World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:18, No:09, 2024

The Relationship Between Sleep Characteristics and Cognitive Impairment in Patients with Alzheimer’s Disease

Authors : Peng Guo

Abstract : Objective: This study investigates the clinical characteristics of sleep disorders (SD) in patients with Alzheimer's disease (AD) and their relationship with cognitive impairment. Methods: According to the inclusion and exclusion criteria of AD, 460 AD patients were consecutively included in Beijing Tiantan Hospital from January 2016 to April 2022. Demographic data, including gender, age, age of onset, course of disease, years of education and body mass index, were collected. The Pittsburgh sleep quality index (PSQI) scale was used to evaluate the overall sleep status. AD patients with PSQI ≥7 was divided into AD with SD (AD-SD) group, and those with PSQI < 7 were divided into AD with no SD (AD-nSD) group. The overall cognitive function of AD patients was evaluated by the scales of Mini-mental state examination (MMSE) and Montreal cognitive assessment (MoCA), memory was evaluated by the AVLT-immediate recall, AVLT-delayed recall and CFT-delayed memory scales, the language was evaluated by BNT scale, visuospatial ability was evaluated by CFT-imitation, executive function was evaluated by Stroop-A, Stroop-B and Stroop-C scales, attention was evaluated by TMT-A, TMT-B, and SDMT scales. The correlation between cognitive function and PSQI score in AD-SD group was analyzed. Results: Among the 460 AD patients, 173 cases (37.61%) had SD. There was no significant difference in gender, age, age of onset, course of disease, years of education and body mass index between AD-SD and AD-nSD groups (P>0.05). The factors with significant difference in PSQI scale between AD-SD and AD-nSD groups include sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleeping medication and daytime dysfunction (P<0.05). Compared with AD-nSD group, the total scores of MMSE, MoCA, AVLT-immediate recall and CFT-imitation scales in AD-SD group were significantly lower□P□0.01□P□0.01□P□0.01□P□0.05□. In AD-SD group, subjective sleep quality was significantly and negatively correlated with the scores of MMSE, MoCA, AVLT-immediate recall and CFT-imitation scales (r=-0.277□P=0.000; r=-0.216□P=0.004; r=-0.253□P=0.001; r=-0.239, P=0.004), daytime dysfunction was significantly and negatively correlated with the score of AVLT-immediate recall scale (r=-0.160□P=0.043). Conclusion The incidence of AD-SD is 37.61%. AD-SD patients have worse subjective sleep quality, longer time to fall asleep, shorter sleep time, lower sleep efficiency, severer nighttime SD, more use of sleep medicine, and severer daytime dysfunction. The overall cognitive function, immediate recall and visuospatial ability of AD-SD patients are significantly impaired and are closely correlated with the decline of subjective sleep quality. The impairment of immediate recall is highly correlated with daytime dysfunction in AD-SD patients.

Keywords : Alzheimer's disease, sleep disorders, cognitive impairment, correlation
Conference Title : ICDAD 2024 : International Conference on Dementia and Alzheimer's Disease
Conference Location : Toronto, Canada
Conference Dates : September 19-20, 2024