COGNITIVE DYSFUNCTION, SLEEP-WAKE CYCLE ALTERATIONS, AND AUTONOMIC ACTIVITY IN PATIENTS WITH MILD COGNITIVE IMPAIRMENT

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Introduction: Autonomic system imbalance favoring sympathetic activity could be a link between sleep abnormalities and cognitive dysfunction in MCI.

Aims: To characterize the relationship between severity of cognitive impairment, autonomic dysfunction and sleep-wake cycle disturbances in amnestic MCI patients.

Methods: Fourteen MCI patients were assessed with a Mini-Mental Status Examination and an Addenbrooke Cognitive Examination, a Pittsburgh sleep quality scale, and Epworth diurnal somnolence test. 24-h sleep/wake activity was quantified with wrist accelerometers. Peripheral autonomic activity in the 24-h cycle was estimated with linear and nonlinear parameters of heart rate variability (HRV). Measures included heart rate, global HRV; low-frequency HRV (influenced by sympathetic and vagal activity), high-frequency HRV (reflecting primarily parasympathetic activity), and non-linear HRV in the form of Approximate Entropy (ApEn, primarily related to parasympathetic output).

Results: A Spearman’s rho test detected a significant association between sleep efficiency and ApEn (rho=0.648; p=0.012). Autonomic and sleep variables were not related with cognitive performance in this preliminary study.

Conclusions: In a sample of amnestic MCI individuals, sleep-wake pattern was related to the profile of peripheral autonomic activity but not to degree of cognitive impairment.