

# Urinary Incontinence in the Elderly: An Overlooked and Under-Treated Problem

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## ABSTRACT

Urinary incontinence is common problem in the elderly that often goes unreported and therefore undertreated. Its importance lies in the fact that its presence in older individuals often represents a decline in the overall physical, mental and psychological health of the affected individual. Moreover it has significant social implications.

A simple but comprehensive approach is required to address this growing problem that starts from a query of its presence along with degree, severity of symptoms and presence of contributing and aggravating factors. Basic examination and investigations often identify the most common causative factors. Management is largely a combination of non-pharmacological and drug therapy for which monitoring of side effects and drug interactions is advisable. Urinary incontinence rate are expected to rise with the growing number of elderly individuals and requires a change in how this often ignored symptom is approached by the medical community.

**Keywords:** Urinary incontinence; Geriatrics; Elderly

## INTRODUCTION

Urinary incontinence is defined as unintentional leakage of urine in an adult. In young to middle aged adults causes are generally linked to local urinary tract problems like infection or sphincter control. Pathophysiology and causation of urinary incontinence in elderly is however much more complex. Its presence has significant health implications in the life of an elderly individual and requires comprehensive assessment and a holistic management approach. Furthermore, elderly tend to have the highest rates of incontinence, rendering this a growing health issue in face of a worldwide increase in the ageing population. Anecdotal evidence from local resources suggests high rates of incontinence in elderly men and women, with reduced mobility and high fertility rates as possible causes.

This article focuses on urinary incontinence in elderly, epidemiology, pathophysiology with an approach to assessment and management. The term “incontinence” when used in this article will focus only on urinary incontinence as fecal incontinence has its own pathophysiology and causation. A literature search was conducted using search terms “urinary incontinence” and “elderly”. The term “geriatrics” and “elderly health” were also used in Pubmed, Google scholar, Index Medicus for South East Asia region (IMSEAR) and PakMediNet.

Relevant systematic reviews, original research and review articles were selected. Some additional articles were included after relevant themes emerged from the initial review.

National articles found on incontinence mainly focused on younger age groups and were not included in this paper. Urinary incontinence in the geriatric population is termed as one of the Geriatric Giants [1], a multifactorial syndrome signifying impairment in the overall health of an elderly individual. It is an interplay of pathophysiological, social and environmental factors. Furthermore, urinary incontinence is generally associated with presence of other co-morbidities, suggests a decline in functionality of an elderly individual and has major psychosocial implications; all of which will be discussed in detail in this article. Urinary incontinence on its own may thus also serve as a proxy indicator for onset of frailty in an older individual as it is often associated with decline in nutrition, mobility, endurance and cognition all of which encompass frailty [2].

Prevalence rates of urinary incontinence in elderly range from 8 to 50% [3] Rates increase linearly with age. Women are two-thirds more likely to suffer from incontinence. One study from Turkey reported almost a quarter of their elderly residents had incontinence [4].

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## TYPES AND PATHOPHYSIOLOGY

There are five types of urinary incontinence: stress, urge, overflow, mixed and functional. Stress incontinence occurs because of pelvic floor weakness worsening after menopause. Coughing, sneezing or other reasons of raised intra-abdominal pressure cause small amounts of urinary leakage. Stress incontinence may also occur after prostate surgery.

As the name suggests urge incontinence usually occurs upon the need to urinate often causing larger volumes to leak. This may be compounded by presence of Overactive Bladder (OAB), a term that refers to a sense of urinary urgency, increased frequency and nocturnal which may be accompanied by urge incontinence. Central nervous system and bladder muscle over activity have been implicated in the pathophysiology of OAB. This is often associated with other comorbidity, cognitive decline [5].

Older individuals may also concomitantly experience incomplete voiding due to age related impaired bladder emptying or because of outlet obstruction as in prostate hypertrophy or a large cystocele. This is a common type of incontinence in the elderly and tends to rise with age. In older individuals central mechanisms involved in continence may also weaken compounding the problem. It is important in this type of incontinence to assess for incomplete emptying as post void residual volumes may increase if detrusor relaxants are given.

Overflow occurs generally when there is neurogenic bladder related to spinal cord pathology or autonomic neuropathy; leaking when bladder capacity overcomes the pressure of the sphincter generally without sensation.

Mixed incontinence is a combination of stress and urge occurring when a weak sphincter and detrusor instability co-exist.

Functional incontinence is found specifically in older individuals who suffer from urinary leakage due to problems with mobility, cognition or other illnesses resulting in incontinence either because of an inability to reach in time or incapacity to comprehend usual indicators of urination.

### Associated Co-morbid conditions

Incontinence serves as a proxy indicator for several underlying pathologies and also acts as a risk factor for others. Cognitive decline and dementia have an established association with incontinence [6]. In addition to impairment of central mechanisms of continence there is an inability to respond to and follow the physical processes of maintaining continence resulting in functional incontinence [7-9]. Other neurological conditions impairing motor function like cerebrovascular accidents, Parkinson's disease are also linked to incontinence.

Depression has also been associated with increased risk of urinary incontinence [10]. Another study identified incontinence as a risk factor for depression with a linear association [11]. The loss of control over basic bodily function along with social implications of incontinence and isolation are possible triggers for depression.

Musculoskeletal conditions including advanced osteoarthritis, osteoporosis, spinal stenosis, severe peripheral neuropathy are also linked to incontinence primarily due to their impact on mobility.

Diabetes independently increases risk of incontinence [12]. This appears to rise as duration of diabetes increases. Another study reported diabetics treated with insulin had a threefold increased

risk of having urge incontinence [13]. Moreover obesity, smoking increase the risk of incontinence two fold [11]. Another study cited multi-parity as a risk factor for incontinence. This is not just stress incontinence but urge and mixed types of incontinence [14].

### Health risks associated with urinary incontinence

There is an increased risk for falls in patients with urinary incontinence. A systematic review reported an association between urge incontinence and falls [15]. Another study highlighted that patients with incontinence had an increased fear of falling while carrying out their daily activities [16].

Incontinence has also been implicated in an increased risk of fractures resulting secondary to falls associated with urge incontinence [9,17]. Perineal skin damage in elderly skin from moisture, pH changes secondary to incontinence is also well documented and can cause problems ranging from dermatitis, intertrigo and pressure ulcers [18]. Nursing home and frail elderly patients are at greater risk for incontinence induced dermatitis [19].

### Cost of Incontinence

In addition to associated co-morbidities and health risks there is significant decline in quality of life and economic impact of incontinence [20].

A systematic review identified type, severity and frequency of incontinence to have significant impact on quality of life. In addition increase in age and weight and those who sought treatment of incontinence had lower quality of life [21]. Urge incontinence was associated with higher cost of care compared to stress incontinence, possibly because of greater volume of urine lost and the subsequent cost of restoring hygiene [22].

### Caregivers and Incontinence

Just as incontinence adversely impacts quality of life of an elderly individual; its presence also increases burden of caregiving. Both formal and informal caregivers of incontinent patients have been found to have more stress while caring for such elderly. One South American study cited an almost two fold increase in caregiving burden [23].

This increased burden may be attributed not only to increased time spent in caregiving of those incontinent but also increase psychological burden among careers [24].

### Reporting of Incontinence

A unique aspect of urinary incontinence is its under-reporting. Patients due to the personal nature of the problem and social stigma attached to this symptom, reported incontinence only when symptoms were severe [25]. Another study reported that older individuals are more likely to underreport incontinence as they assume it is part of normal ageing [26]. Furthermore, incontinence is under recognized by care providers often delaying intervention [27].

### Assessment of Incontinence

As urinary incontinence is a hallmark syndrome signaling a decline in health of an elderly individual, an in depth assessment is warranted. With low self-reporting of incontinence, health care professionals should encourage older patients to report incontinence [28]. Direct inquiry about urinary leakage or soiling of clothes is helpful. In addition severity (number of episodes, amount of leakage) timing and differentiation between types

of incontinence is helpful both for understanding etiology and management. For new onset incontinence, urinary tract infection must be ruled out. A detailed history for presence of co-morbid associated with incontinence is important. In addition a detailed drug review including recent changes in drugs and dosages may also help identify etiologic or contributing factors for incontinence. When hesitancy and poor urinary stream is present, evaluation of local urinary tract factors like prostate enlargement, uterine prolapse and cystocele must also be considered.

A focused neurologic examination including cognitive and psychological assessment (for depression), perineal sensation and gait assessment (assessing risk of reduced or disordered mobility) is important. Abdominal examination for presence of lower abdominal masses and rectal exam should be performed to evaluate rectal tone, constipation and prostate.

## INVESTIGATIONS

New onset or recently acquired urinary incontinence mandates a urinalysis. It is however important to understand that simple bacteriuria often represents asymptomatic colonization and not necessarily urinary tract infection in the elderly. Antibiotics should not be prescribed for asymptomatic bacteriuria and considered when symptoms of dysuria, burning fever, or other signs of urinary tract infection are present.

Measurement of post void residual (PVR) urine may be useful in assessment of patients with poor urinary stream. A post void residual greater than 100 ml is abnormal and may also suggest bladder outlet obstruction [29]. Furthermore it may be useful to assess PVR in those at risk of retention with use of anti-muscarinic agents e.g. those with enlarged prostate. The role of urodynamic studies is questionable in routine evaluation of urinary incontinence. Such testing has been found to have diagnostic inaccuracies and more importantly may not affect clinical outcomes [30].

## MANAGEMENT

The most important step in the management is identification of contributing factors and in cases of recent incontinence; aggravating factors. These factors may range from cognitive decline and impaired mobility or uncontrolled diabetes and use of diuretics. The first step in management is therefore elimination optimization of any precipitating factor. Following this, an approach focusing on symptom reduction is recommended.

### Non-pharmacological Management

The initial step towards management is lifestyle modification that may reduce severity and frequency of incontinence. Avoiding excessive intake of fluids and limiting caffeinated drinks maybe helpful. It is especially useful to decrease water intake at night to reduce nocturia.

Weight reduction is an important step in alleviating stress incontinence [31]. In addition treatment of chronic cough, cessation of smoking is particularly helpful with stress incontinence. Constipation is a commonly overlooked but established factor aggravating incontinence. Use of fiber, fruits and adequate fluid intake are best for long term management of constipation.

Other behavioral interventions include, prompted timed voiding. In case of urge and mixed incontinence timed voiding i.e. emptying bladder at short intervals (every two hours) helps reduce urgency and subsequent leakage. Prompted voiding is helpful in reducing

urge incontinence in frail elderly especially those with cognitive decline who are still able to follow simple commands [32].

Bladder training is another non-drug therapy that helps reduce incontinence. It involves training patients to gradually increase the interval between voiding and may improve pelvic muscle strength. Pelvic floor muscle exercises (Kegel's exercises) if done regularly and repeatedly, strengthen weakened pelvic muscles and reduces incontinence, both stress and mixed [33-35]. Different behavioral therapies can be advised in combination for maximum benefit.

### Pharmacological Management

Various medications are used for management of incontinence. The key drug therapy for urge incontinence and overactive bladder are anti-muscarinic agents. The major side effects are presence of anti-cholinergic side-effects like dry mouth and constipation. These drugs may also worsen cognitive function in patients with dementia. A Cochrane review reports that lower dosages may be as effective with fewer side-effects and better tolerance.

Duloxetine may also improve incontinence but is less effective than anti-muscarinic agents [36]. Tricyclic antidepressants are useful for stress incontinence and mixed incontinence, however must be used with caution in older individuals because of anti-cholinergic side effects [37]. One of the major side effects is worsening of constipation which indirectly aggravates incontinence. Patients should anticipate and avoid constipation when taking tricyclic agents. Topical estrogen may improve incontinence especially if combined with pelvic floor exercises. It is not very effective if used alone [36].

### Surgery for urinary incontinence

Surgical intervention is effective in patients with stress incontinence due to weakened pelvic urethral support or cystocele with good long term cure rates [38]. A smaller study from Pakistan using tension free tape for stress incontinence also showed similar results [39]. Both of these studies however included a wide age range of patients and did not specifically cater to older individuals.

## CONCLUSION

Urinary incontinence in elderly is a multifactorial issue, often arising from a combination of physical, cognitive and functional dysfunction. Its presence signals a decline in overall health and functioning of an older individual impacting not only the quality of life but also increasing their dependency and care needs. Detailed assessment and an individualized approach to management may decrease severity of symptoms.

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