

## EFFECTS OF SEX AND AGE ON METHYLPHENIDATE TREATMENT IN ADULT ADHD: A MAGNETIC RESONANCE SPECTROSCOPY STUDY

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**Objective:** To investigate the effects sex and age on the methylphenidate HCl treatment in adult ADHD.

**Methods:** Sixty ADHD subjects were included into the study aging between 18 and 60 years. Levels of N-acetyl aspartate (NAA), creatine and choline in anterior cingulate cortex, cerebellum, striatum and dorsolateral prefrontal cortex were measured with magnetic resonance spectroscopy. Then, 10 mg oral methylphenidate HCl was given to the subjects and the same metabolite levels were measured after an interval of 30 minutes.

**Results:** Twelve (20%) of the subjects were women and 48 (80%) of them were men. Age distribution of subjects is as follows: 15 were between 18-24 years, 26 were between 25-30 years, 19 were older than 30 years. No difference was determined between NAA levels before and after methylphenidate in both sexes. Creatine levels were determined higher after methylphenidate in women in prefrontal cortex and in men in cerebellum. Choline levels were determined higher after methylphenidate in women in striatum. NAA levels were determined higher after methylphenidate in prefrontal cortex of 18-24 years old age group and in striatum and cerebellum of 25-30 years old age group. Creatine levels in striatum after methylphenidate were determined higher in 18-24 years old age group than 25-30 years old age group. No difference was determined between choline levels before and after methylphenidate in each age groups.

**Conclusion:** It is thought that pharmacotherapy can be effective on brain metabolites and this effect can vary upon sex and age.