Article: 1779
Topic: EPV34 - e-Poster 34: Sleep Disorders and Stress

Lurasidone Suppresses Rapid Eye Movement Sleep and Improves Sleep Quality in Rats

T. Murai[1], K. Nakamichi[1], I. Shimizu[1], K. Ikeda[1]

[1]Drug Development Research Laboratories, Sumitomo Dainippon Pharma Co.Ltd., Suita, Japan

Introduction: Patients with psychiatric disorders, including schizophrenia and bipolar disorder, are reported to suffer from sleep disorders.

Objective: To investigate the effects of lurasidone on sleep architecture in rats using sleep electroencephalography.

Methods: Seven adult male rats were used in this study. A pair of electrode wires was implanted in the dura of each rat and electromyograms were recorded from their dorsal neck muscles. Drugs were administered at the start of the lights-on period, and electroencephalograms (EEG)were recorded for 6 hours in individual soundproof boxes. The course of sleep in rats has been classified into 3 stages: WAKE, non-REM (NREM) sleep and rapid eye movement (REM) sleep. Total NREM duration, REM duration, and latencies to the initial REM and NREM were calculated. In addition, the number and mean duration of bouts in every 2-hour period were calculated in each stage. EEG power in each of the following frequency bands during NREM sleep was quantified: delta (0.5-4 Hz), theta (4-8 Hz), alpha (8-12 Hz), beta (12-30 Hz) and gamma (30-80 Hz).

Results: Lurasidone shortened REM sleep duration and prolonged the mean duration of one bout in WAKE and NREM sleep. Quantitative frequency analyses during NREM sleep revealed that lurasidone increases slow waves and decreases fast waves. The serotonin 5-HT_{1A} receptor partial agonist, tandospirone, and selective serotonin 5-HT_7 receptor antagonist, SB-258741, also exhibited REM-inhibitory effects similar to those of lurasidone.
Conclusion: These results suggest that lurasidone ameliorates sleep disorders associated with psychosis through, at least partly, serotonin 5-HT_{1A} and serotonin 5-HT_7 receptors.

https://doi.org/10.1016/S0924-9338(15)31371-7 Published online by Cambridge University Press