The role of citicoline in the correction of cerebral blood flow disorders in patients with coronary artery disease in combination with COVID-19

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OBJECTIVE. To evaluate the effect of citicoline on cerebral blood flow and microembolic signals (MES) after 6 months of treatment in patients with coronary artery disease combined with coronavirus disease (COVID-19).
MATERIALS AND METHODS. A prospective study of 68 patients with coronary artery disease with confirmed COVID-19 by PCR was conducted. Group I (n=35) included patients with coronary artery disease in combination with COVID-19, who, in addition to standard therapy of cerebrovascular disease, received citicoline (500 mg twice daily) for 6 months after discharge from the hospital. The comparison group (group II; n=33) consisted of patients who did not receive citicoline. Cerebral blood flow, peak systolic velocity in extracranial and intracranial vessels were determined, and 1-hour transcranial monitoring to detect MES were performed. Patients were re-examined in 6 months.

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RESULTS. At the initial examination of patients, cerebral blood flow and the number of MES did not differ significantly. After 6 months, there was an increase in cerebral blood flow in the cerebral arteries, as well as a decrease in MES in patients taking citicoline, whereas in group II there was no positive dynamics of this ratio. A direct correlation between plasma C-reactive protein, D-dimer and MES was found in patients of both groups. After 6 months of treatment, C-reactive protein and D-dimer decreased in both groups equally.

CONCLUSIONS. The obtained results of improvement of cerebral perfusion, blood rheology, due to the anti-inflammatory effect, stabilising function of citicoline on phospholipid membranes of cerebral vascular endothelium, neurons and glial elements allow the use of citicoline in patients with coronary artery disease in combination with COVID-19 to reduce the negative impact of COVID-19 on the central nervous system.

KEY WORDS: coronary artery disease, COVID-19, cerebral blood flow, citicoline.