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A DIMINISHED SEROTONIN LEVEL INFLUENCES THE PERFORMANCE IN A MODIFIED AX-CONTINUOUS PERFORMANCE TASK IN ADULT ADHD

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Introduction: Attention deficit disorder (ADHD) is a psychiatric disorder, which is characterized by deficits of executive functions (EF) and impulsivity. Whereas a variety of studies on the involvement of the dopaminergic system in ADHD exists, the impact of the serotonergic system to EF in ADHD in adults is underinvestigated.

Aims: To ascertain the effects of rapid tryptophan depletion (RTD) and the resultant reduction of the central nervous levels of serotonin on the EF of male adult patients with ADHD.

Methods: 20 ADHD patients and 20 healthy controls completed the RTD test on one day and a placebo on another day in a double-blind within subject crossover design.- In addition, the subtest alertness of the TAP and a modified Version of the Continuous performance test (AX-CPT) with three stimulus conditions (AX, AY, BX) were administered.

Results: Statistical analysis revealed significant shorter reaction times, more errors and more omission errors in the ADHD group in the AX-CPT. The omissions error rate increased in both groups in the RTD condition but not in the placebo condition. Statistical analyses did not yield any significant differences between groups in the subtest alertness and no significant interaction of group and effect of the RTD condition could be observed.

Conclusions: In addition to higher impulsivity of patients with ADHD as reflected by shorter reaction times and higher error rates, the results of the present study imply an involvement of the serotonergic system as reflected by RTD in sustained and selective attention.

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