

INCIDENCE AND PREDICTORS OF URINARY INCONTINENCE IN COMMUNITY-DWELLING ELDERLY JAPANESE WOMEN: 4 YEAR FOLLOW-UP STUDY

Hypothesis / aims of study

Several factors such as age, childbirth, lower urinary tract infections, poor mobility, and cognitive impairment have been considered risk factors for the development of urinary incontinence (UI) (1,2). While studies investigating risk factors for UI are abundant, most are based on cross-sectional data and there are very few longitudinal studies published. Based on the multifactorial origin of UI, we hypothesized that the onset of UI would be associated with multiple factors such as BMI, physical function, hematological factors, chronic conditions, and lifestyle habits. The aim of this study was to determine the incidence and predictors of UI over four years in community-dwelling elderly women.

Study design, materials and methods

In 2008, a total of 1,287 community-dwelling older women over the age of 75 years participated in a comprehensive general health survey. Among them, 834 who did not have UI were followed for four years. Of the initial 834 people, 703 were successfully followed and were included in the analysis. Face-to-face interviews were conducted to assess UI conditions based on the modified International Consultation on Incontinence Questionnaire. UI was defined as those who experienced urine leakage episodes more than once per a week. At the follow-up survey in 2012, 144 people were defined as having UI. Information regarding chronic conditions, knee or lower back pain, falls, exercise habits, and other lifestyle factors were also obtained in the interview. Measures of body weight and height were converted to body mass index (BMI). Physical function measures such as normal and maximum walking speed, one leg standing time with eyes open, knee extension strength, and grip strength were assessed. The data was analyzed using t-tests for continuous variables, and chi-square tests for categorical variables to determine differences in baseline characteristics between women who developed UI and those who did not. Multivariate logistic regression models were used to assess the predictors of UI onset.

Results

The incidence of UI over four years was 20.5%. A greater percentage of people who developed UI had stated during the baseline interview, that they did not frequently go outdoors (11.1%) than those who did not have UI (3.9%, $P=0.001$). Furthermore, more elderly women with UI had knee osteoarthritis at baseline (28.5%) than those without (19.1%, $P=0.014$). The results showed that elderly women who developed UI had significantly lower BMI ($P<0.001$), slower usual and maximal walking speeds ($P<0.001$, for both), shorter one leg standing time ($P=0.001$), weaker knee extension strength ($P=0.002$), and grip strength ($P=0.035$) at baseline, than those who did not develop UI. Hematological analyses revealed that women who developed UI had significantly lower levels of albumin at baseline compared to those without UI ($P=0.001$). Multiple logistic regression analyses showed that both albumin levels (odds ratio=0.42, 95% confidence interval=0.18-0.98) and usual walking speed (0.21, 0.12-0.64) had protective effects from the development of UI. Low frequency of going outdoors on the other hand, was significantly predictive of the development of UI (3.01, 1.47-5.93).

Interpretation of results

The results revealed that those who developed UI had poorer muscle strength, mobility, lower albumin levels, and were more likely to refrain from going outdoors at baseline compared to those who did not develop UI. Greater walking speed was inversely associated with UI development, which confirms previously published studies (2). In this population, mobility was a stronger predictor of UI onset than other measures of physical function such as muscle strength and balance. The results also showed that greater plasma albumin level was inversely associated with UI development. Furthermore, those who had low frequency of going outdoors at baseline were three times more likely to develop UI than their counterparts. Interestingly, among the chronic conditions and lifestyle factors assessed, frequency of going outdoors was more predictive of UI onset than low back pain, or regular exercise habits.

Concluding message

Albumin levels, walking speed, and frequency of going outdoors were significant predictors of UI onset in community-dwelling elderly women. We plan to further investigate how these predictors would differ based on incidence of different UI types, amount of leakage, and in those with changed patterns of UI, or remission.

References

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Disclosures

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