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# SEROTONIN AND DOPAMINE TRANSPORTER AVAILABILITIES IN PATIENTS WITH DEPRESSION UNDER TREATMENT WITH SSRI

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Aim
To investigate serotonin (SERT) and dopamine (DAT) transporter availabilities in depressed patients under treatment with the selective serotonin reuptake inhibitor (SSRI) escitalopram.

Methods
27 patients (10m, 42±16y) underwent [123I]β-CIT SPECT to assess SERT and DAT availabilities at baseline and after four weeks of treatment with escitalopram. Hamilton Rating Scale for Depression (HAMD) and Beck Depression Inventory (BDI) were used for clinical ratings. Parametric maps with specific to nonspecific ratios (BPND) were calculated for each voxel using cerebellum as reference region. VOI-based BPND were calculated in striatum (DAT) and midbrain/pons (SERT).

Results
At baseline, mean DAT-*BPND* was 6.06±0.81 in striatum and SERT-*BPND* 1.94±0.18 in thalamus. There were negative correlations with age of DAT in striatum (R=-0.60; p<0.01) and SERT in thalamus (R=-0.45; p<0.05). Under treatment there was a 20% occupancy of SERT in thalamus (p < 0.0001), whereas DAT availability increased by 17% in striatum (p<0.001), notably in the younger patients; higher SERT occupancy was associated with lesser DAT increase (R=0.55, p<0.05). There was a negative correlation of baseline HAM-D and DAT availability in putamen (R=-0.45, p<0.05).

Conclusion
DAT and SERT availabilities decreased age-dependently comparable to studies in healthy volunteers. The SSRI-induced increase in DAT was less pronounced in elderly patients, even though occupancy of SERT was higher. These findings might have implications on dosage and side effect profile of SSRI medication in older patients.

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