

IMPACT OF ANTIPSYCHOTIC TREATMENTS OF BEHAVIORAL ALTERATIONS INDUCED BY PARADOXICAL SLEEP DEPRIVATION

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Schizophrenic and manic patients exhibit a number of typical alterations in sleep continuity and architecture, such as severe insomnia and reductions in rapid eye movement (REM) latency and duration (1). Notably, clinical reports have documented that the degree of intensity of sleep alterations is highly correlated to the severity of psychotic symptoms, suggesting that sleep deprivation (SD) may precipitate the neurobiological dysfunctions underlying the cognitive and behavioral alterations in schizophrenia and bipolar disorder (2). Based on the hypothesis that both disorders are accompanied by remarkable alterations in sensorimotor gating (3), the present study was aimed at the assessment of the impact of SD on the behavioral model of prepulse inhibition of the startle (PPI), a reliable paradigm for the study of informational filtering. SD (for 24, 48 and 72 h) induced PPI deficits in a time-dependent fashion. Gating functions, however, were completely restored 24 h after the termination of SD. Interestingly, PPI disruption was completely reversed by the antipsychotic drugs haloperidol (0.1 mg/kg, i.p.) and clozapine (5 mg/kg, i.p.). Furthermore, nicotine (0.1-0.2 mg/kg, i.p.) dose-dependently attenuated PPI disruption. Notably, neither the anxiolytic diazepam (5 mg/kg, i.p.) nor the antidepressant citalopram (10 mg/kg, i.p.) produced significant effects on the PPI disruption mediated by SD. Our data suggest that SD might be a robust paradigm to model psychotic-like phenomena in animals, with high face, construct and predictive validity. Further studies are warranted to evaluate the impact of SD on the neurochemical and neuroendocrine substrates of PPI and gating functions.

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