

SEASONAL ALTERATIONS IN NOCTURIA AND OTHER STORAGE SYMPTOMS IN THREE JAPANESE COMMUNITIES

Hypothesis / aims of study

We conducted a community-based questionnaire study to uncover the relationship between climates and lower urinary tract symptoms.

Study design, materials and methods

Six thousand residents aged 41 to 70 years were randomly selected in three Japanese towns (Tobetsu in a subarctic zone, Kumiyama in a temperate zone, and Sashiki in a subtropical zone: Figure 1). A self-administered questionnaire, which included the International Prostate Symptom Score (I-PSS), and overall incontinence score in the International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF) was mailed to half the targets on the 15th, August, 2005, and the remaining half on the 13th, February, 2006. A logistic regression model was used for main statistical analysis with $p < 0.05$ considered significant.

Results

Average atmospheric temperatures from July to August 2005 were 20.4, 27.5, and 27.3 °C (68.7, 81.5, and 81.1 °F), and those from January to February 2006 were -4.4, 4.7, and 16.3 °C (24.1, 40.5, and 61.3 °F) in Tobetsu, Kumiyama, and Sashiki towns, respectively. A total of 1,124 (37.5%) responses to the summer study and 1,156 (38.5%) to the winter study were available for analysis. Usual use of an air conditioner during the night time in summer were reported from 2.5%, 57.4%, and 65.2% residents, and usual use of a heater during the night time in winter from 45.3%, 49.9%, and 11.0% residents were reported in Tobetsu, Kumiyama, and Sashiki towns, respectively. Overall, 67.9% of the participants answered once or more for night-time voidings, and 22.2% twice or more for night-time voidings. Of all scores of individual symptoms and QOL, three storage symptoms including frequency, urgency, and nocturia, demonstrated statistically significant differences between the two seasons (Figure 2). Multivariate logistic regression analysis revealed that winter was an independent risk factor of frequency (score of one or higher, $p < 0.0001$, odds ratio [OR]: 1.47, and score of two or higher, $p = 0.0089$, OR: 1.30), urgency (score of one or higher, $p = 0.0022$, OR: 1.38), and night-time voidings (score of two or higher, $p = 0.0012$, OR: 1.40). This tendency was marked in the subtropical zone but was not observed in the subarctic zone.

Interpretation of results

Storage symptoms, frequency, urgency and nocturia, were considerably affected by season. They worsened in winter compared to summer for the general population.

Concluding message

The findings suggest that epidemiologic studies focusing on the prevalence of lower urinary tract symptoms should take into consideration the impact of seasonal changes, especially in communities in warmer zones.

References

Figure 1

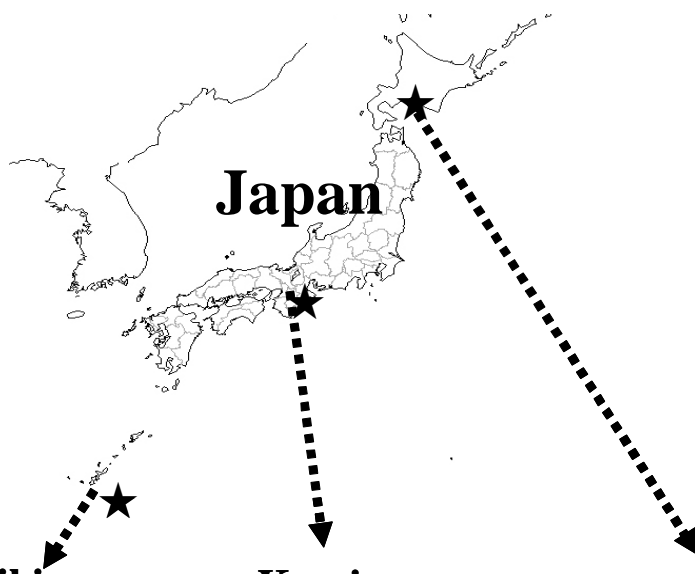
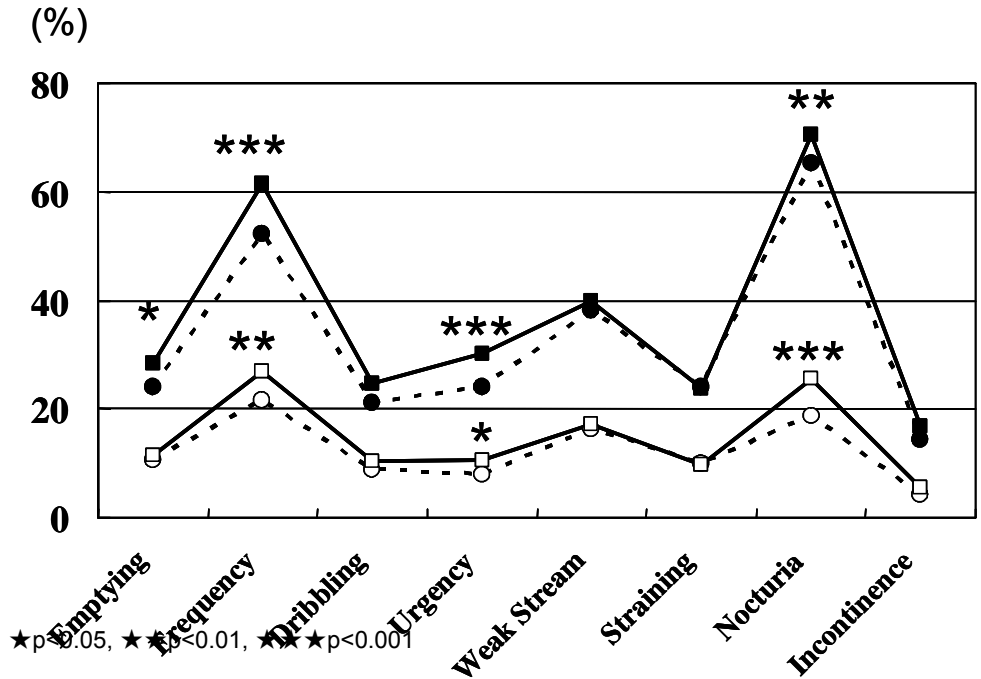


Figure 2



FUNDING: none

CLINICAL TRIAL REGISTRATION: This clinical trial has not yet been registered in a public clinical trials registry.

HUMAN SUBJECTS: This study was approved by the Kyoto University Ethical Committee and followed the Declaration of Helsinki Informed consent was obtained from the patients.