Serum kynurenic acid positively correlates with cardiovascular disease risk factor, homocysteine: a study in stroke patients

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Abstract:
KYNA, an antagonist of ionotropic glutamate receptors and α7 nicotinic receptors, has been found as well in the brain as in the periphery. The altered metabolism of KYNA, especially its deficiency, can lead to the enhanced glutamate-mediated excitotoxicity, and was suggested to be a factor contributing to the development of neurodegeneration and seizures. Elevated serum concentration of homocysteine is considered to be an independent risk factor of atherosclerosis and is an emerging risk factor of cognitive dysfunction and stroke. In the present study, serum level of KYNA, homocysteine and other biochemical parameters were assessed in patients at early (up to 24 h after infarct) stage of stroke. Serum KYNA and homocysteine levels were similar in control (N = 26) and stroke (N = 24) groups. KYNA level correlated positively with the level of homocysteine in control and in stroke group, with p = 0.018; r = 0.462 and p = 0.027; r = 0.451, respectively. In control group, KYNA correlated positively also with age (p = 0.007; r = 0.514) and with creatinine level (p = 0.002; r = 0.381). In stroke group, serum KYNA correlated positively with creatinine (p = 0.001; r = 0.644) and with urea level (p < 0.001; r = 0.716). Homocysteine level correlated inversely with folate level in control (p = 0.01; r = -0.499) but not in stroke group (p = 0.13; r = -0.317). Serum homocysteine in stroke group correlated positively also with age (p = 0.001; r = 0.6401), and with urea level (p = 0.017; r = 0.4813). Clinical significance of the association between serum KYNA and homocysteine levels requires further investigation.

Key words:
kynurenic acid, stroke, homocysteine, serum