Objective:
Idiopathic REM sleep behavior disorder (iRBD) has been recognized as a prodromal marker of neurodegenerative disorders, particularly Parkinson's disease (PD). Previous studies have reported that up to 80% of patients with iRBD convert to PD within 10 years. However, conversion rates vary widely across studies, and local data from Taiwan remain limited. We aimed to determine the conversion rate in our population and to identify potential risk factors associated with PD conversion.

Methods:
We retrospectively reviewed patients who underwent polysomnography (PSG) at the Sleep Center of National Taiwan University Hospital between January 2015 and September 2025 for evaluation of involuntary movements during sleep. Participants younger than 40 years were excluded due to the low risk of neurodegenerative disorders. Demographic characteristics, including age at evaluation and age at symptom onset, as well as clinical features, were extracted from medical records. Participants with PSG-confirmed RBD and without prior diagnoses of neurodegenerative disorders were classified as iRBD, while those without RBD served as non-RBD controls. For PSG-confirmed participants without neurological follow-up, additional evaluations were conducted by neurologists.

Results:
A total of 118 participants with complete PSG data were included: 55 with iRBD, 28 with obstructive sleep apnea (OSA), 15 with periodic limb movement disorder (PLMD), 1 with restless leg syndrome (RLS), 4 with PD, 4 with multiple system atrophy (MSA), and 7 with miscellaneous diagnoses. Compared with the non-iRBD group, patients with iRBD were older (70.9 ± 1.19 vs. 61.24 ± 1.66 years, $p < 0.001$) and had a longer follow-up duration (6.23 ± 0.64 vs. 3.69 ± 0.45 years, $p = 0.0015$). The iRBD group demonstrated a significantly higher conversion rate to PD ($p = 0.01$) and a greater prevalence of subjective cognitive impairment (SCI, $p < 0.001$) and constipation ($p = 0.0348$). Kaplan–Meier analysis revealed a 10-year PD conversion rate of approximately 31.1% (log-rank test, $p = 0.05$). In multivariate Cox regression analysis within the iRBD group, constipation showed a trend toward increased risk of PD conversion (HR = 4.782, $p = 0.094$), whereas comorbid OSA severity and metabolic syndrome were not significant predictors.

Conclusion:
iRBD represents a critical prodromal marker for PD conversion. The presence of

constipation may further indicate an elevated risk of PD conversion among PSG-confirmed iRBD patients. In contrast, comorbid OSA severity did not influence the risk of conversion in this cohort.

中文題目： 快速動眼期與神經退化性疾病風險：台灣單一中心縱向觀察性研究

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