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EFFECTS OF A SINGLE 10 MG DOSE OF METHYLPHENIDATE ON ATTENTION COMPONENTS AND EXECUTIVE FUNCTIONS IN ADULTS WITH ADHD

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Introduction: Attention deficit / hyperactivity disorder (ADHD) affects about 60 % of adults who suffered from ADHD in childhood. Methylphenidate is a common off-label treatment.
Objectives: The aim of this pilot study was to assess the neuropsychological effects of a single dose of methylphenidate (10 mg orally) on different attention components and executive functions by using the computerized attention assessment battery TAP 2.2 (Testbatterie zur Aufmerksamkeitsprüfung).
Methods: Fifteen DSM IV-ADHD adult patients were enrolled into this study. Neuropsychological evaluations were performed at baseline and after the methylphenidate test. Patients were subsequently treated with adequate dose of methylphenidate and followed over a period of 6 months.
Results: Compared with baseline, a single dose of methylphenidate induced a significant improvement in working memory ($p = 0.001$), sustained attention ($p = 0.0007$) and visual scanning ($p = 0.0007$) in terms of omissions and mistakes. Reaction times also decreased in tonic arousal ($p = 0.002$), incompatibility ($p = 0.008$) and flexibility tasks ($p < 0.00001$). There was a significant correlation between working memory and sustained attention before and after methylphenidate (both $p < 0.01$). Among our patients, 12 who responded positively to the methylphenidate test, showed favorable long-term outcome with methylphenidate treatment.
Conclusions: Adults with ADHD showed neurocognitive improvements after a single 10 mg dose of methylphenidate. Our results suggest that the methylphenidate test would be useful in predicting subsequent response to methylphenidate treatment in ADHD adult patients. Controlled prospective studies are needed to confirm this hypothesis.

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