

## ASSOCIATION OF NOCTURIA WITH POOR FUNCTIONAL OUTCOMES OF SLEEP AMONG A POPULATION-BASED SAMPLE OF MEN AND WOMEN

### Hypothesis / aims of study

Nocturia is believed to have adverse effects on sleep quality, but little is known about which adults with nocturia are at greatest risk of suffering adverse outcomes from sleep disruption [1,2]. We evaluated the relationship between nocturia and functional outcomes of sleep among men and women aged 20 to 80+ years.

### Study design, materials and methods

Data were merged from the 2005-2006 and 2007-2008 National Health and Nutrition Examination Survey, a nationally representative survey of the US non-institutionalized population. To assess nocturia frequency, respondents chose a whole number 0-4 or "5 or more" to the question: "During the past 30 days, how many times per night did you most typically get up to urinate, from the time you went to bed at night until the time you got up in the morning?". The impact of sleep disturbance was assessed using the Functional Outcomes of Sleep Questionnaire General Productivity weighted subscale (FOSQ-gp), ranging from 1-4 with lower scores indicating worse daytime function related to sleep disturbance. Potential confounders included: age; race/ethnicity; body mass index; and self-reported comorbid conditions. Analyses included weighted prevalence estimates of nocturia according to gender and age categories and gender stratified analyses using multivariate linear regression to calculate estimates for the association of nocturia with a functional measure of sleep. Interactions with age categories were explored to evaluate associations among different generations.

### Results

Of the 10,512 adults aged  $\geq 20$  who completed the survey, 9,148 (87%) had complete nocturia and FOSQ-gp data. The prevalence of nocturia occurring at least twice per night was 21.1% among men and 26.6% among women ( $p < 0.001$ ) and increased with age ( $p < 0.001$ ). The mean FOSQ-gp score was 3.5, with women reporting lower FOSQ-gp scores than men (3.4 vs 3.6,  $p < 0.001$ ). Multivariate linear regression revealed an association between nocturia and poor FOSQ-gp scores among men that was significantly worse among middle-aged and older men (FOSQ-gp scores decreased among 20-45 year olds by 0.04, ages 46-65 decreased by 0.11, and 66 and older decreased by 0.18 per nocturia episode) ( $P$  for interaction = 0.03). Among women, nocturia was associated with a 0.11 decrease in the FOSQ-gp per nocturia episode ( $p < 0.001$ ) and this result did not vary significantly by age ( $P$  for interaction = 0.4).

### Interpretation of results

In a population-based sample of men and women, those with more frequent nocturia experienced significantly worse daytime sleep-related function assessed by a validated measure. The association between nocturia and poor daytime sleep-related function was more pronounced with increasing age.

### Concluding message

Interventions to reduce the burden of nocturia should focus on middle-aged and older men and women.

### References

1. Bliwise DL, Rosen RC, Baum N. Impact of Nocturia on Sleep and Quality of Life: A Brief, Selected Review for the International Consultation on Incontinence Research Society (ICI-RS) Nocturia Think Tank. *Neurouro Urodyn* 2014;33:S15-S18.
2. Asplund R, Aberg H. Nocturnal micturition, sleep and well-being in women of ages 40-64. *Maturitas* 1996;24:73-81.

### Disclosures

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