

WCN 2019 Teaching Course

DIFFICULT DECISIONS IN ACUTE STROKE

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Disclosures

I declare that I have no conflicts of interest

Objectives

1. Making the right diagnosis in patients with fluctuating symptoms :
Stroke, TIA ,Stroke mimics
2. Selection of particular cases of patients with acute ischemic stroke and limitation of thrombolysis : to treat or not
3. Recherche signs of hyper acute stroke complications : bleeding, brain oedema and hyperglycemia .

Introduction

Making decision in acute stroke care is a difficult task involving a pluridisciplinary team and a variety of processes .

Therefore, managing stroke patients concerns a medical stroke team made by :

Neurologists, neuroradiologists, cardiologists, neurosurgeons and anesthesia intensive care

- A rapid and accurate decision is critical to stroke care and positive effect on outcome
- Reduction of mortality rate

1. Making the right diagnosis in patients with fluctuating symptoms : Stroke, TIA , Stroke mimics

A/ TIA new definition: is a brief episode of neurological dysfunction caused by focal brain or retinal ischemia with clinical symptoms typically lasting less than a hour and without evidence of acute infarction (1).

- ✓ The one hour delay in this new definition is not helpful because it does not distinguish between patients with or without acute cerebral infarction.
- ✓ In an other hand Primary care physicians may be confused as to whether to designate a presumed transient event of brain ischemia a stroke or TIA if they do not have immediate access to neuroimaging or other diagnostic resource . (2)

B/ Stroke mimics: is a major diagnostic challenge and may be difficult to distinguish from real strokes.

- In various studies the most stroke mimics include: migraine, seizures, Tumour .
- In our experience : migraine, seizures and hysterical conversion are the most frequently described .

2. Selection of particular cases of patients with acute ischemic stroke and limitation of thrombolysis : to treat or not

- The benefit of IV thrombolysis has been proven in acute ischemic stroke up to 4h30 after onset but:
 - The number of patients treated by tpA remains low (5%-14%)
 - There are numerous contraindications explained by the risk of bleeding
 - Early reperfusion is frequently incomplete in large vessel occlusion : rate of recanalisation 20 to 60%)
 - A short therapeutic window (There are no methods for establishing the diagnosis as rapidly as for myocardial infarction)
 - The destruction of all the hemostasis clots and the circulating fibrinogen confers a strong hemorrhagic potential

A/Does age affect the chance to benefit from rt-PA?

□ Age >80

Previously : the benefit of the use of TpA in the elderly was uncertain because :

NIHSS is often higher than in younger patients

Worse prognosis with high morbi-mortality

High risk of hemorrhagic transformation(microbleeds,microvascular lesions)

- New recommendations 2018 AHA/ASA Guideline *

Without homogenous study populations IVT still lacks approval for stroke patients older than 80 years(3,4)

Therefore IVT is frequently and successfully performed in the elderly patients based on individual decisions (5,6)

The results IST trial and other metaanalysis (7,8) showed a generally beneficial effect for those >80 yo if performed within 3h after onset symptoms (9).

□Thrombolysis in child

There is few data about thrombolysis in children

However and despite the fact that among inclusion creteria :
age \geq 18years

IV thrombolysis decisions in adolescents are similar to those of adults.

B/Acute Stroke in Pregnancy

Ischemic stroke is not frequent in pregnancy.

Mechanisms : hypertension, postpartum cardiomyopathy, coagulopathies, and vasculopathies.(10)

IV alteplase in pregnancy remains controversial :

the only therapy currently approved for acute ischemic stroke, excluded pregnant patients.(11)

The major complication of tpA is hemorrhage: intracranial, gastrointestinal, or intrauterine

tpA does not cross the placenta but there is a risk of placental hemorrhage.
(12)

these arguments are not in favour of using tpA in pregnant !!!!!

Recommendations 2018 AHA/ASA Guideline* : IV alteplase administration may be considered in pregnancy when the anticipated benefits of treating moderate or severe stroke outweigh the anticipated increased risks of uterine bleeding.† (Class IIb; LOE C-LD)†

C/Making decision in case of myocardial infarction (MI) and acute ischemic stroke(AIS)

- Risk : broken heart , hemopericardium and cardiac tamponade
- **Recommendations 2018 AHA/ASA Guideline***
- For patients presenting with concurrent AIS and acute MI, treatment with IV alteplase at the dose appropriate for cerebral ischemia, followed by percutaneous coronary angioplasty and stenting if indicated, is reasonable.† (Class IIa; LOE C-EO)‡
- Recent MI For patients presenting with AIS and a history of recent MI in the past 3 mo, treating the ischemic stroke with IV alteplase is reasonable if the recent MI was non-STEMI.† (Class IIa; LOE C-LD)‡
- For patients presenting with AIS and a history of recent MI in the past 3 mo, treating the ischemic stroke with IV alteplase is reasonable if the recent MI was a STEMI involving the right or inferior myocardium.† (Class IIa; LOE C-LD)‡
- For patients presenting with AIS and a history of recent MI in the past 3 mo, treating the ischemic stroke with IV alteplase may reasonable if the recent MI was a STEMI involving the left anterior myocardium.† (Class IIb; LOE C-LD)‡

D/AIS in patients with Coagulopathy or under anticoagulants

□ The safety and efficacy of IV alteplase for acute stroke patients with platelets $<100\,000/\text{mm}^3$, INR >1.7 , aPTT >40 s, or PT >15 s are unknown, and IV alteplase should not be administered.† (Class III: Harm; LOE C-EO)‡§

But

In patients without history of thrombocytopenia, INR >7 or any recent use of anticoagulants IV tPA can be started and stopped if there is any abnormality in laboratory tests

E/Other limits making decision

□ Unruptured intracranial aneurysm

Recommendations 2018 AHA/ASA Guideline*

For patients presenting with AIS who are known to harbor a small or moderate-sized (<10 mm) unruptured and unsecured intracranial aneurysm, administration of IV alteplase is reasonable and probably recommended.† (Class IIa; LOE C-LD)‡

□ Early improvement and minor stroke ex: hemianopsia, aphasia
what is the right decision ?

Recommendations 2018 AHA/ASA Guideline*

IV alteplase treatment is reasonable for patients who present with moderate to severe ischemic stroke and demonstrate early improvement but remain moderately impaired and potentially disabled in the judgment of the examiner.† (Class IIa; LOE A)

❖ In case of Persistent arterial occlusion in CTA despite an initial improvement IV alteplase treatment is also reasonable

3. Research signs of hyper acute stroke complications

A/ Hyperglycemia if not normalized earlier after stroke is associated with worse prognosis and high risk of hemorrhagic transformation

B/ Risk of bleeding: in case of hyperglycemia or large infarct

C/Brain oedema:Surgical decompression is recommended as soon as possible without any contraindications . In other cases early monitoring of neurological function must be performed

Take home messages

- ❑ Making the right diagnosis of acute stroke as soon as possible allows to start a specific treatment and avoid complications .
- ❑ Difficult decisions making in acute stroke concerns some situations related to :
 - Clinical profile(age, pregnancy, medical history, anticoagulant therapy)
 - Stroke characteristics (minor stroke/ severe stroke)

Previously considered as contraindications of rtPA based on the risk of hemorrhagic complications, a recent results of large trials have shown a favorable benefit/risk of rtPA according to specific recommendations.

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