

(saut de ligne)

## **Comparison of MR Angiography Techniques in Acute Ischemic Stroke.**

Alexandre Bani-Sadr, Marine Aguilera, Matteo Capucci, Omer Eker, Yves Berthezène.

Hospices Civils de Lyon, CREATIS, LYON

[alexandre.bani-sadr@chu-lyon.fr](mailto:alexandre.bani-sadr@chu-lyon.fr)

(saut de ligne)

### Background :

The primary role of imaging in acute ischemic stroke (AIS) is to guide therapeutic strategy rapidly by making the positive diagnosis, defining the extent of infarct core and salvageable brain tissue and, localizing arterial occlusion site. Conversely to computed tomography (CT), magnetic resonance angiography (MRA) techniques are multiples. They include an imaging based on blood velocity called “time-of-flight” (TOF-MRA) and an imaging based on the opacification of vascular structures called “contrast-enhanced MRA” (CE-MRA). This study aimed to compare both techniques in detecting and localizing arterial occlusion in AIS and to identify factors influencing their accuracies using digital subtraction arteriography (DSA) a reference.

### Material and Methods:

One hundred and fifty-two patients with anterior circulation AIS were included if they underwent a baseline MRI including both CE-MRA and TOF-MRA followed by a DSA performed during a mechanical thrombectomy. Four neuroradiologists assessed MRA techniques and DSA independently.

### Results:

Arterial occlusion was detected by TOF- and CE-MRAs and confirmed by brain DSA in all subjects. Both MRA techniques had substantial agreement ( $\kappa = 0.67$ ; 95% CI [0.58-0.77],  $p < 0.01$ ) in localizing occlusion site. Compared to DSA, both had moderate agreement in localizing occlusion site with  $\kappa = 0.47$  (95% CI [0.41-0.62],  $p < 0.0001$ ) and 0.52 (95% CI [0.41-0.62] for TOF and CE MRA, respectively. Both MRA techniques had altered accuracy in case of thrombolysis and accuracy of each technique depended of occlusion site. CE-MRA had higher diagnostic accuracies for every occlusion site except for M2.

### Conclusion:

Our results suggest that CE-MRA is more accurate to detect proximal occlusion in AIS patients while TOF-MRA is more accurate in case of distal occlusion.