

however may also be caused by hyperemia. To differentiate between both might be difficult even after calculation of the MCA/ICA-index. The aim of our study was to analyze whether the assessment of BFV in the BVR helps to further distinguish between hyperemia and MCA spasm.

**Methods:** 73 patients (age 50±11 years) were included. At least one DSA was performed between day 7 and 14 after SAH. Total number of TCCS measurements was 296 within the first two weeks after SAH. TCCS criteria for vasospasm were  $V_{\text{mean MCA}} > 120\text{cm/s}$  (no angle correction) and  $\text{MCA/ICA-index} > 3$  or  $V_{\text{mean MCA}} > 120\text{cm/s}$  and  $V_{\text{mean BVR}} \leq 18\text{ cm/s}$ , respectively ( $\leq \text{mean} + 3 \times \text{SD}$  of 20 healthy controls). TCCS and DSA were compared by independent investigators if both investigations were performed within 24 hours.

**Results:** Comparison of TCCS and DSA was possible in 58 cases. DSA showed vasospasm in 46 MCAs confirmed by TCCS in 31 cases (67%) using the MCA/ICA-index and in 38 cases (83%) using venous BFV. In 70 MCAs vasospasm was excluded by DSA. TCCS confirmed these data in 61 cases (87%) and 63 cases (90%), respectively. Seven times the MCA/ICA-index and 2 times the BVR measurements could not be performed.

**Conclusion:** Our results confirm the good diagnostic accuracy of TCCS for the detection of vasospasm. The combined assessment of flow velocities in the MCA and the BVR seems to be slightly more sensitive for the differentiation between vasospasm and hyperemia and might serve as an alternative diagnostic approach to the MCA/ICA-index, especially if a correct measurement of BFV in the extracranial ICA is impaired.

#### **TCCD “multi-gate technique” and Cerebral Venous Thrombosis: our experience**

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TCCD with “multi-gate” technique (tccdMG) is useful to demonstrate venous local flow’s alterations. We know that there are some venous structures of relative easy individualization with TCCD: the Dipple Middle Cerebral Vein (DMCV), the Basilar Vein of Rosenthal (BV), the Basal Plexus Venous (BPV) etc .

We studied 2 cases of cerebral venous thrombosis. The symptoms at onset were: headache, focal deficit and

confusion.

**Risk factors were identified:** thrombophilia, and oral contraceptive .One patient with short thrombosis of the straight sinus was asymptomatic and the diagnosis with tccd was casual (inverted flow at the level of the BV). In the second patient with diffused thrombosis of the superior sagittal sinus the constant ultrasound picture was the detection of flussimetric congestion with increase of the velocimetric venous peak at level of right and left DMCV . We detected also a pattern of flussimetric congestion at the level of the BV. In this patient the application of tccd multi-gate was very useful. This is the novelty of the “tccd-multi-gate technique”: using a sectorial probe, we can position two sample-volumes in different vessels situated in this sectorial plane also at different depths. We studied Basilar Vein (BV) (first sample volume) and Superior Sagittal Sinus (SSS), distal part, (second sample volume). Even though in this patient the RMN-study showed an obstruction of the SSS, with tccd MG we detected a partial recanalization of the venous vessel near the crossroad of the Torcular of Herophilus.

The clinical conditions of the patient slowly improved and at the same time we showed the progressive recanalization of the vessels after therapy.

In conclusion we suppose that the TCCD can have a very important role in detecting the vessel’s recanalization and therefore can be useful in the follow-up of this pathology.

#### **Cerebral blood flow and vasoreactivity in cadasil (Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy)**

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**Background:** CADASIL is an inherited non-arteriosclerotic non-amyloid microangiopathy affecting cerebral small arteries and causing diffuse leukoencephalopathy on neuroimaging. Clinically, it is characterized by strokes, migraine, cognitive and psychiatric disturbances. Among the pathogenetic hypotheses, hypoperfusion with failure of cerebral hemodynamics has been suggested.

**Objective:** To study cerebral blood flow and vasoreactivity in CADASIL.

**Methods:** Basal middle cerebral artery (MCA) mean blood flow velocity (MFV), resistance and pulsatility index (RI, PI) were measured by bilateral transcranial Doppler sonography