

AAN 77th ANNUAL MEETING ABSTRACT

Media Contacts:

Renee Tessman, rtessman@aan.com, (612) 928-6137

Natalie Conrad, nconrad@aan.com, (612) 283-5484

EMBARGOED FOR RELEASE UNTIL 4 P.M. ET, SUNDAY, MARCH 2, 2025

Abstract Title: Obstructive Sleep Apnea is a Risk Factor for Parkinson's Disease and CPAP Mitigates Risk of PD: An EHR-based Cohort Study in Military Veterans

Press Release Title: Sleep apnea linked to increased risk of Parkinson's, but CPAP may reduce risk
Risk reduced if treatment started within two years of diagnosis

Authors: Isabella Montano¹, Jasmine L. May¹, Lee Neilson¹, Yeilim Cho², Jeffrey Iliff², Jonathan E. Elliott¹, Gregory Scott¹, Miranda Lim¹

¹VA Portland Health Care System, ²VA Puget Sound Health Care System

Objective: To measure the risk of Parkinson's Disease (PD) in those with obstructive sleep apnea (OSA) and evaluate the impact of early versus late Continuous Positive Airway Pressure (CPAP) treatment.

Background: Previous studies have shown an association between OSA and various synucleinopathies, but a causal link between OSA and PD is unknown. This study evaluated OSA as a potential risk factor for PD by leveraging the VA Corporate Data Warehouse (CDW) spanning 20+ years and 20+ million Veterans.

Design/Methods: OSA was defined by ICD-10 code G47.33 (OSA+). Outcomes included PD and death from any cause. We validated PD diagnosis previously using 2 case definitions (PPV 76% and 90%; PMID 37309872). CPAP use was determined using HealthFactor field, a semi-structured field containing data from medical interviews. Only 9.9% of Veterans had mentions of CPAP in this field (CPAP+); therefore, individuals missing HealthFactor data were excluded from the secondary CPAP analysis. "CPAP+ Early" was defined as mentions of CPAP within 2 years of OSA diagnosis; "CPAP+ Late" indicated >2 years since OSA diagnosis.

Results: 1,552,505 OSA+ and 9,759,246 OSA- Veterans were identified. After Inverted Probability Treatment Weighting analysis, balancing of birthyear/age, sex, smoking status, race, ethnicity, pseudo-randomization by covariates, and adjustment for competing risk of death, OSA+ was associated with a significantly increased incidence of PD with 1.8 [1.4, 2.3] 95% confidence intervals, $p < 0.001$) extra cases of PD per 1000 people at 5 years after OSA onset. "CPAP+ Late" had a similar incidence of PD to CPAP-. In contrast, "CPAP+ Early" had significantly lower incidence of PD, with a reduction of 2.3 cases of PD ($p < 0.001$) 5 years after OSA.

Conclusions: Results indicate that OSA may be an important, modifiable risk factor for the development of PD and potentially other synucleinopathies.

Study Support: VA BLRD Merit Award #I01 BX006155 (ML), DoD CDMRP Parkinsons Research Program Award PD230110 (JE), VA CSRD CDA Award IK2 CX002539 (LN) VA BLRD CDA Award IK2 BX005760 (GS)