

## **MORTALITY OF OUTPATIENTS WITH NOCTURIA IS NOT HIGHER THAN THAT OF THE JAPANESE POPULATION**

### Hypothesis / aims of study

Nocturia is a common lower urinary tract symptom (LUTS) that is associated with impaired quality of life (QOL). Although several epidemiological studies have reported increased mortality in people with nocturia [1], there is no data on the association between mortality and nocturia in outpatients. We compared the mortality of nocturic outpatients with that of a community population, determined the causes of death in nocturic patients, and evaluated risk factors for death using multivariate statistics.

### Study design, materials and methods

Two hundred fifty patients who attended the urology section of two general hospitals with a chief complaint of nocturia between October 2002 and December 2009 were enrolled in this study. The follow-up period was at least 1-9 years (median 5 years). Patient mortality was compared with the Japanese national mortality calculated from age and sex specific population estimates. We evaluated age at first visit, sex, body mass index (BMI), number of comorbidities and scores on several questionnaires administered at the first visit, to analyze correlates of mortality. Survival curves were obtained by the Kaplan–Meier method. We used Cox's proportional hazards model to assess risk factors for death.

### Results

We were able to follow 236 patients (94.4%) for 4–110 months (median 60.9 months); 34 patients (14.4%) died during that period. The 2- and 5-year survival rates of the patients with nocturia were 96.4% (95%CI=94.0–98.9) and 88.8% (95%CI=84.2–93.4), respectively. The 2-year mortality of the nocturic patients was significantly lower than that of the Japanese population, though there were no significant differences at other years (Fig 1). Lower BMI was a significant correlate of mortality on multivariate analysis ( $p=0.002$ ; odds ratio [OR]=0.756 [95%CI=0.632–0.904]), and greater age at first visit was a marginal correlate of mortality ( $p=0.050$ ; OR=1.078 [95%CI=1.000–1.162]) (Table.1).

### Interpretation of results

In previous studies, nocturia seems to contribute to high mortality, but most of these were community based [1]. Their authors indicate that people with nocturia tend to die early because they suffer other conditions such as cardiovascular disease or bone fracture. However, a recent study used a frequency–volume chart to suggest that the association between nocturia and mortality is explained by confounding factors such as age [2]. Our study shows that compared with age and sex matched members of the Japanese population, the association between nocturia and mortality in nocturic outpatients is unclear. This might suggest that the mortality of patients who attend large general hospitals is relatively low because they receive better health care than those in the general population. There have been reports that high BMI is a risk factor for nocturia [3]. In the present study, we found that low BMI was the only factor that increased mortality. This finding suggests that people with high BMI tend to be nocturic, but once they become nocturic those with lower BMI die early. There are no reports indicating BMI to be a correlate of death in nocturic people.

### Concluding message

The mortality of the nocturic outpatients in this study was not higher than that of the Japanese population. Low BMI was a risk factor for death. Because of the small number of patients and the lack of a control group without nocturia, further studies are needed to elucidate the epidemiology of nocturia.

Fig.1 Kaplan-Meier curves for nocturic patients

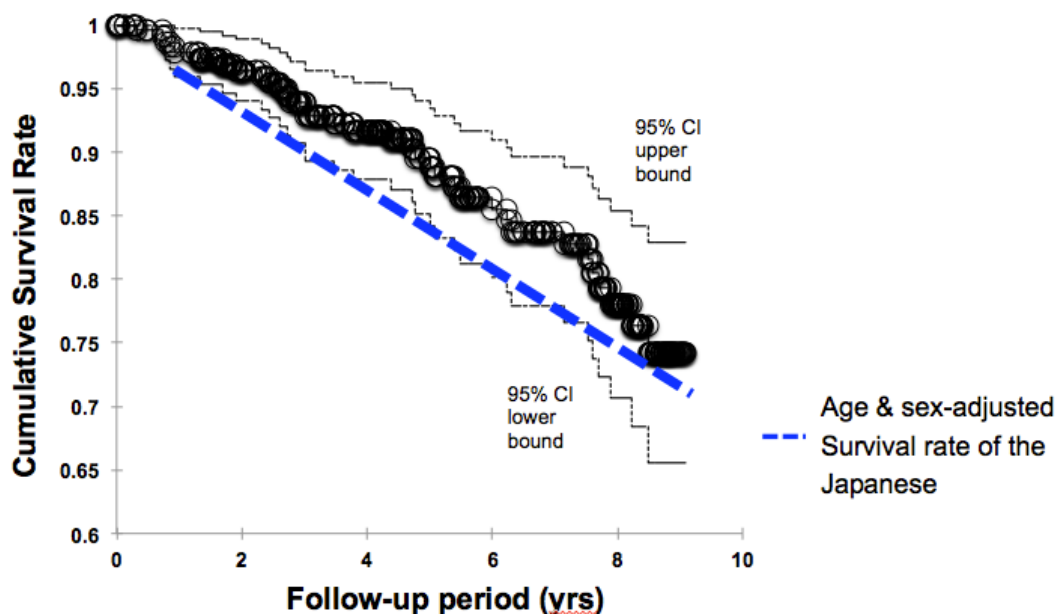


Table.1 Univariate and multivariate analysis of risk factors

	Univariate analysis OR (95% CI)	P value	Multivariate analysis OR (95% CI)	P value
Age at first visit	1.110 (1.056-1.167)	<0.0001	1.078 (1.000-1.162)	0.050
Female	0.464 (0.163-1.318)	0.149	0.609 (0.133-2.789)	0.409
<b>BMI</b>	<b>0.773 (0.681-0.877)</b>	<b>&lt;0.0001</b>	<b>0.756 (0.632-0.904)</b>	<b>0.002</b>
IPSS score 7 ≥ 4	1.825 (0.913-3.649)	0.089	0.646 (0.225-1.858)	0.418
IPSS total score	1.027 (0.981-1.076)	0.252		
IPSS QOL	1.242 (0.904-1.706)	0.180	0.954 (0.596-1.527)	0.843
SF-36 PCS	0.964 (0.938-0.990)	0.007	0.972(0.936-1.010)	0.148
SF-36 MCS	0.981 (0.943-1.021)	0.355		
SF-36 RCS	0.970 (0.947-0.994)	0.015	0.984 (0.958-1.011)	0.245
PSQI	0.989 (0.891-1.099)	0.842		
comorbidity ≥ 2	2.191 (1.106-4.341)	0.025	0.687 (0.271-1.740)	0.429

References

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Disclosures

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