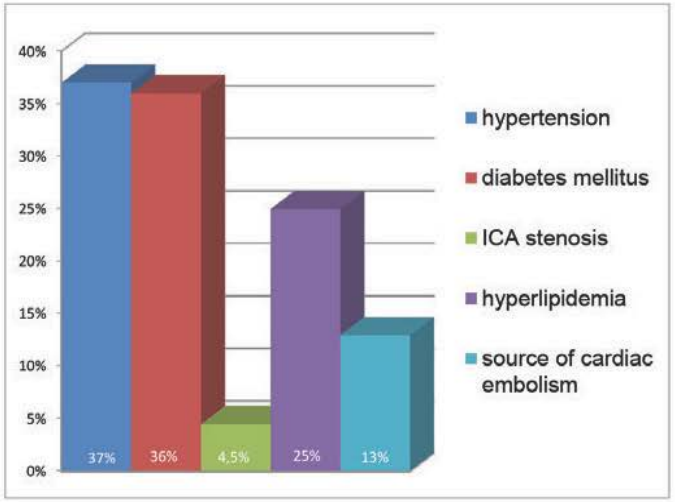


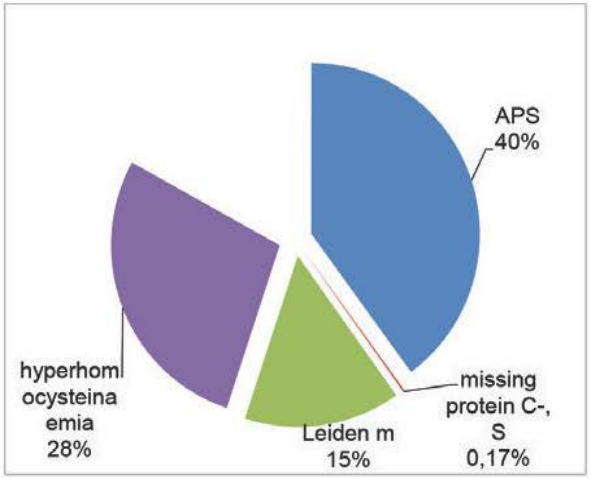
OCULAR SYMPTOMS – OCULAR STROKE



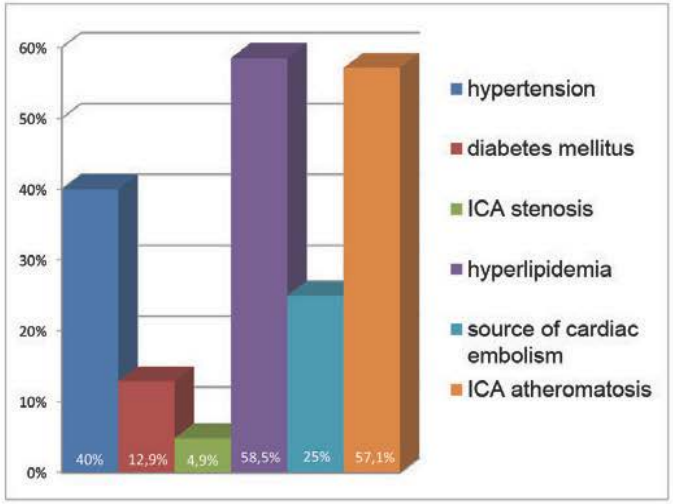
Rates of predisposing factors (RF) & background diseases

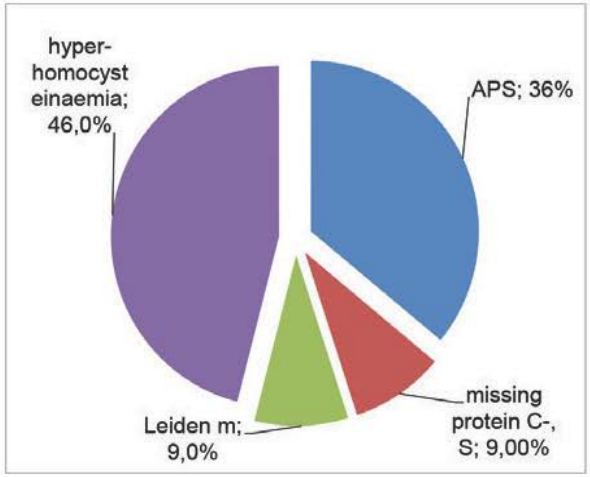
STROKE



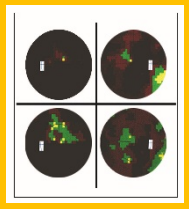


OCULARIS STROKE



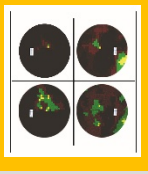


Etiology specific - antithrombotic
Systemic treatment of NA-AION
RECOMMENDATION



ETIOLOGY - THROMBO-EMBOLISM	SYSTEMIC TREATMENT – RECOMMENDATION
cholesterol embolism • *ICA atherosclerosis* • *atherogenic plaque rupture/of soft plaque*	**ANTIPLATELET (ANTIAGGREGANT) THERAPIES**
fibrin embolism • *cardiac (AF, valve insufficiency)*	**ANTICOAGULANT THERAPY**
increased platelets aggregation • *thrombophylia*	**COMPLEMENTARY THERAPY** o *glucose-, lipid metabolism disorders -* o *anti-hypertension -* o *hemodilution therapy* o *neuroprotection-* o *vasodilatation therapy*
the fellow eye can also be affected • *pseudoFoster–Kennedy syndrome*	
Prevention o *of amaurosis* o *repairing of microcirculation* o *of thromboembolism*	

Recommendations of systemic treatment of tromboembolic disorders

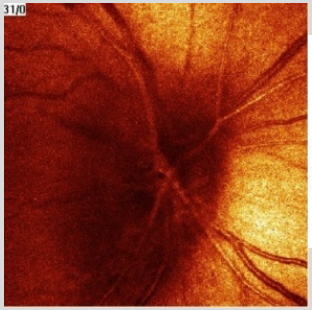


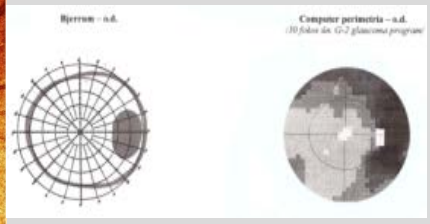
- **Anticoagulant therapies** (isolated-, with antiaggregant)
- **Thrombocyte aggregation inhibitor treatment**
- **Thrombolysis**
- **Complementary therapy**

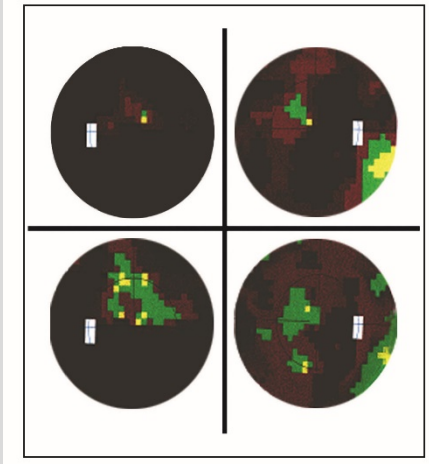
Hungarian Stroke Society	HSS - website: **Stroke guideline, 2008. (European)** **The protocoll of the Cerebrovascular Diseases. 2007.** **AHA&ASA guidelines -2013., 2014.**
Hungarian Thrombosis and Haemostasis Society	**The prevention and treatments of thromboembolism** **HTHS : Consensus Statement 2005. 2007.**
Hungarian Society of Cardiology	**Europian recommendation of the treatment of atrial fibrillation** **ESC/EHRA/EACTS, 2010** **Cardiologia Hungarica 2011; 41 : H1**
European Stroke Strategies	**T. Kjellström, B. Norrving, A. Shatchkute:Consensus Paper : Helsingborg Declaration 2006 on European Stroke Strategies; Cerebrovasc Disord. 2007;23:229–241**
American Heart Association & American Stroke Association AHA&ASA Guideline	**A Guideline for Healthcare Professionals From the American Heart Guidelines for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack** **Stroke: 2014**;45:2160-2236; originally published online May 1, 2014; **Guidelines for the Early Management of Patients With Acute Ischemic Stroke** *January 31,* ***2013;Stroke.*** ***http://stroke.ahajournals.org/content/early/2013/01/31/STR.0b013e318284056a***

Recommendations for the systemic therapy of OCULAR STROKE

(based on the recommendations of EUSI-, AHA and the Hungarian Stroke Society)







RECOMMENDATIONS
for the systemic therapy of OCULAR STROKE

(based on the recommendations of EUSI-, AHA and the Hungarian Stroke Society)

Anticoagulant treatment

Non arteritic anterior ischemic opticopathy (NA- AION)
- monocular NA- AION in acute phase:
- NA AION in pts history with known etiology
- pseudoFoster–Kennedy syndrome: bilateral NA AION with time lag

Cardiological source of embolism+ OCULAR symptoms
- ocular stroke and its source was 25% of our cases

ICA -, vertebral artery dissection+ OCULAR symptoms
in cases of dissection of large vessels absolutely

Thrombophilia+ OCULAR symptoms
Leiden-mutation (1.4%), protein C and S deficiency (1.4%)
enzyme defect leading to a disorder in homocysteine synthesis.

APS+ OCULAR symptom+
it affects many organ systems
(CNS, lungs, heart, kidneys, venous thrombosis in the lower limbs)
our patients showed a 5.5% increase in APA titer when the ocular symptoms presented autoimmune disease, the majority of patients need anticoagulant therapy

Contraindications of anticoagulant treatment

Uncooperative patient
Malignant-, uncontrolled hypertension
Dementia
Skull trauma, risk of falling
Local-ophthalmological causes:
- ➢ vitreous body bleeding
- ➢ Diabetic retinopathy +/- neovascularization

Indications of platelet aggregation therapy in ocular stroke:
– Embolism of the central retinal artery
- ○ + atherosclerosis (our own patients: 51.7%)
- ○ + diabetes mellitus (our own patients: 12.9%)
- ○ + fat metabolism disorder (our own patients: 58.5%)

- Previous bilateral AION – pale optic disc/pseudo-Foster–Kennedy syndrome
- AION + severe ICA atheromatosis
- complicated cases of retinal thromboembolism (pale optic disc, macular degeneration)
  - ○ *despite the lack of systemic indication*

Antiplatelet therapy is indicated instead of anticoagulation:
- intracranial "small vessel disease" +/- ocular symptoms
- cardiac syndrome X with a low risk of stroke +/- ocular changes
- severe ICA stenosis +/- ocular symptoms

ANTICOAGULANT TREATMENT

INDICATIONS of AC - therapy

*1./Those **cases of AION**, when:*
- *acute, unilateral*
- *acute AION+known etiology*
- *Pseudo-Foster-Kennedy's syndrome*

*2./ EYE SYMPTOM+**cardiological source of emboli***
(atrial fibrillation, AMI,etc.)

*4./ EYE SYMPTOM+ **ICA-, vertebral art. dissection***

*5./ EYE SYMPTOM+ **thrombophylia+/-stroke***

*6./ EYE SYMPTOM+ **APS syndrome***

CONTRAINDICATIONS
of AC treatment

- ***non-cooperating patient***
- ***malignant-, untreated hypertension***
- ***dementia,***
- ***risk for cranial trauma***

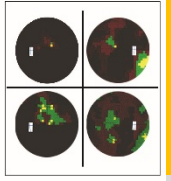
Ocular causes:
- ***vitreous hemorrhage,***
- ***neovascularisation,***
- ***diabetic retinopathy***

Howard Yonas et al.
*Guidelines for **the Early Management of Patients With Acute Ischemic Stroke**: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association*
*Online ISSN: 1524-4628; 2013. American Heart Association; Stroke : published online January 31, **2013***

*Cerebrovascular Disease, **2004**;10(4):9–12.*
SECONDARY PREVENTION

ANTIPLATELET (ANTIAGGREGANT) THERAPIES

(a member of a class of pharmaceuticals that decrease platelet aggregation and inhibit thrombus formation)



Indications for antiplatelet (antiaggregant) therapies in cases of NA-AION

- **NA- AION+serious ICA stenosis prior to surgery**
- **bilateral-, chronic NA-AION**
- **unilateral chr. NA-AION+no systemic alteration**

&

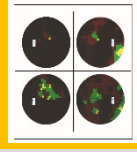
- **CRA embolism +ICA atherosclerosis**
- **CRA embolism +ICA atherosclerosis+DM**

*Harold P. Adams et col.Guidelines for the Early Management of Adults With Ischemic Stroke: A Guideline From the: American Heart Association/American Stroke Association Stroke Council,Clinical Cardiology Council, Cardiovascular Radiology and Intervention Council Atherosclerotic Peripheral Vascular Disease and Quality of Care Outcomes in Research Interdisciplinary Working Groups Stroke: **2007**;38:1655-1711. AHA/ASA Guideline*

Melissa J. Armstrong,MD

*Summary of evidence-based guideline: Periprocedural management of antithrombotic medications in patients with ischemic cerebrovascular disease. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology_ **2013;**80:2065–2069*

Treatments of HAEMODILUTION



COMPLEMENTARY–ADJUVANT therapy

- oglucose-, lipid metabolism disorders-
- ohypertension-
- o**HAEMODILUTION-**
- oneuroprotection-
- ovasodilatation therapy

The aims of haemodilution

1./ Diminish of hyperviscosity of total blood volume

2./ Increase of blood perfusion of CNS

- o *Hypovolaemic haemodilution : infusion*
- o *Isovolaemic haemodilution: haemo-centesis+ infusion*
- o *Hypervolaemic haemodilution: infusion*
- o *Apheresis*

Results of haemodilution:

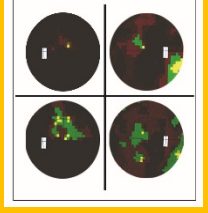
- ***improvements of symptoms of stroke***
- *diminish of the size of ischemic infarct*
- ***restoring cerebral blood flow***
- *decreasing of mortality*
- ***diminish of aggregation of platelets***

Side effect: increasing of ICP, brain edema

Cerebrovascular Disease, ***2004****;10(4):9–12.* ***SECONDARY PREVENTION***

amaurosis
within seconds /minutes

The significance of TEAM in diagnosis and treatment of OCULARIS STROKE



The role of the **OPHTHALMOLOGIST**

- *establishment of the functional status*
- *differential diagnosis*
- *to refer the pantients to a STROKE center*
- *frequent check-up during therapy ,*
- *care for life*

OCULARIS STROKE

The role of the **STROKOLOGIST**

admission to the Stroke Center

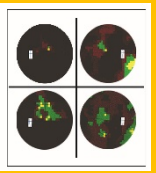
depending on:

- *pts cerebrovascular - neurological status*
- *risk of stroke and ocular stroke*
- ***close cooperation with (neuro)ophthalmologist in the course of stroke treatment***

The role of the **CARDIOLOGIST**

- *establisment/exclusion of the cardiological source of the OS*
- ***close cooperation with (neuro)-ophthalmologist) in the course of cardiological treatment***

Treatment of NAION: Why? By whom? Importance? Quo vadis neuro-ophthalmology ? Consensus of professions !!!



1./ Why early recognition and systemic treatment of ocular stroke is clinically important ?

- *prevention of disorders* **of the fellow eye**
- *prevention of* **complete visual loss-amaurosis**
- *In early phase of NA-AION :* ***by primary and secondary prevention by the antithrombotic therapies***

2./ Who need to treat the patients in case of ocular stroke disease?

Strokologist?
Ophthalmologist?
Cardiovascular specialist?
Thrombosis - specialist?
TEAM!

Harold P. Adams et col.
Guidelines for the Early Management of Adults With Ischemic Stroke:
A Guideline From the: *American* ***Heart*** *Association/*
American ***Stroke*** *Association Stroke Council,*
Clinical ***Cardiology*** *Council,*
Cardiovascular Radiology *and* ***Intervention Council***
Atherosclerotic Peripheral Vascular Disease and
Quality of Care *Outcomes in* ***Research Interdisciplinary*** *Working Groups*
Stroke: **2007**;38:1655-1711. AHA/ASA Guideline

3./ What is the importance of the early RECOGNITION and ETIOLOGY SPECIFIC therapy of NA-AION

screening and reduction of the progress of

- ***cardiovascular***
- ***cerebrovascular***
- ***hematological diseases***

Thank you
for
your attention!

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