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**BACKGROUND:** How can we connect the importance of good pelvic health and bladder control to other aspects of health? How important is the relationship between balance and falls, and bladder control?

**Financial burden:** In 2018 study (Powel 2018), researchers examined the direct and indirect costs of urinary incontinence in the US. They found that all-cause costs of people with UI were 43 to 110% greater that comparable people without UI. They estimate that the total cost of UI related to OAB will exceed $100 billion. Costs are related to falls, absorbent products, Related medical conditions (UTI, skin, hip fracture), placement in SNF, lost wages, cleaning expenses (patient, clothes, rugs, chairs) diagnosis and treatment. (*The economic burden of overactive bladder in the United States: A systematic literature review.* Powell LC, Szabo SM, Walker D, Gooch K. Neurourol Urodyn. 2018 Apr;37(4):1241-1249. doi: 10.1002/nau.23477. Epub 2018 Jan 13. Review)

**INTRODUCTION:**
An association has been reported between the mere presence of overactive bladder (OAB) and fall-related injuries. Falls are also a serious public health problem, with one-third of community-dwelling individuals aged over 65 years falling at least once annually. Whether or not the severity of OAB symptoms is related to an increased likelihood of having falls in community-dwelling individuals and how much the OAB symptom impacts on falls remains unclear.

**AIM:** The authors assessed the relationship between OAB symptom severity and falls over a one-month period. They estimated the potential contribution of OAB symptoms on falls among community-dwelling individuals, assuming a CAUSAL* relationship between OAB symptoms and falls.

**STUDY DESIGN:** Cross sectional [In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time. This design may make it difficult to derive CAUSAL relationships] This study was derived from the LOHAS — a cross-sectional study of the locomotive syndrome and health outcome in Aizu cohort study (LOHAS)— which aims to evaluate the risk of cardiovascular disease, quality of life, medical costs and mortality attributable to locomotive dysfunction in Japan

**PARTICIPANTS:** A total of 2505 residents in 2 Japanese municipalities aged over 40 years, who participated in health check-ups conducted in 2010. 1037 were excluded 2 to having one confounding variable missing from the data.
METHOD: OAB symptoms assessed via the overactive bladder symptom score (OABSS) and divided into six categories. Mobility problems and depressive symptoms were assessed via the Timed Up and Go (TUG) test and the short form of the Center for Epidemiologic Studies Depression Scale, respectively.

OABSS: has been psychometrically validated and has demonstrated reliability, discriminant validity and responsiveness among patients with OAB. It is able to be used as an alternative to a bladder diary which is considered the gold standard tool for the assessment of OAB symptoms, and the OABSS is recommended in Japanese clinical practice.

ANALYSIS

• ORs were calculated using logistic regression models
• Test of linear trends was performed across six OABSS categories
• Population Attributable Fractions (PAF) were used to estimate the potential contribution of each exposure (OAB, TUG, Depression) to falls
  o PAF is the fraction of the prevalent outcomes that would be prevented if a certain exposure was removed. In other words, if the exposure was removed, then some fraction of the outcomes could be prevented, and that fraction is PAF. For this study, outcomes used were both ‘any fall’ and ‘frequent falls’, and exposures used were OAB symptom severity, mobility problems and depression symptoms. One assumption of this computation is that there is an unconfounded, causal relation between exposure(s) and outcome(s).

RESULTS

• Among the total 1350 participants (mean age: 68.3 years) analyzed, any fall and frequent falls were reported by 12.7% and 4.4%, respectively.
• Compared with no OABSS score, moderate-to-severe OAB and mild OAB were associated with any fall (adjusted ORs 2.37 (95% CI 1.12 to 4.98) and 2.51 (95% CI 1.14 to 5.52), respectively). Moderate-to-severe OAB was also strongly associated with frequent falls (adjusted OR 6.90 (95% CI 1.50 to 31.6)).
• Adjusted PAFs of OAB symptoms were 40.7% (95% CI 0.7% to 64.6%) for any fall and 67.7% (95% CI –23.1% to 91.5%) for frequent falls.
• Further, these point estimates were similar to or larger than those of mobility problems and depressive symptoms.
• Analyses results indicated that, if OAB symptoms could have been reduced to OABSS 0 points (with all other parameters remaining the same), a sizeable proportion of any and frequent falls could have been prevented potentially (40.7% (95% CI 0.7% to 64.6%) and 67.7% (95% CI –23.1% to 91.5%), respectively.
• Similarly, if TUG could have been improved up to 4 s (the second smallest value in this population), the estimated proportions of the any and frequent falls that could potentially have been prevented were 30.4% (95% CI 7.6% to 47.6%) and 45.8% (95% CI 13.1% to 66.2%), respectively.
DISCUSSION Strengths of the study include large sample size, population-based format, adjustment for many potential confounding factors and the robustness of the relationship between OAB symptom severity and falls based on sensitivity analyses. However, the following limitations should be considered: the cross-sectional design cannot attribute causality based solely on associations between OAB symptom and falls and the assessment of OAB symptoms based on self-reported questionnaire cannot exclude the presence of other urological disorders.

CONCLUSION OAB symptom severity in community-dwelling adults was found to be associated with any and frequent falls over a 1-month period. Further, OAB symptoms might have a similar or greater contribution to falls than mobility problems or depressive symptoms, both common in ageing societies.

CLINICAL APPLICATION
We can reduce fall risk by reducing OAB symptoms.

QUESTIONS FOR PARTICIPANTS
Are any of you using the OABSS clinically? It is a proxy for a bladder diary in diagnosing OAB. How do you identify fall risk in your patients with OAB? What do you do when you identify a fall risk patient? (Do you work in a clinic where falls and balance impairments are treated by well-trained PTs?) What type of treatment would you provide for a patient with a moderate to high OABSS?