

Methods We studied 7 subjects admitted to our institute with unilateral occlusive ICA disease confirmed by DSA or Carotid Duplex. All 7 patients underwent cerebral vasodilatory capacity (CVC) testing at baseline and 2 weeks after surgery. CVC was assessed by measuring the increase in MCA mean flow velocity in response to 5% inhaled CO₂. Continuous tracings of bilateral MCA flow velocity, heart rate, respiratory rate, and PCO₂ were recorded.

Results CVC was significantly reduced in ipsilateral MCA ($1.78 \pm 0.82\%/\text{mmHgPCO}_2$) compared with contralateral ($2.69 \pm 0.82\%/\text{mmHgPCO}_2$; $p < 0.05$). After revascularization there was a slight improvement in CVC which increased to $1.96 \pm 0.65\%/\text{mmHgPCO}_2$ but there is no significant difference between pre- and post CVC.

Conclusions CVC is impaired in patients with ICA occlusion. Assessing CVC may allow a subgroup of patients with ICA occlusion who are at a higher risk of hemodynamic stroke to be identified. CVC in patients with occlusive ICA disease failed to normalize after revascularization.

PAD in MCA stenosis: a short term comparison of outcome and risk of stroke recurrence versus real lacunar syndromes

G. Malferrari, M. Zedde, G. De Berti¹, M. Maggi¹, F. Nicoli¹, N. Marcello

Stroke Unit - Neurology Department, ASMN, Reggio Emilia, Italy

¹Radiology Department, ASMN, Reggio Emilia, Italy

It is a underrecognized and underreported finding that lacunar ischemic stroke is not an etiologically homogeneous category, because of the identification of two main subgroups: a small vessel disease and the so-called Parent Artery Disease (PAD), defining a large intracranial artery disease (mainly MCA stenosis) involving the perforating arteries origin. The prognosis of the two groups is very different, having the former (small vessel disease) a relatively good outcome and the latter (PAD) a worse outcome, similar to more frequent ischemic manifestations of large vessel disease.

In our series of patients with lacunar ischemic syndromes, examined in the last two years by two experienced neurosonologist within 24 hours from symptom onset (77 patients, 58 men), we identified by TCCS a 18.6% of patients with a MCA stenosis and a neuroradiological confirmation of both the parenchymal lesion of lacunar type and the vessel stenosis (by CT and CTA or MRI and MRA). All patients had a history of arterial hypertension and all but three had almost another vascular risk factor. In the subgroup with MCA stenosis the etiology of intracranial disease was identified as atheromatosis and the search of a cardiac source of embolism was negative.

Therefore intracranial stenosis are a not rare cause of lacunar

ischemic syndromes and our data are in line with the current literature.

SESSION VI

Intraobserver and interobserver reproducibility of ultrasound assessment of the optic nerve sheath diameter

Piergiorgio Lochner¹, Jochen Bäuerle¹, Max Nedelmann¹
Neurologische Universitätsklinik, Justus-Liebig Universität Giessen, Germany

Objective: Transorbital B-mode sonography allows depiction of the optic nerve and its sheath. Different ultrasound studies show that an increased intracranial pressure leads to enlargement of the optic nerve sheath diameter (ONSD). Ultrasound may therefore potentially serve as a diagnostic tool in intracranial pressure evaluation. This study was designed to evaluate the reliability of sonographic ONSD assessment in healthy subjects.

Methods and Patients: To investigate the test qualities of transorbital ultrasonography and to determine the intra- and interobserver reliability, 2 investigators independently analyzed the ONSD in 40 healthy subjects. The sheath diameter was measured with a 9-3 MHz linear ultrasound probe using a standardized transorbital procedure at 3 mm behind the papilla in axial transbulbar view.

Results: Depicting the optic nerve and its sheath was possible in all individuals. The mean ONSD was 5.4 ± 0.6 mm with a range of 4.3–7.6 mm. For assessment of intraobserver reliability, the inter-item reliability coefficient was calculated. The intraobserver reliability was found to be high with values between 0.92 and 0.97. Analysing the measurements of both eyes separately, Pearson's correlation coefficient between investigator 1 and 2 was 0.81 on the right side and 0.84 on the left. There was no significant relationship between ONSD and age, body mass index or gender.

Conclusion: The transorbital B-mode sonography is a reliable method for the evaluation of the optic nerve sheath and exhibits good intra- and interobserver reliability. This study determined well defined normal values which may serve as a basis for further studies on pathological conditions.

Development of absolute ICP value noninvasive measurement technology: Framework 7 project "Brainsafe".

A. Ragauskas¹, G. Daubaris¹, K. Petrikonis², V. Matijosaitis², R. Zakelis¹

1 Kaunas University of Technology, Kaunas, Lithuania

2 Kaunas University of Medicine, Kaunas, Lithuania