Stroke Patients Should Be Admitted Directly To Neuro-EndoCompetent Centers: What Tests Can Predict When Clot Removal May Be Helpful And When Not

Emmanuel Houdart
Department of neuroradiology, Hôpital Lariboisière, Paris, France

Disclosure
• None

Just to remind basic definitions
• Infarct: neuronal death, irreversible
• Stroke symptoms is an acute neurological deficit corresponding to either an infarct or an electrical neuronal silence that precedes the infarct

Thrombectomy is indicated only in LVO associated with salvable brain
• Time of stroke onset is less important than the radiological demonstration of living tissue
• So, facing a patient with an acute neurological deficit, the radiological explorations must 1° depict a LVO and 2° evaluate the amount of salvable brain

In quiet patient, MRI provides the best information and is the gold standard
• Not always available
• Not always feasible (pace maker)
• The crucial sequences are 3DTOF and DWI

3DTOF shows the LVO (here the right MCA)
DWI shows here a small infarct (less than 10 ml volume)

- There is an « anatomical mismatch » between the territory of the occluded MCA and the size of the infarct
- Excellent indication to thrombectomy

Thrombectomy will provide a perfect neurological recovery whatever age of patient, neurological deficit and time to stroke onset

Opposite situation : left M1 occlusion with infarct of the entire MCA territory meaning no salvable tissue and no indication for thrombectomy

What is the danger in revascularizing a large infarct ?

- 50 yo patient seen 2 hours after onset of deficit i.e. short delay
- Patient was agitated and explored by CT scan and angioCT : left M1 occlusion

Total arterial void in the left hemisphere : indirect sign of non salvable tissue

Thrombectomy (without DWI MRI) was performed because of the young age and the short time onset to stroke
CT scan post-thrombectomy showing the hemorrhagic transformation of the previous white infarct

To remind that the anatomical support of the neuronal survival is the distal anastomosis between anterior and middle cerebral arteries

Right M1 occlusion with perfect distal anastomosis on angioCT

Excellent indication to thrombectomy in the first 6 hours

Intermediate situation when one third of the hemisphere is dead, benefit of revascularization depends on the age of the patient: under or over 80 yo?

Capacity of neurological rehabilitation is reduced with age and over 80 yo, people can survive after thrombectomy but they will stay severely disabled
The future in stroke imaging could be development of portative CT scan exploring patient at his door

No transfer to angio room

Immediate transfer

Thank you for your attention!