

PRIORITY BRIEFING

The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation projects.

QUESTION DETAILS

Question ID: 6

Question type: Intervention

Question: Does treatment of overactive bladder symptoms prevent falls in the elderly?

Population: People over 75 yrs of age, at home or in residential care with overactive bladder (in the absence of pathology).

Intervention: Treatment of overactive bladder with behavioural modification, with anti-cholinergic drug therapy and home safety packages.

Control: No other/ standard treatment

Outcome: That identification and treatment of overactive bladder symptoms will reduce the incidence of falls and fractures in the elderly with a reduction in morbidity and mortality (and NHS costs). Improved quality of life in relation to improved continence.

Note on overactive bladder treatments:

Anti-cholinergic drugs (also known as anti-muscarinic and anti-nicotinic) block the neural transmitter acetylcholine in the central and peripheral nervous system. Anti-cholinergics are used in this instance to promote urinary retention and so reverse some of the symptoms of overactive bladder.

Behavioural modification techniques to treat overactive bladder include caffeine reduction, bladder retraining, pelvic floor exercises and fluid management.

Home safety packages involve assessing the home environment and making adjustments to reduce the risk of falls in the home e.g. providing railings in the toilet to help prevent falls.

Part 1: Research Background

Guidelines: NICE guidelines on Urinary Incontinence (2006) recommend multi-factorial methods of treatment including use of drugs, behavioural modification and home safety packages as well as others. NICE guidelines on Falls (2004) suggest that behaviour modification/cognitive interventions alone have not been proven to reduce the incidence of falls and therefore cannot recommend them. However, they do recommend multi-factorial interventions that include strength and balance training, home hazard assessment and intervention, vision assessment and referral, and medication review with modification/withdrawal.

Research Summary: No studies were identified that answered the question specifically. Several studies suggest that those patients with urinary incontinence (in some cases specifically urge incontinence) are at greater risk of falls which implies that methods to treat overactive bladder may lead to a reduced risk of falls.¹⁻³ A very recent systematic review (2009)⁴ investigated falls and urinary incontinence in community-dwelling older people. Falls rather than fracture or injury, and any type of urinary incontinence were the outcomes measured. Urge urinary incontinence, but not stress urinary incontinence, was associated with a modest increase in falls. The authors conclude that falls prevention programs need to include an assessment of incontinence and referral for interventions to ameliorate the symptoms of urge incontinence. One study mentions the use and effectiveness of a prevention programme which includes education, home adaptation and balance and resistance training but does not include drug therapy.⁵

Ongoing Research:

There are two ongoing research studies in this area looking at the impact of a certain drug on overactive bladder but not multi-factorial intervention.^{6, 7}

Part 2: Prioritisation Information

1. The health problem

Epidemiology:

Overactive bladder (OAB) is a condition that involves the involuntary contraction of the muscle in the wall of the bladder causing a sudden and unstoppable need to urinate. Symptoms include: frequent urination, urgency and urge incontinence.

The European Association of Urology Guidelines of Urinary Incontinence (2009) report that prevalence of OAB in males 10-26% and in females is 8-42%. Prevalence increases with age and often occurs with other lower urinary tract symptoms. Overactive bladder affects 15-20% of the population and occurs more frequently in the elderly population.

The South West Strategic Health Authority have highlighted that the life expectancy in the southwest is the highest in England with males at 77.8 years and females at 82.0 years. One ambition of the Authority is to increase life expectancy to that of the best in Europe this means there will be increased numbers people over the age of 75 years and therefore increased potential for falls and urinary incontinence. In the Public Health Report 2007/08 for Devon PCT it is reported that in 2006 approximately 8.6% of Devon's population is 75 years plus in comparison to 7.8% in England and Wales. This is expected to increase to 10.9% by 2011 in Devon. Standardised average years of life lost by accidental falls in Devon is higher than the rest of the southwest and of England and Wales.

Some studies suggest that urinary incontinence problems could lead to a 35-45% increased risk of falls and fractures (Brown et al, 2000) and NICE Guidelines on Urinary Incontinence (2006) predict that the cost of urinary incontinence to the UK is approximately £1.8 billion.

2. Identification of the topic as a priority

NICE Guidelines of Urinary Incontinence: The management of urinary incontinence in women (2006) suggest further research into the effectiveness of behavioural modifications on the treatment of urinary incontinence is needed.

NICE Guidelines on Falls: The assessment and prevention of falls in older people (2004) suggests urinary incontinence assessment should be included in a multi-factorial falls risk assessment for patients who present for medical attention because of a fall.

SW SHA Priorities framework 2008-11

- Maximise independent living for people with long-term ill health or disabling conditions;
- Helping people age well;
- Match the highest life expectancy in Europe by 2013;

3. Local perspective

Tractability:

- yes but may need to more clearly identify the extent of the problem first
- may require behaviour or service change across the Peninsula

An overview of the local context:

The urogynaecology research team have experience in managing patients of all ages with bladder dysfunction and have researched and published in this area. There are potential links with 'Falls in the elderly' implementation project. National patients groups would be interested in this question and it may be attractive to drug companies.

References

(1) Brown JS, Vittinghoff E, Wyman JF, Stone KL, Nevitt MC, Ensrud KE, Grady D. Urinary incontinence: does it increase risk for falls and fractures? Study of Osteoporotic Fractures Research Group. *J Am Geriatr Soc.* 2000 Jul;48(7):721-5.

To determine if urge urinary incontinence is associated with risk of falls and non-spine fractures in older women. Type and frequency of incontinent episodes were assessed by 6,049 community-dwelling women using a self-completed questionnaire. Postcards were subsequently mailed every 4 months to inquire about falls and fractures. Incident fractures were confirmed by radiographic report. Logistic and proportional hazard models were used to assess the independent association of urge urinary incontinence and risk of falling or fracture. The mean age of the women was 78.5 (+/- 4.6) years. During an average follow-up of 3 years, 55% of women reported falling, and 8.5% reported fractures. One-quarter of the women (1,493) reported weekly or more frequent urge incontinence, 19% (1,137) reported weekly or more frequent stress incontinence, and 708 (12%) reported both types of incontinence. In multivariate models, weekly or more frequent urge incontinence was associated independently with risk of falling (odds ratio = 1.26; 95% confidence interval (CI), 1.14-1.40) and with non-spine nontraumatic fracture (relative hazard 1.34; 95% CI, 1.06-1.69; P = .02). Stress incontinence was not associated independently with falls or fracture. Urinary frequency, nocturia, and rushing to the bathroom to avoid urge incontinent episodes most likely increase the risk of falling, which then results in fractures.

(2) Hui-Chi, H. and H. Hui-Chi (2004). "A checklist for assessing the risk of falls among the elderly." *Journal of Nursing Research* 12(2): 131-42.

The purpose of this study was to estimate the risk of falls among elderly citizens by using a checklist. This checklist was initially developed using the Delphi technique, then refined on the basis of research findings. Cross-sectional design and a purposive sample were used, with the sample selected from three sheltered housing projects (n = 302) and from Win-san district (n = 103) in Taipei. On the basis of their experiences of falling in the previous year, participants were classified into two groups: fall (n = 202) and non-fall (n = 203). Participants in the fall group had lower scores on an SPMSQ (Short Portable Mental Status Questionnaire), took longer to complete the Get-up and Go test and were more afraid of falling. Participants who took longer than one second to complete the Get-up and Go test or had urinary frequency or incontinence problems were found to be at greater risks for falls. The elderly who lived in homes with dimly lit kitchens and clutters at entryways (or backyards) were found to be at a considerably greater risk, by 22 or 13 times respectively.

(3) Teo, J. S., N. K. Briffa, et al. (2006). "Do sleep problems or urinary incontinence predict falls in elderly women?" *SO: Australian Journal of Physiotherapy*(1): 19-24.

The objectives of this cross-sectional study were: (1) To determine if night-time sleep disturbance, daytime sleepiness, or urinary incontinence were associated with an increased risk of falling in older Australian women and (2) to explore the interrelationships between daytime sleepiness, night-time sleep problems, and urge incontinence. Participants were 782 ambulatory, community-dwelling women aged 75 to 86. Daytime sleepiness, night-time sleep problems, urinary incontinence and falls data were collected via self-complete questionnaires. Thirty-five per cent of participants had fallen at least once in the past 12 months and 37.7% reported at least one night-time sleep problem. Pure stress, pure urge, and mixed incontinence occurred in 36.8%, 3.7%, and 32.6% of participants respectively. In forward stepwise multiple logistic regression analysis, urge incontinence (OR 1.76; 95% CI 1.29 to 2.41) and abnormal daytime sleepiness (OR 2.05; 95% CI 1.21 to 3.49) were significant independent risk factors for falling after controlling for other falls risk factors (age, central nervous system drugs, cardiovascular drugs).

(4) Chiarelli, P. E., L. A. Mackenzie, et al. (2009). "Urinary incontinence is associated with an increase in falls: a systematic review." *Australian Journal of Physiotherapy* 55(2): 89-95.

A systematic review and meta-analysis of observational studies investigating falls and urinary incontinence in community-dwelling older people. Falls rather than fracture or injury, and any type of urinary incontinence were the outcomes measured. Odds ratios of nine studies were included in the meta-analysis. The odds of falling were 1.45 (95% CI 1.36 to 1.54) in the presence of any type of urinary incontinence. The odds of falling were 1.54 (95% CI 1.41 to 1.69) in the presence of urge incontinence. The odds of falling were 1.11 (95% CI 1.00 to 1.23) in the presence of stress incontinence. The odds of falling were 1.92 (95% CI 1.69 to 2.18) in the presence of mixed incontinence. Urge urinary incontinence, but not stress urinary incontinence, is associated with a modest increase in falls. Falls prevention programs need to include an assessment of incontinence and referral for interventions to ameliorate the symptoms of urge incontinence.

(5) Rapp, K., S. E. Lamb, et al. (2008). "Prevention of falls in nursing homes: subgroup analyses of a randomized fall prevention trial." *Journal of the American Geriatrics Society* 56(6): 1092-7.

To evaluate the effectiveness of a multi-factorial fall prevention program in pre-specified subgroups of nursing home residents. Secondary analysis of a cluster-randomized, controlled trial. Six nursing homes in Germany recruited seven hundred twenty-five long-stay residents; median age 86; 80% female. Staff and resident education on fall prevention, advice on environmental adaptations, recommendation to wear hip protectors, and progressive balance and resistance training was implemented. Falls were assessed during the 12-month intervention period. The intervention was more effective in people with cognitive impairment (hazard ratio (HR)=0.49, 95% confidence interval (CI)=0.35-0.69) than in those who were cognitively intact (HR=0.91, 95% CI=0.68-1.22), in people with a prior

history of falls (HR=0.47, 95% CI=0.33-0.67) than in those with no prior fall history (HR=0.77, 95% CI=0.58-1.01), in people with urinary incontinence (HR=0.59, 95% CI=0.45-0.77) than in those with no urinary incontinence (HR=0.98, 95% CI=0.68-1.42), and in people with no mood problems (incidence rate ratio (IRR)=0.41, 95% CI=0.27-0.61) than in those with mood problems (IRR=0.74, 95% CI=0.51-1.09). The effectiveness of a multi-factorial fall prevention program differed between subgroups of nursing home residents. Cognitive impairment, a history of falls, urinary incontinence, and depressed mood were important in determining response.

(6) A Study to Compare the Effectiveness and Safety of Fesoterodine and Placebo in an Elderly Population of Patients Who go to the Toilet Very Frequently Due to Overactive Bladder. This is due to complete in July 2010 having run since June 2008.

(7) A Study Of Efficacy And Safety Of Fesoterodine In Vulnerable Elderly Subjects With Overactive Bladder. This is due to start in September 2009 and complete in September 2011.