Objectives: Rapid eye movement sleep behavior disorder (RBD) is highly associated with Lewy body disease (LBD) including Parkinson's disease (PD) and dementia with Lewy bodies (DLB). However, few studies have investigated the prevalence or association factors of RBD in Alzheimer's disease (AD).

Methods: Prevalence of RBD was diagnosed using the ICSD minimal criteria for clinical diagnosis of RBD. The prevalence and background characteristics of AD participants with RBD (RBD +) were compared to those without RBD (RBD–). Clinical manifestation for DLB including fluctuation in cognition, visual hallucinations (VHs), and parkinsonism were compared and summarized in Figure 1.

Results: This is a retrospective analysis of registration data from the History-based Artificial Intelligence Clinical Diagnosis of Dementia Syndrome (HAICDDS) in Show Chwan Healthcare System. A total of 3841 patients were studied. Among them, 344 patients had RBD (9.0%). The RBD+ group was younger ($p< 0.001$), male predominance ($p< 0.001$), has lower disease severity according to sum of boxes of the CDR (CDR-SB; $p = 0.001$), better cognition according to MoCA ($p< 0.001$), and better ADL function according to HAIADL ($p= 0.004$). However, total Neuropsychiatric Inventory (NPI) score ($p< 0.001$) was higher in the RBD+ group. In addition, hypertension ($p= 0.026$) and dyslipidemia ($p= 0.007$) was associated with RBD in AD. After adjusting for age, sex, education, and disease severity, clinical features for the diagnosis of DLB including fluctuations in cognition (OR= 1.7; $p< 0.001$), VHs (OR= 1.7; $p= 0.003$), and parkinsonism (OR= 1.8; $p< 0.001$) were higher in the RBD+ group [Figure 1].

Conclusion: RBD has less occurrence rate (less than 10%) among people with AD compared to those with PD or DLB. Based on the findings of diagnostic features for DLB being significantly associated with RBD in AD, mixed pathology with DLB should be considered in AD comorbid with RBD.

中文題目：阿茲海默症失智症中的快速動眼睡眠行為障礙

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