Tumor necrosis factor alpha — a predictor of functional outcome in patients with acute cerebral infarction

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The purpose of the study — the determination of the prognostic significance of tumor necrosis factor-alpha (TNFα) expression in acute ischemic stroke (IS) and definition of TNFα relationship with functional outcome of stroke. Materials and methods. Prospective cohort study included 44 patients with IS manifested less than 48 hours ago, and 12 healthy volunteers. At the hospital discharge (median 12 days) a satisfactory degree of recovery of neurological function was defined by scores 0–3 of the modified Rankin Scale (mRS), unsatisfactory — by 4–6 mRS scores. Blood samples for TNFα determination by ELISA were taken from all patients on the day of admission. Results. It was found that in the case of an unfavorable functional outcome of acute IS, TNFα level was significantly lower than in good neurological outcome (28 {25; 36} and 46 {32; 78} pg/ml, respectively, p = 0.0357). The study showed a statistically significant association between severe disability at discharge and ischemia in both carotid arteries (p = 0.0348), the severity of an initial neurological deficit (p = 0.0045) and a decrease in TNFα concentration less than 44 pg/ml (p = 0.0481). Conclusion. Determination of TNFα level in acute ischemic stroke can be considered as a potentially useful method for predicting the severity of neurological deficit at discharge from hospital. (Cytokines and Inflammation. 2013. Vol. 12. № 3. P. 89–94.)

Key words: clinical features, cerebral infarction, ischemic stroke, neurological deficits, tumor necrosis factor alpha.