

LOWER URINARY TRACT SYMPTOMS AND FALLS IN WOMEN: A CASE CONTROL STUDY

Hypothesis / aims of study

Falls have important adverse consequences in older people; they are responsible for considerable morbidity and mortality, being the third leading cause of accidental death in the elderly. Urinary urgency, urgency incontinence and nocturia, but not stress urinary incontinence have been associated with an increased risk of falls in older people from epidemiological studies [1]. Although guidelines for the assessment and management of falls risk exist, few mention continence as part of the required assessment. Even when this is recommended, evidence suggests that a continence assessment is seldom done or acted upon should a problem be found [2]. There has been no systematic attempt to examine the distribution of lower urinary tract symptoms (LUTS) in older women who fall. Many lower urinary tract symptoms other than incontinence are amenable to successful management and these may also prove to be modifiable risk factors for falls. This study aimed to prospectively assess the distribution of lower urinary tract symptoms, co-morbidity and temporal association between symptoms and falls in a cohort of older women attending the Emergency Department versus an age matched group of women without a fall.

Study design, materials and methods

This prospective study included women >65 years old presenting with a fall or fall related injury and a control sample of older women without a fall within the previous calendar year. Both intervention and control samples were identified from the emergency department register and approached by means of letter containing an information sheet and questionnaires. A single reminder letter was sent after two weeks of non-response. A register of age and sex of non-responders was created. People admitted to hospital were approached by investigators for questionnaire completion.

Demographic data (age, sex, ethnicity, co-morbidity, socio-economic group, level of education), falls history (last fall, frequency and injury sustained), as well as an assessment of lower urinary tract symptoms and their impact on quality of life using validated questionnaires were collected.

LUTS were assessed using the International Consultation on Incontinence Modular Questionnaire for female lower urinary tract symptoms (ICIQ- FLUTS long version) and assessment of quality of life (ICIQ – LUTSQoL). Cognitive function was tested using the Test Your Memory assessment, physical function using the Barthel Index.

Participants were asked about the cause of their fall and their perception about the impact of their LUTS on the index fall.

Sample size: Assuming the prevalence of LUTS in patients attending without a fall is 25% for women (mid-point of 20-30% estimate) and to detect a doubling of this distribution in patients who attend after a fall then with 5% two sided significance and 90% power 85 cases and 85 controls required.

Analysis

Base line characteristics of the fallers and non-fallers were compared. The distribution of lower urinary tract symptoms in the two groups were illustrated using descriptive statistics. Differences in proportions were analysed using Chi-squared test, for means using unpaired t-tests, for categorical data, Wilcoxon ranked sum test.

Results

Data were collected from November 2010 – November 2011. Sample demographics are shown in Table 1. Controls took a mean of 5.3 medications, cases 3.6 (p=0.03). The mean number of comorbid diseases was, cases: 11.2, controls: 9.8 (p=0.79). 4/65 (6.2%) falls were reported as being associated with toileting. The distribution of LUTS is shown in table 2. 32.1% of cases and 34.4% of controls had incontinence >two to three times per week

Table 1. Demographics

	Cases (n=87)	Controls (n=58)	p
Age (mean, range)	76.8 (65-95)	75.6 (65-89)	NS
Ethnicity (white British, %)	85.1	72.4	
Owner occupier (%)	66.7	46.6	
Pet ownership (Yes,%)	80.5	79.3	
Test Your Memory (mean, /50)*	46.2	45.6	
Barthel index (mean, /20)**	18.3	17.6	

* n=77 cases, 54 controls, **n=80 cases, 55 controls

Table 2. Distribution of LUTS

Symptom / condition	Fallers (n=87) n (%)	Controls (n=58) n (%)	p
Frequency >7	24 (27.5)	17 (29.3)	NS
Nocturia ≥2	41 (47.1)	34 (58.6)	NS
Urgency (≥sometimes)	24 (27.5)	28 (48.2)	0.01
Urgency incontinence (≥sometimes)	24 (27.5)	13 (22.4)	NS
Stress urinary incontinence (≥sometimes)	21 (24.1)	16 (27.5)	NS
Hesitancy (>occasionally)	29 (33.3)	20 (34.5)	NS
Straining (≥occasionally)	15 (17.2)	9 (15.5)	NS
Interrupted stream (>occasionally)	13 (14.9)	4 (6.9)	NS

Nocturnal enuresis (≥occasionally)	16 (18.4)	8 (13.8)	NS
Incomplete emptying (>occasionally)	15 (17.2)	11 (18.9)	NS

Interpretation of results

In this prospective case-control study of LUTS in older women presenting to the Emergency Department with a fall; those with a fall took fewer medications and reported similar distributions of lower urinary tract symptoms with the exception of a statistically significantly lower proportion who reported urgency more than “occasionally”. These findings are contrary to those reported in epidemiological studies and cast doubt upon a causal association between urgency and falls. According to the participants, only 6.5% of falls were related to the LUTS. This study is limited by the small number of controls and by the setting of the study which only included falls of sufficient severity to require attendance at hospital. A larger, community based study should be performed to elucidate the nature of the relationship in falls of a more common nature.

Concluding message

No relationship between falls and urgency or urgency incontinence could be found in a cohort of older women presenting to the Emergency Department having fallen. A temporal association between falls and LUTS was observed in only a minority of falls.

References

1. JAGS 2000;48(7): 421-425
2. Maturitas 2011; 69(2): 179 - 83

Disclosures

Funding: funding: unrestricted grant from Pfizer UK **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** UCL Ethics Committee Panel B **Helsinki:** Yes **Informed Consent:** Yes