

middle cerebral artery (MCA) involvement. The patient underwent to iv thrombolysis with rtPA with sudden and complete recovery. After five days there was the abrupt onset of left side hemiplegia, neglect and hemianopsia. A complete neurosonological evaluation was performed and a right carotid T occlusion was diagnosed. Then an ultrasound perfusional examination was made by TCCS with power modulation and contrast medium bolus injection and a wide hypoperfused area in the right MCA territory was showed. Because of the contraindication to the thrombolysis (recent stroke), a rescue sonothrombolysis was made by repeated boli of contrast medium and continuous TCCS monitoring of the proximal MCA. During the first five minutes of treatment a rapidly increasing MCA opening was found and followed by recanalization of the intracranial ICA. At the same time a disappearance of the stump flow signal in the right extracranial ICA was registered. A subsequent perfusional scanning showed a restored microcirculation in the right hemisphere and a MRI scan two weeks later confirmed some small scattered diffusion alteration in the same territory. TCCS is a simple, rapid and useful tool in the diagnosis and treatment of acute stroke, even in clinical situations where there is not time enough for conventional neuroradiological techniques.

**31****US Perfusional Evaluation in Traumatic Brain Injury:  
a Clinical Proposal**

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In order to improve the management of patients with moderate to severe TBI and contusive-hemorrhagic brain lesions could be useful to achieve perfusional data on the parenchyma around the lesions. This is because a penumbral finding is likely related to savable tissue and conversely a normal or luxury perfusion can be predictive of a better prognosis.

We studied four male patients with a TBI (mean age 33.5±22.8 years) and a severe neurological deficit (GCS 5-7) associated with a multiple contusive-hemorrhagic lesion in the supratentorial zone of a single hemisphere. None of the patient was eligible to surgery but two of them underwent in the first week to a decompressive hemicraniectomy. All patients underwent to a perfusional evaluation with TCCS and power

modulation technique at a mean of 2.3±1.8 days from the admission to the ICU. A parametric measurement of TP, CBV, CBF, MTT was performed off line on a short clip stored. Tridimensional parametric maps were also derived and the area of the perfusion deficit was compared with the correspondent lesion in the brain CT scan.

A good correspondence was found between the severely hypoperfused areas in the ultrasound examination and the contusive-hemorrhagic foci in the brain CT. Patients with normal perfusional evaluation at the visual and parametric examination showed a good functional prognosis (mRS 0-2 at three months).

Methods for perfusional evaluation in the intensive care patients should be bedside, handle, ease to perform and accurate. Therefore we propose that the ideal method could be a neurosonological technique.

**32****US Perfusion in Space Occupying Brain Lesions**

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In patients with supratentorial space occupying brain lesions and an adequate temporal bone window, the evaluation of the cerebral perfusion with TCCS by second harmonic imaging and second generation contrast media administration, can help to define the extent and features of the intracranial processes.

Seven patients (two females and five males, mean age 64 ± 3.56 years) with a histologically confirmed diagnosis of glioblastoma multiforme (four patients, two with recurrence), secondary brain tumors (from lung cancer, two patients) and an atypical meningioma (one patient) underwent to a complete neurological and neuroradiological work-up and to a neurosonological evaluation with TCCS. The ultrasound examination was made with a power modulation technique and a Sonovue bolus injection. A short clip was recorded from the visual assessment of contrast medium arrival and it was evaluated off-line for time and echogenicity measurements. A handily designed ROI was traced by the guide of single frame examination and MRI appearance and extent of lesions. The comparison was made between such a ROI and a controlateral thalamic ROI (healthy brain tissue) for the echogenicity parameters and