111

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ETIOLOGY OF NOCTURIA IN ELDERLY MEN

Hypothesis / aims of study
Nocturia is one of the most common and bothersome of urologic symptoms. Specifically, it is a major complaint in the geriatric population. Our study aims to explore the impact age has on variables of nocturia in men, as gleaned by analysis of frequency volume charts (FVCs).

Study design, materials and methods
A retrospective review from 2009 to 2014 was performed at a Veterans Affairs-based urology clinic among 275 adult men 18 years or older with a chief complaint of nocturia who completed a 24-hour FVC. Actual number of nocturnal voids (ANV), nocturnal urine volume (NUV), nocturia index (Ni, NUV/maximum voided volume [MVV]), nocturnal polyuria index (NPi, NUV/24 hour volume), nocturnal urine production (NUP, NUV/hours of sleep), nocturnal maximum voided volume (nMVV, greatest recorded voided volume during hours of sleep), nocturnal bladder capacity index (NBCi, ANV – PNV, predicted number night voids [Ni-1]) and urge perception grade (UPG, scale 0-4) were derived from the FVCs. Subjects were stratified into age tertiles <65, 65-75, and >75. One-way analysis of variance (ANOVA) was performed using SPSS software followed by least significant difference post hoc tests. Power analysis was determined post-hoc through SPSS using a univariate model reporting the expression "observed power".

Results
We examined the effects of age on ANV, MVV, NUV, nMVV, Ni, NBCi, NPi, and UPG. Two hundred seventy five adult men (mean age 69 years; range, 22-94) completed a 24-hour FVC. There was no statistical difference between age categories in ANV (mean 2.85 vs 2.34 vs. 2.88, P = 0.09), NUV in mL (734 vs 723 vs 730, p = .98), NUP in ml/hr (95.6 vs 89.7 vs 87.9, P = 0.67), nMVV in mL (238 vs 278 vs 240, p = 0.11), Ni (2.40 vs 2.35 vs 2.70, p = 0.14), or UPG (2.29 vs 2.16 vs. 2.08, p=0.34). However, significant age-related differences existed among the following parameters: MVV in mL (333 vs 312 vs 269, p<0.05 for <65 vs >75, and 65-75 vs >75), NPi (0.32 vs 0.37 vs 0.43, p<0.05 for all), and NBCi (1.45 vs 0.99 vs 1.17 p < 0.05 for <65 vs 65-75). Power analysis for variables with significant differences yielded post-hoc observed power of 0.994 for MVV, 0.71 for NPi, and 1.0 for NBCi.

Interpretation of results
In an aging male population, increases in nocturnal urine production as a function of 24 hour urine output plays an important role in the etiology of nocturia. Further, reduced global bladder capacity associated with aging appears to be a pivotal component in the etiology of nocturia in elderly men.

Concluding message
Evidence suggests that nocturnal urine production and bladder capacity constitute the principal therapeutic targets for nocturia in aging men.

Disclosures
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