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IMPACT OF NOCTURIA ON DISEASE-SPECIFIC QUALITY OF LIFE FOR MEN WITH LOCALIZED PROSTATE CANCER

Hypothesis / aims of study
To date, the impact of nocturia on disease-specific health-related quality of life (HRQOL) in prostate cancer patients has rarely been reported and is one of the factors often not well-described in HRQOL outcomes studies. We assessed the impact of nocturia on the general and disease specific HRQOL for men with localized prostate cancer.

Study design, materials and methods
A total of 591 men with prostate cancer were enrolled to our study before primary treatment. We evaluated general HRQOL with the Short Form 36-Item Health Survey (SF-36). The prostate specific HRQOL was assessed with the University of California, Los Angeles Prostate Cancer Index (PCI). Night-time urinary frequency was assessed by the seventh score of the International Prostate Symptom Score.

Results
Of the 581 men, 47 (8%) men reported no nocturia, while 189 (32%) were categorized with one void per night and 345 (59%) with two or more voids per night. Disease-specific HRQOL, including urinary function, bowel function and sexual function, was negatively associated with increase of frequency of nocturia. The scores of the subjects who reported two or more voids per night were significantly lower than those with no nocturia or one void per night in physical function, physical role functioning, general health, vitality and emotional functioning. According to the PCI scores, disease-specific HRQOL including urinary function, urinary bother, bowel function, bowel bother and sexual function was negatively associated with increased frequency of nocturia adjusted for age, clinical stage, PSA and comorbidity count. The degree of urinary bother increased with the frequency of nocturia; 96, 93, 87 and 77 for no nocturia, one void per night, two voids per night and three or more voids per night, respectively. Based on the logistic regression, age, urinary function, bowel function and sexual function showed a strong association with frequency of nocturia (See Table).

Interpretation of results
Our study revealed that the frequency of nocturia had a negative effect on the disease specific HRQOL such as urinary continence, bowel and sexual status. Moreover, patients with at least two episodes of nocturia per night showed impaired disease specific HRQOL as well as general HRQOL compared to those with no nocturia. Nocturia is a multifactorial condition with many possible contributing etiological factors, which has a negative influence on HRQOL. Our results provide new insights into the impact of nocturia on the urinary continence status and bowel function as well as sexual function for subjects with localized prostate cancer.

Concluding message
We found a strong association between the frequency of nocturia and disease specific HRQOL as well as general HRQOL. Increased severity of nocturia is negatively correlated with overall health status and HRQOL outcomes.

Table: Factors associated with frequency of nocturia, using univariate and multivariate proportional odds model.

	Unadjusted			Adjusted		
	OR (95%CI)		p value	OR (95%CI)		p value
Age						
-60	reference			reference		
60-64	1.32	(0.73-2.38)	0.362	1.11	(0.60-2.04)	0.748
65-69	2.98	(1.69-5.25)	<0.001	2.43	(1.35-4.39)	0.003
70-74	3.71	(2.08-6.62)	<0.001	2.45	(1.31-4.56)	0.005
75-	6.59	(3.17-13.70)	<0.001	4.59	(2.09-10.07)	<0.001
Clinical stage						
T1	reference			reference		
T2	1.49	(1.04-2.15)	0.031	1.46	(0.99-2.16)	0.056
T3-4	1.25	(0.80-1.94)	0.336	0.97	(0.55-1.71)	0.920
Gleason Score						
less than 7	reference			reference		
7	0.82	(0.50-1.36)	0.448	0.88	(0.51-1.51)	0.634
more than 8	1.24	(0.69-2.23)	0.481	1.59	(0.83-3.04)	0.159
PSA (ng / ml)						
<20 vs. ≥20	1.56	(0.39-2.84)	0.057	1.33	(0.76-2.33)	0.323
Comorbidity counts						
0	reference			reference		
1	1.52	(1.05-2.21)	0.029	1.18	(0.79-1.77)	0.407
2≤	1.98	(1.30-3.03)	0.002	1.47	(0.93-2.31)	0.098
Urinary function						
<80 vs. ≥80	3.50	(1.94-6.31)	<.0001	2.43	(1.31-4.53)	0.005
Bowel function						
<80 vs. ≥80	2.58	(1.65-4.04)	<.0001	2.19	(1.36-3.52)	0.001
Sexual function						
≤30 vs. >30	2.28	(1.64-3.17)	<.0001	1.60	(1.11-2.31)	0.013

* OR: odds ratio; CI: confidence interval

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Is this study registered in a public clinical trials registry?	**No**
Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**2001-292**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**