

NOCTURIA IN RELATION TO SLEEP QUALITY IN AN UNSELECTED POPULATION OF WOMEN AND MEN AGED 60-80 YEARS IN DENMARK.

Aims of study

To investigate the association between nocturia and selected sleep quality variables in an unselected population of women and men aged 60-80 years in Denmark.

Methods

A postal questionnaire was sent to 2000 women and 2000 men aged 60, 65, 70, 75, and 80 years. The population was selected at random from The Danish Civil Registration System (CPR), in which every person living in Denmark is identified by a unique ten digit number. Since no validated questionnaire addressing nocturia was available, a new questionnaire addressing nocturia and associated factors was generated and tested. Questions on sleep quality were based on questions from Basic Nordic Sleep Questionnaire (BNSQ) (1). Answer categories were dichotomized before statistical analysis. Nocturia was defined as waking up at night to void (ICS 2002). This study focus on the association between nocturia and selected sleep variables.

Results

Out of 4000 questionnaires sent, a total of 1825 women and 1839 men returned the questionnaire (91%). Of these, 2799 (70%) were fully evaluable on nocturia. With increasing number of nocturnal voids there was an increase in the frequency of respondents reporting affected sleep quality, leg cramps and use of sleeping pills (table 1), except for snoring and good sleep. Good sleep was reported by 88.5% who did not have nocturia and by 32.6% who reported nocturia \geq four times per night. The results from the logistic regression, controlling for age and gender, in all investigated variables are presented in table 2. There were significant associations between the frequency of nocturnal voids and all the investigated sleep quality variables (difficulties falling asleep, wake up too early in the morning, excessively sleepy during morning and daytime, sleep length \leq 6 hours, nap during daytime, length of nap, snoring, good sleep, leg cramps during evening and night time, and taking sleeping pills).

Table 1: The percentage of subjects reporting affected sleep quality by nocturia severity.

Sleep variables	Nocturia severity (no. of nocturnal voids, %)					Total
	None	One	Two	Three	Four+	
Difficulties falling asleep (\geq 1/week)	7.8	9.9	16.0	21.2	29.7	12.5
Wake up too early in the morning (\geq 1/week)	12.9	17.2	24.1	30.8	40.7	19.8
Excessively sleepy in the morning (\geq 1/week)	6.9	9.6	14.8	24.6	45.6	12.7
Excessively sleepy during daytime (\geq 1/week)	8.0	10.8	16.7	29.2	47.8	14.4
Sleep \leq 6 hours per night	17.5	19.3	23.2	26.9	45.7	21.3
Take a nap during daytime (\geq 1/week)	22.0	29.3	40.7	46.4	46.7	32.4
Length of nap during daytime \geq 30 minutes	22.1	26.3	35.5	38.2	43.3	29.2
Snoring	52.2	52.9	55.1	58.0	53.5	53.7
Good sleep	88.5	83.6	73.5	56.0	32.6	78.2
Leg cramps during the evening	9.3	13.8	21.6	22.4	40.3	16.1
Leg cramps while sleeping	14.1	21.9	31.0	35.3	49.4	24.3
Use of sleeping pills within the past 2 weeks	9.3	10.3	14.5	18.1	23.0	12.1

Table 2: Sleep variables versus the number of nocturnal voids controlled for age and gender (OR; 95% CI).

Sleep variables	OR	(95% CI	p
Difficulties falling asleep (≥ 1 /week)	1.60	(1.44-1.79)	<0.0001
Wake up too early in the morning (≥ 1 /week)	1.49	(1.36-1.64)	<0.0001
Excessively sleepy in the morning (≥ 1 /week)	1.83	(1.64-2.04)	<0.0001
Excessively sleepy during daytime (≥ 1 /week)	1.78	(1.60-1.98)	<0.0001
Sleep ≤ 6 hours per night	1.31	(1.20-1.43)	<0.0001
Take a nap during daytime (≥ 1 /week)	1.30	(1.20-1.41)	<0.0001
Length of nap during daytime ≥ 30 minutes	1.27	(1.17-1.38)	<0.0001
Snoring	1.13	(1.04-1.22)	0.0033
Good sleep	0.49	(0.44-0.54)	<0.0001
Leg cramps during in the evening	1.55	(1.40-1.73)	<0.0001
Leg cramps while sleeping	1.52	(1.38-1.66)	<0.0001
Sleeping pills within the past 2 weeks	1.27	1.13-1.43)	0.0001

Interpretation of results

Nocturia is common in the elderly and has been reported to be the most frequent reason to wake up at night (2). Also the prevalence of sleep disorders increase with age. Our results show that there is a strong association between the severity of nocturia and affected sleep quality. Although, the cross sectional design of the study does not give us any causality of nocturia in relation to sleep quality. Nocturia is often reported to be secondary to medical disorders, but there is a possibility that complaints of nocturia may be a result of awakenings from sleep caused by sleep disorders.

Conclusions

Our results show a strong association between nocturia and affected sleep quality, controlled for age and gender.

References

1. J Sleep Res, 1995; 4 (suppl. 1).
2. ICS 2003, proceedings, abstract 177.

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