

PUBLICATIONS

EFFECT OF L-ARGININE AND N-ACETYLCYSTEINE ON ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA AFTER ISCHEMIC STROKE

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Community-acquired pneumonia in patients with a history of ischemic stroke is characterized by a more severe clinical course and pronounced endothelial dysfunction.

The aim of the study was to evaluate the clinical efficacy of L-arginine and N-acetylcysteine and their combined use in patients with pneumonia in the late recovery and residual periods of ischemic stroke.

The study included 150 patients with community-acquired pneumonia: 100 patients with a history of ischemic stroke and 50 patients without stroke. In patients with ischemic stroke, the levels of C-reactive protein (CRP), procalcitonin (PCT), vascular endothelial growth factor (VEGF), and endothelin-1 (ET-1), as well as nitric oxide (NO), were assessed before and after treatment. Patients were divided into four treatment subgroups: standard therapy (IA), standard therapy + L-arginine (IB), standard therapy + N-acetylcysteine (IC), and combined L-arginine and N-acetylcysteine therapy (ID).

Before treatment, patients with a history of ischemic stroke demonstrated significantly higher levels of CRP, PCT, VEGF and ET-1 and lower NO levels compared with patients without stroke. The most pronounced positive changes were observed in subgroup ID receiving combined L-arginine and N-acetylcysteine therapy. CRP decreased by 79.5%, PCT by 80.7%, VEGF by 42.5%, and ET-1 by 46.0%, while NO increased by 59.2%. The combined treatment was also associated with the greatest improvement in neurological and clinical severity: the NIHSS score decreased to 5.8 points and the CURB-65 score to 1.0 point. The mean duration of hospitalization was reduced to 10.4 days compared with 14.2 days in the standard-therapy subgroup.

Thus, pneumonia in patients with a history of ischemic stroke is associated with marked systemic inflammation and endothelial dysfunction. The combined administration of L-arginine and N-acetylcysteine demonstrated the most pronounced anti-inflammatory and endothelium-protective effects, accompanied by improvement in clinical status and reduction in hospitalization duration. This therapeutic approach may be considered as a promising component of personalized treatment of pneumonia in patients with ischemic stroke.