Evaluation of inflammatory markers in chronic stroke patients for the selecting drug therapy for the purpose of secondary prevention of stroke

E.Yu. Solovyeva, E.A. Tyutyumova, O.A. Baranova, A.V. Chekanov, A.I. Fedin, A.N. Karneev
FGBOU VO Russian National Medical Research University NI Pirogova, Neurology, Moscow, Russia

The purpose of this research is to study the endothelial dysfunction process in chronic stroke patients by measuring the levels of endothelial inflammation markers such as myeloperoxidase (MPO), E-selectin, intercellular adhesion molecule-1 (ICAM-1), determined by the ELISA method.

Methods: The research included 53 patients (21 females, 32 males; median age: Me=65) with atherothrombotic stroke divided into 2 groups: group 1. – patients with stroke from 1 to 6 months (n=35), 2. – from 7 to 12 months (n=18). The measurement of MPO, sE-selectin, sICAM-1 was determined by the ELISA method: Hycult biotech (Netherlands), cat. № HK324 (MPO); eBioscience (Austria), cat. № BMS205 (sE-selectin), eBioscience (Austria), cat. № BMS241 (sICAM-1).

Results: All the post-stroke patients had significantly higher MPO and sICAM-1 levels and unexpectedly significantly lower sE-selectin concentration than healthy controls (Table 1). The comparison of two groups of post-stroke patients did not reveal significant differences in the MPO level, however the level of sICAM-1 was significantly higher in the group 2. According to the literature data the sICAM-1 level increases in patients with type 2 diabetes mellitus. After the exclusion of the patients with diabetes the correlation for sICAM-1 remained the same (Image 1).

Conclusions: The obtained results indicate the progression of immune inflammation in post-stroke patients, associated with endothelial dysfunction on the cerebral ischemia background, which persists probably because of the prolonged activity of inflammatory process and the depletion of anti-inflammatory mechanisms. This chronic endothelial inflammation should be corrected in post-stroke patients using the drugs affecting the cell adhesion and endothelial dysfunction to improve cerebral circulation, to improve the disease prognosis, to provide secondary prevention of stroke.

Table 1.

	MPO, ng/ml	sE-selectin, ng/ml	sICAM-1, ng/ml	p-value
Control group	Me=89 [LQ=30,7; UQ=103,9]	Me=50,5 [LQ=17,5; UQ=88,1]	Me=230,3 [LQ=129,9; UQ=297,4]	
Post-stroke patients group	Me=544 [LQ=490; UQ=684,8]	Me=24 [LQ=20,2; UQ=34,2]	Me=3584,2 [LQ=2973,5; UQ=4353,7]	p<0,05

Image 1.