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### Authors

Molnar, Miklos Z  
Mucsi, Istvan  
Novak, Marta  
[et al.](#)

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## CHRONIC KIDNEY DISEASE. CLINICAL EPIDEMIOLOGY - 1

### FP319 ASSOCIATION BETWEEN INCIDENT OBSTRUCTIVE SLEEP APNEA AND INCIDENT CHRONIC KIDNEY DISEASE

Miklos Z Molnar<sup>1</sup>, Istvan Mucsi<sup>2</sup>, Marta Novak<sup>3</sup>, Jennie Z Ma<sup>4</sup>, Jun L Lu<sup>1</sup>, Kamyar Kalantar-Zadeh<sup>5</sup> and Csaba P Kovacs<sup>6,1</sup>

<sup>1</sup>University of Tennessee Health Science Center, Division of Nephrology, Department of Medicine, Memphis, TN, <sup>2</sup>University Health Network, University of Toronto, Division of Nephrology, Toronto, ON, Canada, <sup>3</sup>University Health Network, University of Toronto, Dept. of Psychiatry, Toronto, ON, Canada, <sup>4</sup>University of Virginia, Charlottesville, Division of Nephrology, Charlottesville, VA, <sup>5</sup>University of California, Irvine, Nephrology, Orange, CA, <sup>6</sup>Memphis Veterans Affairs Medical Center, Nephrology, Memphis, TN

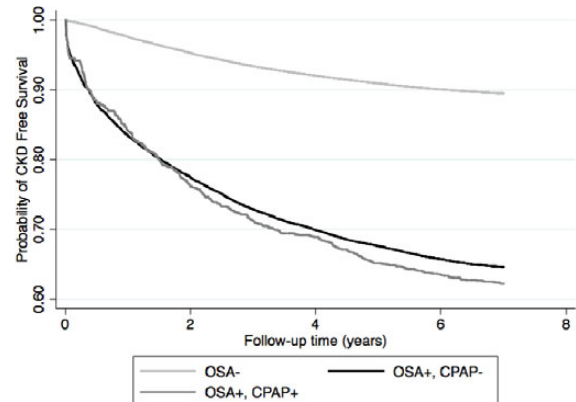
**Introduction and Aims:** Obstructive sleep apnea (OSA) is one of the most common sleep disorders in the general population, however its long-term renal consequences are unclear. We hypothesized that incident OSA (with/without continuous positive airway pressure (CPAP) treatment) would be associated with higher risk of incident chronic kidney disease (CKD) in more than 3 million US Veterans.

**Methods:** In a nationally representative cohort of 3,056,272 OSA negative (OSA-), 21,764 incident, untreated OSA positive (OSA+/CPAP-) and 1,478 incident, CPAP treated OSA positive (OSA+/CPAP+) US Veterans with normal baseline estimated glomerular filtration rate (eGFR), we examined the association of incident OSA with: (1) incidence of decreased kidney function (defined as eGFR <60 ml/min/1.73m<sup>2</sup> and 25% decrease in eGFR) and (2) rate of kidney function decline (slopes of eGFR during the follow-up period). Steeper slopes of eGFR were defined as an eGFR decline of more than 5 ml/min/1.73m<sup>2</sup>/year. Associations were examined in crude and adjusted time-dependent (OSA as time-dependent exposure) Cox models (for time-to-event analyses) and logistic regression models (for slopes), with sequential adjustments for demographic characteristics, baseline eGFR, co-morbidities, blood pressure, body mass, and markers of socioeconomic status, adherence with medical interventions and

medication use.

**Results:** The patients' age was 61±14 (mean±SD) years, 17% were black and 93% male, and the baseline eGFR was 84±15 ml/min/1.73m<sup>2</sup>.

Compared to OSA- patients, OSA+/CPAP- and OSA+/CPAP+ patients had 2.3- and 2.8- fold higher risk of incident CKD (fully adjusted hazard ratio (aHR), 95%CI: 2.27 (2.19-2.36) and 2.78 (2.45-3.13)), respectively (Figure).



In addition, compared to OSA- patients, OSA+/CPAP- and OSA+/CPAP+ patients had 31% (adjusted odds ratio, 95%CI: 1.31 (1.13-1.51)) and 28% (adjusted odds ratio, 95%CI: 1.28 (1.09-1.50)) higher risk of steeper slopes of eGFR.

**Conclusions:** Incident OSA is associated with incidence of decreased kidney function and progressive loss of kidney function. Randomized controlled trials are warranted to determine whether adequate treatment of OSA can prevent the development and progression of CKD.