

SUMMARY

This PhD thesis includes 5 manuscripts and a review. Studies were done during my employment as a Research Fellow at the Department of Obstetrics and Gynecology at Glostrup County Hospital, University of Copenhagen, Denmark.

Nocturia, defined as waking at night to void, is a common symptom in the elderly, and associated with increased morbidity and mortality. The relation is complex and few population studies have evaluated the severity of nocturia, quality of life, and associated factors in nocturics. Obstructive sleep apnea (OSA) is associated with nocturia; however, the risk of OSA in an elderly population with nocturia remains unclear.

A population study was performed in 2000 women and 2000 men aged 60–80 years, who were selected at random from the Danish Civil registration System (CPR), and living in Copenhagen County. The aims were to evaluate the prevalence of nocturia and potential associated morbidity. Subsequently, participants in the population study were randomly selected for participation in a case-control study, aimed at evaluating the occurrence of lower urinary tract symptoms, clinical findings, urodynamic observations, and the risk of having OSA in participants with nocturia twice or more (nocturics) vs. those without nocturia (controls). For the clinical work-up of nocturics we applied the guidelines recommended by the International Continence Society (ICS).

Validity and reliability of the questionnaire were assessed; the majority of questions were valid and reliable over time. The prevalence of nocturia was 77% in the population study. Overall, no gender difference was observed; however, nocturia twice or more was more common in men. Nocturia was the most common cause of waking at night. Bother from nocturia increased with increasing frequency of nocturia. Gender, age, BMI, hypertension, lung disease, diabetes, urinary incontinence, and recurrent cystitis were associated with nocturia in an ordinal regression model. Smoking was inversely associated with nocturia.

In the case-control study, 100 women and 50 men were studied, half were nocturics. There was no significant association between nocturia and OSA. Results from 3-day frequency volume charts did not show gender difference with respect to frequency of nocturnal polyuria, low bladder capacity, the combination of nocturnal polyuria/low bladder capacity, or polyuria. Significantly more nocturics than controls had nocturnal polyuria, but there were no significant differences in other pathophysiological causes of nocturia. Urodynamic observations in nocturics demonstrated significant gender differences. Detrusor overactivity without incontinence was observed in 4% of the women and 64% of the men. Detrusor overactivity with incontinence was observed in 26% of the women and 8% of the men. Mixed urinary incontinence was observed in 14% of women. Bladder outlet obstruction was found in 32% of the men. Based on the entire clinical work-up we were able to categorize the most likely causes of nocturia in 96% of the nocturics. Thus, nocturnal polyuria was estimated as the primary cause in 32%, overactive bladder in 17%, and nocturnal polyuria and overactive bladder in combination in 25%. Polyuria alone, and in combination with overactive bladder or nocturnal polyuria accounted for 21%.