

Obstructive Sleep Apnea, Nocturia and Polyuria in Older Adults

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Study Objective: The purpose of this study was to examine the relationship between nocturia and obstructive sleep apnea (OSA) in community dwelling older men and women

Design: A repeated measures design was employed over a 24-hour period.

Setting: The study was conducted in a clinical research center.

Participants: Thirty community-dwelling elders (mean age=65.5, SD=8.4 years) with symptoms of nocturia and sleep disordered breathing, volunteered to participate. Both men (n=13) and women (n=17) and minority subjects (African-Americans, n=19; Caucasian, n=11) were included in the study.

Interventions: NA

Measurements: Blood specimens were collected every 4 hours, except for an 8-hour collection period overnight. Urine specimens were collected ad libitum and at the end of each data collection interval. Urine and blood specimens were analyzed for ANP and AVP content. Polysomnography was conducted using a full 18-channel montage. Apnea was defined as a

decrease in airflow of $\geq 90\%$ for a minimum of 10 seconds. Hypopnea was defined as $\geq 30\%$ decrease in airflow and desaturations required a $\geq 3\%$ decrease in oxygen saturation for a minimum of 10 seconds. The apnea hypopnea index (AHI) was calculated as the sum of apneas and hypopneas divided by hours of sleep.

Results: Twenty of the thirty subjects were found to have clinically diagnosable OSA (AHI ≥ 5). AVP excretion was not correlated with changes in AHI levels. Conversely, total urine output, plasma ANP and urine ANP excretion were significantly higher among subjects with higher AHI levels (>15).

Conclusion: In subjects with elevated AHI (>15), nighttime urine production and ANP excretion are elevated.

Key Words: obstructive sleep apnea, polyuria, homeostasis, atrial natriuretic factor, vasopressin, nocturia

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