The potential role of Occludin as a predictor of functional outcome in acute ischemic stroke: preliminary results from the NIMBLE study

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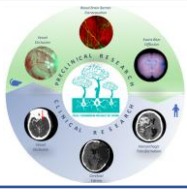
Background and aim

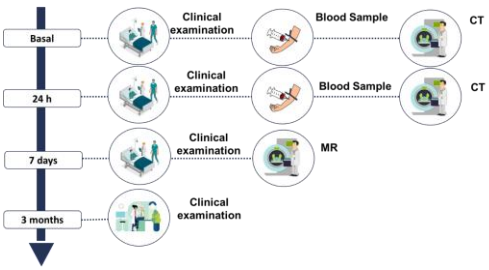
Identifying biomarkers that could predict functional outcomes is crucial in acute ischemic stroke management. The **NIMBLE Study** aims to integrate clinical and preclinical stroke research to identify such biomarkers, both serological and neuroradiological, and their interactions.

In this preliminary analysis, we evaluated the association between serological biomarkers and the 3-month functional outcome of acute ischemic stroke patients.



Materials and Methods

Monocentric prospective observational study set in Careggi University Hospital , Florence, Italy.
Patients: acute ischemic stroke, anterior circulation within 12 hours from symptom onset.



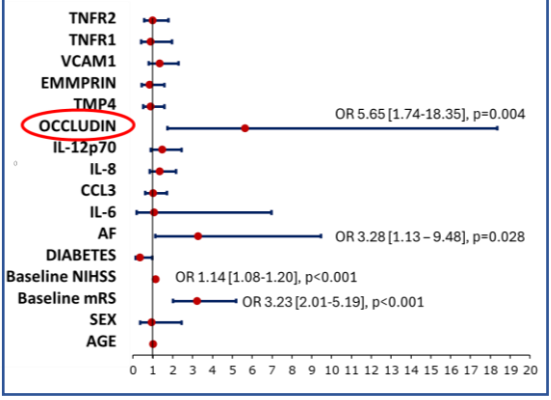
Serological biomarkers tested at baseline and 24 h after stroke: pro and anti-inflammatory cytokines and chemokines, metalloproteases and their inhibitors, endothelial dysfunction markers and tight junction proteins.

Three months mRS>2 was considered an unfavourable outcome.

Results

213 patients enrolled (median age [IQR]: 80 [16] years, 46% women, median baseline NIHSS [IQR]: 10 [3]). Recanalization treatment was administered to 150 patients (70.5%).

Higher presenting basaline **NIHSS**, higher **pre-stroke mRS**, **atrial fibrillarion** (AF) and **higher baseline occludin levels**, **independently predicted 3-months poor outcome.**



Conclusions

Occludin degradation, driven by metalloproteases, reflects blood-brain barrier disruption and highlights a potential mechanism underlying its elevation in patients with poor 3-month outcome.

Rapid and accessible measurement of occludin could be useful for incorporating this biomarker into a decision-making algorithm for the administration of recanalization therapies and management.

Analyses are ongoing to evaluate an association between occludin and hemorrhagic transformation, cerebral edema, and infarct growth.

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