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ASSOCIATION BETWEEN STORAGE SYMPTOMS AND THE INCIDENCE OF FALLS AND FALL-RELATED FRACTURE: A COMMUNITY-BASED STUDY THROUGH HOME-VISIT INTERVIEWS

Hypothesis / aims of study
Among elderly individuals, falls and fall-related fractures are the leading causes of conditions that entail long-term care; moreover, these conditions account for several admissions to geriatric facilities in Japan. It is therefore important to develop a fall prevention evaluation method and an effective intervention method to maintain health and independence. Storage symptoms are known to be associated with other problems for elderly individuals. However, few studies have compared the incidence rate of falls and fall-related fractures according to storage symptoms. The aim of the present study was to clarify the association between storage symptoms and the incidence of falls and fall-related fractures in community-dwelling elderly individuals.

Study design, materials and methods
This study was a comprehensive geriatric health survey of all residents, aged 65 years and above, of a village along the Sea of Japan, which was carried out between August and September 2012. The subjects were mailed self-administered questionnaires and the subsequent responses were validated through home-visit interviews. Trained interviewers performed face-to-face interviews with the subjects and confirmed all the answers in the questionnaire. We assessed the prevalence of 4 storage symptoms – daytime frequency, night-time frequency, urgency, and urgency urinary incontinence (UUI). For the purpose of this study, nocturia was defined as 2 or more voids per night. Overactive bladder (OAB) was defined as urgency occurring once a week or more and 8 or more episodes of urination per day; OAB wet was defined as UUI occurring once a week or more. We inquired regarding the incidence of falls and fall-related fractures over the past year. On the basis of the survey results, the subjects were divided into the non-fall, fall without fracture and fall-related fracture groups. The prevalence of the 4 storage symptoms were measured in each group, and the incidence rate of falls and fall-related fractures were assessed according to these symptoms. Statistical analysis of the data was conducted using the chi-square test.

Results
Of the 1103 Japanese subjects analysed (participation rate: 86.4%), 611 were female and 492 were male. The mean age was 75.8±7.3 years (range, 65–99 years). We placed 910(82.5%) subjects in the non-fall group and 161(14.6%) subjects in the fall without fracture group. The fall-related fracture group comprised 32(2.9%) subjects. Nocturia was present in 514 of 1103 subjects (46.6%). In this study, all residents who experienced urgency once a week or more had 8 or more episodes of urination per day. Among the 1103 subjects, OAB was present in 126(11.4 %), and OAB wet was present in 81(7.3%). Daytime frequency did not have any significant association with falls and fall-related fractures. However, night-time frequency, urgency and UUI were significantly associated with falls and fall-related fractures ($p<0.001$, respectively).The prevalence of nocturia, OAB and OAB wet were compared in each group. The fall-related group had the highest prevalence in all symptoms (Table1). The incidence rates for falls and fall-related fractures are shown in Figure1 and Figure2, respectively. The incidence rate of falls and fall-related fracture was significantly higher in individuals with nocturia, OAB, and OAB wet than in those without these symptoms. OAB wet was higher in both fall without fracture and fall-related fracture groups than that in the non-fall group.

Table1. The prevalence of storage symptoms in each group

	Non-fall group	Fall without fracture group	Fall-related fracture group
Nocturia	43.9	58.4	65.7
OAB	9.3	20.5	25.0
OAB wet	5.4	16.2	18.8

(%)

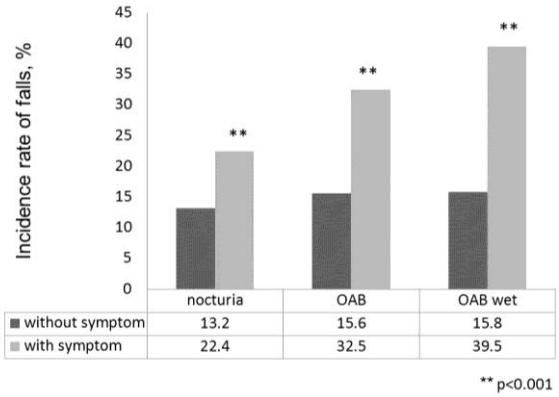

Figure1. Incidence rate of falls according to storage symptoms

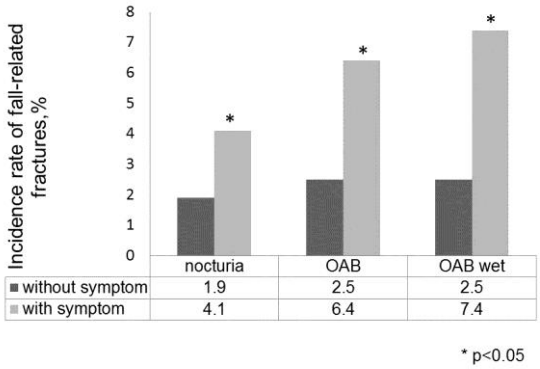

Figure2. Incidence rate of fall-related fractures according to storage symptoms

Interpretation of results

In this study, the prevalence of storage symptoms was the highest in fall-related fracture group; the non-fall group had significantly lower incidence rates of nocturia, OAB and OAB wet than the 2 fall groups. Among the storage symptoms, UUI was associated with the highest risk of falls and fall-related fractures. Most residents living in the community did not experience falls in the previous year. However, the prevalence of nocturia, OAB, and OAB wet increases the risk of falls and fall-related fractures in community residents. It is important to know these facts to prevent falls and fall-related fractures in community-dwelling elderly individuals. The limitation of this study is the retrospective study design. We started prospective cohort in this community group.

Concluding message

We conclude that night-time frequency, urgency and UUI are associated with falls and fall-related fractures. These findings may help to develop assessment methods and preventive programs for falls and fall-related fractures.

Disclosures

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