EPR3007

Subacute Blood-Brain Barrier Permeability after an Acute Ischemic Stroke is associated with Good Clinical Outcome

J. Sousa[1], C. Nunes[2], L. Ferreira[1], F. Silva[1], G. Santo[1], C. Machado[1], B. Rodrigues[1], M. Castelo-Branco[3], L. Cunha[1], J. Sargento-Freitas[1]
[1]Neurology, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal, [2]Neuroradiology, CHUC, Coimbra, Portugal, [3]Instituto de Ciências Nucleares Aplicadas à Saúde, Coimbra, Portugal

Background and aims: The dynamics of blood-brain barrier (BBB) after an acute ischemic stroke (AIS) are multiphasic. An early increase in permeability is associated with edema, hemorrhagic transformation and poor clinical outcomes. Animal models indicate that a later, subacute stage of increased BBB permeability might have a positive effect representing neurovascular remodeling and neoangiogenesis. However, its clinical impact is still uncertain.

Our aim was to evaluate the association between BBB permeability at day 7 after an AIS and the patients' clinical outcomes.

Methods: We included consecutive patients with nonlacunar AIS in the territory of a middle cerebral artery with ages ranging from 18 to 80 years. We used modified Rankin Scale score at 3 months as a measure of clinical outcome. Neuroimaging was performed at day 0 and 7 by Magnetic Resonance Imaging, including assessment of BBB permeability in the infarct lesion by dynamic contrast enhancement with quantification of the volume transfer coefficient (Ktrans). We performed an ordinal regression model between mRS and BBB permeability adjusting for the baseline variables associated with good outcome and including infarct volume as a covariate.

Results: We included 45 patients; mean age 70.0 ± 10.0 years. BBB permeability in the subacute stage showed a nonsignificant reduction in comparison with day 0: Krens: 0.0158 (SD:0.0092) vs. 0.0163 (SD:0.081), p=0.756. Permeability of BBB at day 7 was independently associated with improved clinical outcome (OR: 0.897; 95%CI 0.816–0.986; p=0.025).

Conclusion: We found subacute BBB permeability to be associated with good clinical outcome.

Disclosure: Nothing to disclose

EPR3008

Correlation between transcranial contrast ultrasound and transesophageal echocardiography in detection of right-to-left cardiac shunt

N. Stojanovski, Z. Markovic, J. Zidverc-Trajković, A. Pavlovic, N. Šternić, M. Mijajlovic
University of Belgrade, School of Medicine, Belgrade, Serbia

Background and aims: Patent foramen ovale (PFO) is the most common type of right-to-left cardiac shunt (RLS) and together with atrial septal aneurysm (ASA) further increases the risk of ischemic stroke. In order to detect RLS we compared sensitivity of contrast transesophageal echocardiography (c-TEE) to sensitivity of contrast-enhanced transcranial Doppler ultrasound (c-TCD). Influence of vascular risk factors was also observed.

Methods: Retrospective cross sectional study included 58 individuals, treated at Neurology Clinic CCS in Belgrade, with positive c-TCD followed by c-TEE examination in patients with transient ischemic attack (TIA) and/or stroke. Intima–media thickness (IMT) and presence of carotid plaques, degree of stenosis, as well as possible deep venous thrombosis (DVT) were obtained via an ultrasound. From patients' medical history we collected the following data:hypertension;diabetes mellitus;dyslipidemia and smoking habits.

Results: c-TEE confirmed RLS detected by c-TCD in 6.9% patients. We found that there exists a correlation between smoking and total number of microembolic signals (MES) without Valsalva maneuver (VM) (p<0.05) as well as between presence of DVT (registered in 5.2% patients) and: total number of MES (r=0.303, p<0.05); number of MES in the right middle cerebral artery (r=0.293, p<0.05); and number of MES without VM (r=0.273, p<0.05). Positive correlation was found between number of MES without VM and interatrial septal defects (PFO and ASA) (r=0.262, p<0.05); the existing RLS (r=0.303, p<0.05), and between IMT and the time of occurrence of MES (r=0.334, p<0.05).

Conclusion: c-TCD and c-TEE are complementary methods for RLS detection which represent an important etiological factor of ischemic stroke and TIA in younger patients.

Disclosure: Nothing to disclose