Vascular endothelial growth factor-1 as a predictor of unfavorable cardiovascular events in arterial hypertension patients after ischemic stroke

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Objective: Circulating vascular endothelial growth factor-1 (VEGF-1) is considered as neuroprotective factor with angiopoetic capacity[1,2]. However, interrelationship between VEGF-1 and frequency of recurrent cardiovascular outcomes in hypertensive patients after stroke in long-term follow-up is still uncertain[3]. *Aim:* To evaluate the relationship between VEGF-1 and risk of recurrent coronary and cerebral ischemic events in arterial hypertension patients after the stroke.

Methods: 102 mild-in-moderate arterial hypertension patients were enrolled to the in study 3 weeks after ischemic stroke and then they were being studied prospectively for 12 months period regarding survival rate and unfavorable clinical outcomes. Circulating VEGF-1 level was determined in the study entry only. Clinical interviews were performed every 3 months during 1 year after blood sampling.

Results: Analysis of obtained outcomes showed that medians of circulating VEGF-1 levels in hypertensive patients after stroke, which demonstrated one, two, three or more cases of recurrent cardiovascular events were 373.80 pg/ml (95%CI=342.90-479.70 pg/mL), 539.96 pg/ml (95%CI= 444.28-865.56 g/mL), and 724.66 pg/mL (95% CI= 558.72-890.66 pg/mL) respectively, and they were significantly higher than that of the persons for whom new clinically relevant cardiovascular outcomes were not documented (Me= 289.28 pg/mL, 95% CI=279.71-345.88 pg/mL) (P=0.001 for all cases). The cutoff point of VEGF-1 with the most optimal predictive value for recurrent cardiovascular events was equal to 403.57 pg/mL (area under the curve= 0.76, 95%CI=0.602-0.917, P=0.001, sensitivity=78.6% and specificity=70.0% respectively). In this case, when circulating VEGF-1 level was more than 403.57 pg/ml, the number of reported cardiovascular events during one year follow-up was significantly higher in comparison to lower levels of one (OR=4.11, 95%CI=2.66-7.28, P=0.001). Kaplan-Meier curves began to divide about 10 weeks after the study entry and achieved a significant difference in 14 weeks. After that a difference in events occurrence between the two patient cohorts with circulating VEGF-1 level less and more 403.57 pg/mL continued to deepen.

Conclusion: We found that circulating vascular endothelial growth factor-1 level was an independent predictor of 1 year cumulative cardiovascular events in hypertensive patients after ischemic stroke.

Literature

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