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ABSTRACT N. CO51

ALTERAZIONI DELLE PIASTRINE E CONDIZIONI GENETICHE

NOVEL BIOMARKERS OF NEUROLOGICAL DAMAGE IN ACUTE IMMUNE-MEDIATED THROMBOTIC THROMBOCYTOPENIC PURPURA.

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Background: Central nervous system (CNS) involvement is well-documented in acute immune-mediated thrombotic thrombocytopenic purpura (iTTP). Glial fibrillary acidic protein (GFAP), a marker of astrocytic injury, and neurofilament light chain (NfL), an indicator of axonal degeneration, are emerging biomarkers of CNS damage, as demonstrated by their associations with conditions such as stroke, dementia, and neuroinflammation. The role of these neurobiomarkers in iTTP has never been investigated.

Aims: To evaluate the association between GFAP and NfL levels and acute iTTP event.

Methods: This case-control study included iTTP patients referred to our center at presentation of their first iTTP episode and age-and sex-matched healthy controls. Serum GFAP and NfL levels were quantified using Simoa technology on a SR-X analyzer (Quanterix). Patients with impaired renal function were excluded. We also assessed the association between these neurobiomarkers and the presence of neurological signs or symptoms among acute iTTP patients.

Results: Thirty-seven iTTP patients were enrolled (Table), including 19 with neurological signs or symptoms and 18 without, and 39 healthy controls. GFAP levels were significantly higher in iTTP patients compared with controls (median difference 52 pg/ml; 95% CI 31–76; p<0.001), whereas NfL levels showed no significant difference. The association of GFAP with iTTP was not influenced by age and sex (adjusted OR per 10 units increase: 1.47; 95% CI 1.20–1.79; p<0.001). At logistic regression, neither GFAP nor NfL were associated with the presence of neurological signs or symptoms at presentation of acute iTTP, even when adjusted for potential confounders (age, sex, BMI and creatinine).

Conclusion: GFAP was associated with acute iTTP at presentation, possibly reflecting greater astrocytic involvement or injury. Its increase in patients without overt neurological signs or symptoms may suggest the presence of subclinical damage in both groups of individuals, highlighting the need for long-term observation of iTTP patients.

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Main patients' characteristics

Variables	iTTP-patients (n=37)
Female, n (%)	30 (81)
Age at episode (years), median (IQR)	49 (41-55)
Neurological signs/symptoms at presentation, n (%)	19 (51)
Stroke at onset, n (%)	2 (5)
Creatinine, median (IQR)	0.9 (0.7, 1.3)
Comorbidities, n (%)	
Hypertension	4 (11)
Diabetes	1 (3)
Obesity	8 (22)
Smoking	7 (29) [a]
Hyperlipidemia	8 (22)
Previous MACE	1 (3) [b]

MACE major cardiovascular event

[a]Available in 24 patients; [b] Transient ischemic attack