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Peculiarities of Arterial and Venous Hemodynamics with Transitorial Ischemic Attacks in the Vertebro-Basilary Basin

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Objective: Ultrasonic dopplerographic examination of arterial and venous hemodynamics in patients with transient ischemic attacks (TIA) in the vertebrobasilar basin.

Materials and Methods: 86 patients of a young age (18-35 years) with a clinical picture of transient ischemic attacks (TIA) were examined. Clinically, TIAs were manifested in the form of cochlear-vestibular (CV) and syncopal vertebral (SV) syndromes. All patients complained of cervicogenic paine. In the studied persons dominated the occipital localization of pain (87.6%). The pulsating type of pain was observed in 21.4% of patients, bursting - in 52,8%, their combination - in 25.7%.

The investigation was carried out in triplex dopplerographic mode. The parameters of hemodynamics in the basilar and vertebral arteries (BA and VA), vertebral and basilar veins (VV and BV), direct sinus (DS) were studied.

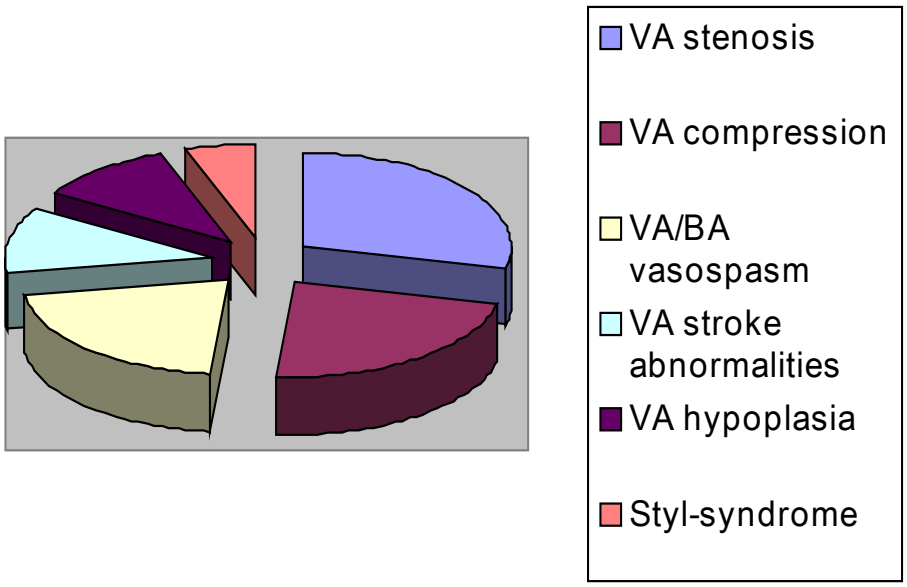

Figure1. *The frequency of detection of TIA vascular pathogenetic factors (%).*

Results and discussion

The frequency of detection of TIA vascular pathogenetic factors was as follows: VA stenosis in 37,6% cases, vertebral artery compression in 29.8%, vasospasm in VA and / or BA in 27.6% cases, VA stroke abnormalities in 14.8% cases. Hypoplasia of the VA - 13.9%, styl-syndrome – in 7.3% of cases. Some of the patients had a combination of these factors. The occurrence of CV was almost equally caused by stenosis, vertebral compression and VA vasospasm (36.7%, 34.4% and 31.5% of patients, respectively). In patients with SVS, combinations of vertebral compressions with stroke anomalies (41.6%) or hypoplasia (36.1%) of vertebral arteries were most often detected. Disturbances of venous hemodynamics in a significant majority of patients with TIA (72.3%) were observed in the VV in the form of an increase in systolic blood flow velocity to 35 cm / s. In the group of patients with cochlear-vestibular syndrome also increased blood flow in the DS (44.2% of patients) and BV (29.4%). In 68.3% of patients with syncopal vertebral syndromes, a combination of an increase in outflow in the pylori with an asymmetry of systolic blood flow velocity for VV (25-30%) was revealed. Infringements of a blood flow in DS and BV were observed accordingly at 14,6% and 10,1% of patients.

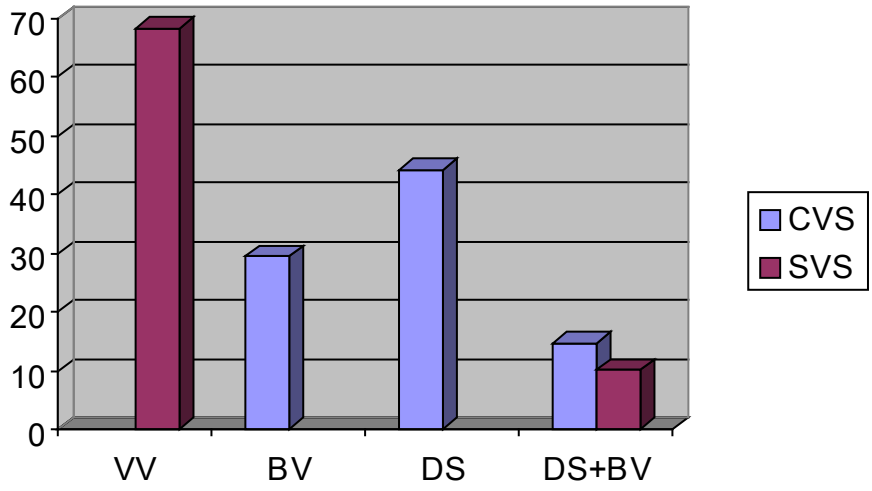

Figure2. *The frequency of venous hemodynamics disturbances in patients with TIA (%).*

Conclusion

The leading hemodynamic factors in the development of transient ischemic attacks in vertebrobasillar basin are stenosis, vertebral compression and vertebral artery vasospasm, which are manifested equally in cochlear-vestibular syndromes (CVS). Vertebral compression is more conducive to the development of syncopal vertebral syndromes (SVS). Disturbances of venous hemodynamics in CVS were manifested in the form of dyscirculation in VV and direct sinus, and in SVS mainly as a combination of outflow enhancement and asymmetry in vertebral vein.

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