

Methods: 27 otherwise healthy non-migraineurs were examined. Inclusion criteria were a good temporal window with detectable C6 segment of the ICA. The MMA was insonated by TCCS using the axial lower pontine insonation plane and identified by its anatomical relationship laterally of the dorsal part of the C6-ICA. The MA was detected by ECCS below the zygomatic arch and identified by a marked velocity increase and pulsatility decrease during biting.

Results: The MMA was detected in 17 subjects (63%) with a total number of 25 MMAs. Average depth of its location was 48 ± 3 mm. Non-angle corrected peak systolic, diastolic and mean velocities were 26 ± 8 cm/s, 5 ± 3 cm/s and 12 ± 4 cm/s, respectively. The PI was 1.9 ± 0.6 . The MA was visualized in 94% of subjects with identified MMA. Average depth of its location was 25 ± 0.5 mm. Non-angle corrected peak systolic, diastolic and mean velocities were 16 ± 6 cm/s, 1 ± 1 cm/s, 6 ± 3 cm/s, respectively. The PI was 2.7 ± 0.5 .

Conclusion: This is the first presentation of ultrasonic reference data of the MA and MMA which can be assessed in more than 60% of healthy subjects. Ultrasound may be helpful to point out differences between migraineurs and healthy subjects.

(P29) Transcranial brain parenchyma sonography in the diagnosis of Parkinson's disease

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Objective: Modern ultrasound systems allow high-resolution transcranial sonography (TCS) of the brain structures. Enlargement of the echogenic signal (hyperechogenicity) of the substantia nigra (SN) has been reported as a highly characteristic finding in idiopathic Parkinson's disease (PD). The aim of our study was to investigate the prevalence of the SN hyperechogenicity in PD patients, as well as its possible clinical correlates.

Methods: The study comprised 103 consecutive PD patients and 50 healthy age-matched controls. For TCS examination a color-coded, phased array ultrasound system equipped with a 2.5 MHz transducer was used (ESAOTE Technos MP, Italia). The examination was performed through a preauricular acoustic bone window with a penetration depth of 16 cm and a dynamic range of 45-50 dB. The SN was identified within the butterfly shaped structure of the mesencephalic brainstem, with scanning from both temporal windows.

Results: The SN hyperechogenicity was identified in 95 out of 103 examined PD patients (92%), which was marked in 60 (63%), and moderate in 35 patients (37%). Median SN echogenic size was larger contralateral to the clinically more

affected side of the body. Unilateral SN hyperechogenicity was also found in 5 out of 50 healthy controls (10%). No ventricular enlargements were notified in our study. **Conclusion:** Our study demonstrated SN hyperechogenicity in more than 90% of PD patients. In adult subjects without neurological symptoms, the TCS finding of at least unilaterally marked SN hyperechogenicity indicates a subclinical functional impairment of the nigrostriatal dopaminergic system.

(P30) Cerebral blood flow in patients with Idiopathic advanced Parkinson's Disease during on-off phenomena: a tccd study.

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More than 50 % of patients affected by Parkinson's Disease (PD) receiving levodopa treatment, develop motor response fluctuations. Most typical features are the on-off phenomena: abrupt response swings not related to the timing of medication, with fast worsening of symptomatology so as to make speech and gait impossible.

The aim of this study was to assess the cerebral blood flow in PD patients during motor fluctuations, by transcranial color doppler (TCCD). 12 subjects (10 males, 2 females; aged from 47 to 70, mean 61.4 ± 6.7), affected by advanced PD, were examined by TCCD during on and off periods. Right and left middle cerebral arteries (MCA), in M1 segment, were studied by a 2-MHz 128 channels hand-held probe. Peak Systolic Velocity (PSV) and Peak End Diastolic Velocity (PEDV) were evaluated. Blood pressure and oxygen saturation were monitored. Statistical evaluations included Student's t test and paired Wilcoxon test between on and off stages. In both MCA we found differences statistically highly significant between on and off blood flow. In right MCA (mean PSV: 1.12 ± 0.13 m/sec in on; 0.83 ± 0.09 m/sec in off con $P < 0.001$. Mean PEDV: 0.47 ± 0.09 m/sec in on; 0.33 ± 0.07 in off con $P < 0.001$). Similar results were obtained in left MCA. Some PET studies have been published about the cerebral blood flow in PD patients at rest (Eidelberg 1994) or when subjects were asking to perform a motor task (Jahanshahi 1995). Our data suggested that in some stages of advanced PD the cerebral blood flow could have important changes independent from systemic blood pressure and oxygen saturation.