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**ACETAZOLAMIDE-SENSITISED QUANTITATIVE BRAIN PERFUSION SPECT IN DEPRESSION AND ALZHEIMER DISEASE**L. Galuska<sup>2</sup>, A. Égerházi<sup>1</sup>, L. Szabados<sup>2</sup>, I. Garai<sup>2</sup>, J. Varga<sup>2</sup>,  
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**Aim:** the risk of stroke and dementia is higher at patient suffering from depression. Little is known about the possible pathophysiologic mechanism of it. So we compared the basic quantitative global and regional blood flow, and blood flow cerebrovascular reserve capacity (CVRC) at patients, suffering from depression (D) and Alzheimer disease (AD)

**Material and methods:** 24 patients were investigated, with 48 examinations: 10 healthy controls, 5 with unipolar, 5 with bipolar D, and 4 with AD. First we have made the <sup>99m</sup>Tc-HMPAO dynamic, quantitative SPECT and later the Acetazolamide-sensitised quantitative brain perfusion SPECT done for CVRC calculation. Data acquisition and analysis: using the acquired data of large field of view gamma camera from aortic arch and brain hemispheric areas, time activity curves, and reconstructed coronal SPECT slices of them in a cylinder surface-like model, was used to measure the rest global hemispheric regional blood flow and later the CVRC (The normal rest value: 53 ml/perc/100 g brain tissue is).

**Results:** in rest a serious global decrease in blood flow is observed at D and AD patients. After Acetazolamide a smaller CVRC values have been observed at patients compared with normal. At pts with unipolar D the frontal region is relatively better perfused, compared with bipolar D, in which the whole gray matter is seriously underperfused. At AD pts the global perfusional loss of brain, and in parieto-temporal areas a characteristic regional hypoperfusion is observed with low CVRC.

**Conclusions:** comparing with normals, there is a significant decrease of global rest hemispherical blood perfusion at unipolar and bipolar D pts. The unipolar and bipolar D may be separated, because in later case the frontal region is also involved in global cerebral hypoperfusion. At unipolar D the higher blood flow values have been measured in parieto-temporal regions than in AD. At bipolar D these values are near to the values measured in AD. The CVRC is observable in all pts groups, but at the lower level than at normals.

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**DOPAMINE TRANSPORTER EXAMINATIONS IN MOVEMENT DISORDERS: SUMMARY OF 4 YEARS (176 EXAMINATIONS)**B. Kanyo<sup>1</sup>, G. Dibo<sup>2</sup>, P. Klivenyi<sup>3</sup>, M. Argyelan<sup>1</sup>, L. Vecsei<sup>3</sup>, L. Pávics<sup>1, 4</sup>

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**Aim:** We investigated the role of TRODAT SPECT in differential diagnosis in movement disorders (i.e. Parkinson's disease PD, Parkinsonian syndrome PS, essential tremor ET).

**Material and methods:** During a 4-year-study 176 patients with parkinsonian features were investigated with <sup>99m</sup>Tc-TRODAT SPECT. The different patient groups (PD, PS, ET) and subgroups were compared with each other and with healthy volunteers. As a specific binding region the striatum, the caudate nucleus and putamen, as a reference region the occipital cortex was marked. For statistics linear regression and ANOVA were performed.

**Results:** In PD patients a linear correlation was found between specific TRODAT uptake values and motor handicap ( $p < 0.05$ ), as well as -based on the different uptake of striatum-<sup>99m</sup>Tc-TRODAT SPECT differentiated subtypes of PD ( $p < 0.05$ ). During differential diagnostic study-based on the different putaminal involvement-PD and PS groups separated each other ( $p < 0.05$ ).

**Conclusion:** <sup>99m</sup>Tc-TRODAT SPECT investigation is useful by itself in the diagnosis in patients with movement disorders.

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**CORRELATION OF DOPAMINE TRANSPORTER IMAGING (TRODAT SPECT) AND PARKINSONIAN MOTOR HANDICAP**B. Kanyo<sup>1</sup>, G. Dibo<sup>2</sup>, P. Klivenyi<sup>3</sup>, M. Argyelan<sup>1</sup>, L. Vecsei<sup>3</sup>, L. Pávics<sup>1, 4</sup>

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**Background:** The selective dopamine transporter ligand TRODAT SPECT is useful in the diagnosis of Parkinson's disease.

**Aim of the study** was the examination of the theoretical correlation between the clinical motor symptoms and <sup>99m</sup>Tc-TRODAT uptake values.

**Material and methods:** The investigated population included 72 patients with Parkinson's disease (30 men, 42 women; mean yr  $\pm$  SD:  $61.4 \pm 11.5$ ; disease duration  $4.4 \pm 4.7$  yr; Hoehn-Yahr [H-Y]:  $1.9 \pm 0.7$ ; UPDRS total [U]:  $26.6 \pm 17.6$ ; UPDRS III [III]:  $16.1 \pm 11.3$ ). During semiquantitative assessment, as a specific binding region the striatum (str), as a reference region the occipital cortex (occ) was marked. The specific uptake of TRODAT was compared with the values of clinical rating scales. For statistic linear regression was performed.

**Results:** The TRODAT uptake of the striatum correlated well with the values of Hoehn-Yahr scale (str/occ ratio =  $1.62 - 0.01 \cdot H - Y$ ,  $p < 0.01$ ), of UPDRS scale (str/occ ratio =  $1.53 - 0.003 \cdot U$ ,  $p = 0.02$ ) and of UPDRS III scale (str/occ ratio =  $1.52 - 0.005 \cdot III$ ,  $p < 0.01$ ).

**Conclusion:** <sup>99m</sup>Tc-TRODAT SPECT not only useful in the diagnosis of Parkinson's disease but it's also suitable to visualization of the severity of the disease.

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**CHANGES IN THE CEREBRAL BLOOD FLOW IN DIABETES MELLITUS**L. Szabados<sup>1</sup>, I. Garai<sup>1</sup>, J. Varga<sup>1</sup>, L. Galuska<sup>1</sup>, M. Káplár<sup>2</sup>

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**Background:** in Type 2 diabetic (T2DM) patients: about 80% die of a macrovascular complication.

**Aims:** To measure the functional capacity of the brain arteries of T1DM and T2DM patients, and to compare these results to various vascular haematological parameters like CRP, fibrinogen level and myeloperoxidase activity.

**Material and methods:** 64 patients were involved (18 T1DM and 46 T2DM). Cerebral blood flow was examined by a two day protocol. Basal and subsequently Diamox-stimulated cerebral blood flow was measured on two different occasions. Reserve capacity was calculated on the basis of the difference between stimulated and basal blood flow. CRP and fibrinogen level along with the myeloperoxidase activity of the neutrophil cells were also measured.

**Results:** Both basal and the Diamox stimulated cerebral blood flow was significantly lower in T2DM, the reserve capacity, however, was the same in both groups (T1DM: basal:  $56.33 \pm 8.87$  ml/min, stimulated:  $62.88 \pm 10.41$  ml/min; T2DM: basal:  $48.5 \pm 6.23$  ml/min, stimulated:  $52.76 \pm 7.68$  ml/min). Cerebral blood flow was declining by age. After correcting for this age-dependent phenomenon cerebral blood flow of T2DM patients still remained lower when compared to that of the T1DM, although the difference was not significant. In T2DM significantly higher CRP and fibrinogen level and increased myeloperoxidase activity was measured in comparison to the T1DM group.

**Conclusion:** Decreased cerebral blood flow of T2DM patients compared to T1DM might represent a more pronounced vascular injury and significantly elevated CRP, fibrinogen levels and myeloperoxidase activity seem to have a possible role in the pathogenesis.