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SPONTANEOUS SLEEP AND SLEEP AFTER ESCITALOPRAM DEPENDING ON THE GENOTYPE OF THE ABCB1-GENE

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Introduction: The ABCB 1-gene product P-glycoprotein is an efflux pump in the blood-brain-barrier. Different alleles of the single nucleotide polymorphism (SNP) rs2032583 were associated with highly different treatment responses to antidepressants in a retrospective study suggesting a different activity of the P-glycoprotein resulting in different levels of antidepressant in the brain.

Objectives/Aims: To prospectively test whether escitalopram is associated with a stronger REM-sleep suppression in homozygote or heterozygote cytosine-carriers of that SNP than homozygote thymine-carriers, suggesting higher escitalopram brain levels in cytosine-carriers.

Methods: 10 male and 10 female healthy, young cytosine-carriers, 20 male and 10 female homozygote thymine-carriers received escitalopram 10mg/day for four days. Prior and after that period, polysomnography was recorded.

Results: At baseline, sleep in males was worse in cytosine-carriers than homozygote thymine-carriers as indicated, for example, by a significantly longer time awake (cytosine-carriers: 85±15 min; thymine-carriers: 44±6 min). Sleep in females did not differ between groups. In both groups, REM sleep was significantly reduced after treatment but there were no significant differences (cytosine-carriers: 78±5 min (baseline) to 46±4 min; thymine-carriers: 89±4 (baseline) to 49±5 min. All treatment effects of escitalopram on sleep (prolonged REM latency and sleep onset latency, increased non-REM-sleep, stage 2 sleep, stage 4 sleep, reduced REM sleep) did neither depend on sex nor genotype.

Conclusions: Sleep in males but not in females is relevantly influenced by the alleles of SNP rs2032583 of the ABCB1-gene. However, our hypothesis of a different REM sleep suppression due to different brain levels of escitalopram was not corroborated.

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