NEUROINFLAMMATORY BLOOD MARKERS IN CARDIOEMBOLIC ISCHEMIC STROKE

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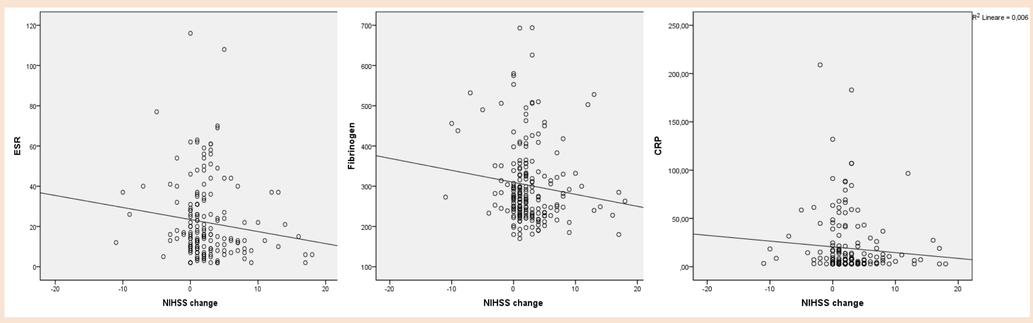
Background: A large part of cryptogenetic stroke has a cardioembolic etiology, and is at high risk of recurrence without prompt anticoagulant treatment. **The acute phase of stroke lacks of rapid and sensitive test for etiological diagnosis**.
Aim of the study: assess the usefulness of a panel of serum biomarkers in the early etiological classification of stroke and explore the prognostic value of them.

Methods: We enrolled two hundred eighty consecutive stroke patients (average age: 72,98, SD: 15,04, 40% man). Blood levels of Erythrocyte Sedimentation Rate (ESR), C-Reactive Protein (CRP), Fibrinogen, N-terminal pro-Brain Natriuretic Peptide (NT-proBNP), S100b protein were obtained at the time of admission, within 24 hours of stroke onset. The clinical improvement was quantified using the delta NIH stroke scale (dNIHSS).



Finally we found **an inverse correlation between clinical recovery** (NIH-SS reduction) and **ESR**, **CRP** and **Fibrinogen** (p<0.001).

Results: In patients with cardioembolic stroke we observed high levels of **NT-proBNP** (p<0.001), **S100b** (p<0.001), **Fibrinogen** (p<0.001) and **CRP** (p<0.01).

	NIH-SS at onset	S 100b Protein	NT-proBNP	ESR	CRP	Fibrinogen
Not Cardioembolic stroke	6,9 ± 6,1	0,3787 ± 0,9383	1043,91 ± 2294,012	22,42 ± 29,097	20,2039 ± 35,85808	295,01 ± 90,609
Cardioembolic stroke	9,3 ± 7,1	0,6082 ± 1,42152	3395,93 ± 6675,016	27,69 ± 22,51	24,6824 ± 40,1802	329,12 ± 111,774
	p=0.01	p<0.001	p<0.001	n.s.	p<0.01	p<0.001
Logistic regression	p<0.001					p<0.001

Also NIH-SS at onset was higher in cardioembolic stroke compared to the other subtypes (p<0.001). These variables were included as dichotomous variables (with the cutoff values obtained from the ROC curves) in a logistic regression analysis model. Independent predictors of cardioembolic stroke were **NIH-SS at onset** (odds ratio 5.4; p<0.001) and **Fibrinogen** (odds ratio 4.9; p<0.001).

Conclusions:

- ***Fibrinogen seems to be an independent predictor of cardioembolic stroke.***
- ***Patients with the highest levels of serum inflammatory biomarkers have a poor clinical recovery***, confirming that inflammation play an important role in ischemic stroke, hindering the clinical recovery.

Early detection of cardioembolism in stroke acute phase allows us to promptly start anticoagulant therapy especially in patients with no immediate evidence of atrial fibrillation.

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