

# Diagnosis and Management of Urinary Incontinence in Older Patient

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**Objective:** To review the various causes of urinary incontinence (UI) in elderly patients and to outline a therapeutic approach to the clinical management of UI. **Data sources:** Online search of MEDLINE and additional references selected from the articles found during the search. **Study selection:** All peer-reviewed articles and review articles listed on MEDLINE published between 1966 and 2006. Key search terms included urinary incontinence, geriatric, aging, pelvic floor rehabilitation and indwelling catheter. **Date extraction:** Articles with clinical relevance to the geriatric population were selected based on the robustness of the study and reviews. If applicable, data from studies of healthier or younger populations was extrapolated to the elderly population examined in the reviews. **Data synthesis:** UI is a common occurrence among older adults treated in rehabilitation settings. The causes of UI in the elderly vary, including transient causes, established pathologic states of the urinary tract, and systematic multifactorial influences. Both behavioral and pharmacologic management strategies can successfully be implemented for UI, even in the frail elderly. **Conclusion:** UI can be effectively investigated and treated by rehabilitation practitioners by following a simple, stepwise approach.

**Key words:** Aging; Rehabilitation; Urinary incontinence.

UI is very common among the older persons and management and diagnosis of UI among older individuals poses many unique challenges. The elderly form a heterogeneous demographic group in terms of disease burden and functional disability: Despite major differences, both the frail elderly and persons who have aged successfully are at risk for becoming incontinent.

UI in the elderly is often ignored because it is assumed to be a normal part of aging. Not only should aging not be equated with incontinence, but attitude of therapeutic nihilism should also be replaced with proactive, aggressive treatment strategies focused on maintaining and restoring continence while improving QOL, even in frail geriatric patients. Unfortunately many patients are never screened by their physicians for incontinence and are too embarrassed to tell them about this problem. It is not common for a patient to have experienced incontinence for many years and, have never undergone active investigation or treatment for it. Medically, UI can lead to perineal rashes, pressure ulcers, and urinary tract infections. Psychosocially, the consequences include shame, isolation, and depression.

The rehabilitation specialist is uniquely placed to impact on this problem. Such issues as mobility, arthritis, and deficits in motor strength and dexterity are part of everyday rehabilitation practice, and all have a major role in defining the vulnerability of many often older people for developing UI. Moreover, treatment strategies helpful in managing incontinence in the elderly, such as perineal assessment and education, biofeedback, and nerve stimulation, are already familiar to many physiotherapists. Finally, the multidisciplinary team approach, which is well established in most rehabilitation programs, is an essential component of successful care for the elderly in all settings. The goal of the present review is to highlight the role of the rehabilitation specialist in the comprehensive management of UI in the elderly.

## Summary of pertinent research:

**Relation between aging and incontinence:** I is defined as the involuntary leakage of urine. Disorders of bladder storage and emptying have crucial roles in its diagnosis. Urodynamic studies of incontinent elderly persons have shown significant quantitative and qualitative differences in bladder functions compared with continent elders and younger incontinent subjects. However an older person with normal urodynamic study results may be incontinent, whereas another with obviously abnormal study results may remain fully continent. For these reasons, assessment of the incontinent older individual cannot be limited to the bladder alone. Other important factors, such as acute and chronic illness, mobility, medications, abnormalities in fluid balance and excretion, and cognitive function may influence the ability of the individual to remain continent.

**Understanding causes of transient incontinence:** Many reversible or transient causes of UI can be identified, especially in persons who develop incontinence de novo and those who have worsening severity of established incontinence. These transient causes of UI are from external processes that act on the urinary tract to precipitate incontinence.e.g. Delirium, infections.atrophic urethritis/vaginitis, drugs, restricted mobility, stool impaction etc. A unique feature of clinical presentation in the geriatric patient is that many disease processes may extent beyond the involved organ system and can affect bladder function. For example the clinical manifestation of pneumonia may have transient urinary incontinence because of an acute confusional state that commonly occurs in older persons experiencing acute illness or increased fatigue. The delirium interferes with the patient's recognizing or caring about the need to get to a toilet, and the fatigue contributes to decreased mobility and inability to walk to the toilet.

**Established causes of UI:** After the transient causes of UI have been addressed, the remaining problems are best

understood as dysfunction of the bladder wall muscle or bladder outlet. The detrusor muscle can contract involuntarily and be overactive or it can fail to contract fully and be underactive. In terms of the bladder outlet, urethral resistance may be too low or too high. These pathophysiologic conditions are associated with 3 clinical types of UI: urge incontinence (associated with detrusor overactivity), stress incontinence, and overflow incontinence.

Fortunately, in most elderly patients the nature of the incontinence can be diagnosed by history, physical examination, and PVR urine volume measurement. Targeted treatment then can usually be implemented. Detrusor overactivity is the most common finding in incontinent older individuals. The history is characterized by an involuntary loss of urine associated with a sudden strong sensation of urgency. Leakage is episodic but frequent, the volume leaked is usually moderate to large, and symptoms occur during the day and night. The PVR urine volume is typically normal (<50ml)

Impaired detrusor contractility alone is an uncommon cause of UI in the elderly, although it occurs in patients with diabetic neuropathy, spinal stenosis and SCI. Its presence has been noted in conjunction with detrusor overactivity in nearly one third of incontinent women in nursing homes. This entity is called detrusor hyperactivity with impaired contractility (DHIC), the bladder is overactive but empties inefficiently. Patients still experience urge symptoms, but the PVR urine volume is high.

Stress incontinence frequently occurs in elderly woman, either alone or combined with urge incontinence caused by detrusor overactivity. It is very rare in men occurring only when the sphincter mechanism has been damaged by extensive prostate surgery. The clinical hallmark is instantaneous leakage of small amounts of urine with such stress maneuvers as coughing, sneezing or laughing. The incontinence is usually positional and does not occur in bed at night. The PVR urine volume is small.

Bladder outlet obstruction is the second most common cause of incontinence in elderly men and occurs infrequently in women. In men it is usually caused by prostate enlargement or urethral stricture and may present with such symptoms as urinary frequency, nocturia, urgency or hesitancy, postvoid dribbling or frank urinary retention. The size of the prostate on rectal examination correlates poorly with obstruction. The term functional incontinence is used for those individuals who are unable to maintain continence because of such functional factors as impaired mobility or severe cognitive deficits.

#### **Therapeutic approach:**

**Evaluation of the incontinent Elderly Patient:** History: In the elderly, special consideration must be given to the possibility of multiple underlying cases of UI. The type of incontinence, as well as frequency, severity, duration, and pattern, must be identified. Transient causes of

incontinence must be addressed. Patients should be screened for functional impairments. Are there underlying diseases or medication that the patient is taking that may be contributing to the incontinence? Are the symptoms present at night? How much liquid does the patient drink each day, and do they drink coffee, tea, alcohol, or other caffeinated beverages that may be irritating the bladder? Has there been a recent change in bowel function? What is the patient's baseline and current mobility?

A voiding record, which is a documentation of the timing and volumes of all voids and incontinent episodes for 2 to 3 days, is a simple diagnostic tool that can provide valuable information. Physical examination: A general examination with particular attention to the neurological system and the abdominal, rectal, and pelvic regions should be performed. The finding of an enlarged bladder by palpation or percussion is important, as are the findings of the atrophic vaginitis, prolapsed uterus, poor rectal tone, or weak pelvic floor muscles. Neurological examination, including sacral reflexes and perineal sensation, is required to determine central or peripheral nervous system involvement. A provocative stress test may be conducted in which the patient is asked to cough with a full bladder and urine leakage is observed.

Laboratory investigations: Urinalysis and culture are part of the basic diagnostic procedure to screen for hematuria or evidence of inflammation or infection. The measurement of PVR urine volume by catheterization or portable bladder ultrasound is often helpful in identifying the type of incontinence present and planning the treatment strategy. Diagnostic Approach: If UI persists after the causes of transient UI have been addressed, it is important to determine the type of established incontinence. Detrusor over activity is likely if symptoms of precipitant urgency are present. In older women a high PVR volume in this setting is suggestive of DHIC. In men with urgency or high PVR volume, obstruction or impaired contractility is possible, and differentiation will require further testing. Overflow incontinence is diagnosed when a person has a high PVR volume (>400ml). Finally if the stress test result is positive, stress incontinence is probable. However, a slight delay between cough and urine leakage is more suggestive of detrusor over activity that stress incontinence. A history of prior urethral surgery raises the possibility of intrinsic sphincter damage, and such patients should be referred for specialized testing.

Treatment of Established Incontinence Detrusor overactivity: Behavioral therapy is the initial step in treating urge incontinence. Bladder retraining is effective for those individuals who are independent of caregiver support and motivated to participate actively in treatment. Patients can expect up to 50% improvement in their incontinence. The goal is to change dysfunctional habit patterns, to improve the ability to suppress urgency, and gradually to increase bladder capacity and extend the voiding interval. Pelvic floor contractions are used to

inhibit the urge and postpone voiding. Both urge and stress incontinence respond equally well to bladder training.

Pelvic muscle exercises, biofeedback techniques, and electric simulation help strengthen the pelvic floor muscles to augment urethral closure and reflexively inhibit bladder contractions. A recent randomized study comparing the effectiveness of biofeedback-assisted treatment with drug treatment for urge and mixed incontinence in older women found a greater improvement in urinary symptoms and less of a dropout rate with behavioral interventions.

Routine toileting and prompted voiding are techniques used primarily in institutional settings for cognitively impaired patients with urge incontinence. With routine toileting, the patient is brought to the toilet every 2 hours in the hopes of avoiding an incontinent episode. For patients who are aware of their bladder status, a prompted voiding protocol, the patient is asked every 2 hours by the caregiver whether they need to void and is only escorted to the toilet if the response is affirmative.

**Impaired detrusor contractility:** Impaired detrusor contractility most often only presents in the late stages with overflow incontinence or retention. Treatment goals are to reduce the residual urine volume and to prevent the development of the urine reflux to the kidneys and renal impairment. When the patient presents with overflow incontinence, the first step is to decompress the bladder with an indwelling catheter for at least 7 to 14 days. During this time, potential contributors to impaired detrusor function should be corrected by withdrawing offending medications and treating fecal impactions. If bladder function is only partially restored after this time, then certain behavioral maneuvers such as double voiding, application of suprapubic pressure during voiding, or Valsalva's maneuvers may help keep the residual urine volume at an acceptable level and prevent overflow.

If the bladder remains completely acontractile after bladder decompression, the patient should be started on intermittent catheterization or use of an indwelling catheter. Given the greater risk for infections in a hospital setting, it is unclear whether intermittent catheterization truly reduces the risk for infections compared with long-term catheterization. **Stress incontinence:** Pelvic floor rehabilitation is the first step of treatment in older individuals. Pelvic muscle exercises, also known as Kegel exercises, can decrease incontinence substantially. Patients are instructed verbally and by physical examination (coaching the patient during digital vaginal examination) or biofeedback to contract correctly the pelvic floor muscles and then to engage in a series of contractions and relaxations. The contractions strengthen the muscles, exert closure of the urethra, and reflexively inhibit urgency symptoms. Biofeedback is extremely helpful for patients who have difficulty isolating the pelvic muscles and inhibiting involvement of abdominal, gluteal, and adductor muscles. Pharmacological therapies for stress continence are designed to increase bladder outlet resistance when

pelvic floor rehabilitation therapies alone are not effective. Although estrogens have some beneficial effects for stress incontinence in some women, randomized controlled trials have not established a clear benefit.

Surgical intervention for stress incontinence is an important consideration for a small subgroup of women. Vaginal passaries designed to suspend the bladder neck are available for UI but are usually not as effective because they are designed for treating uterine prolapse. Even frail elderly patients may benefit from bladder neck suspension surgery and repair of pelvic prolapse when it is appropriate.

**Bladder outlet obstruction:** Outlet obstruction must be managed initially with bladder decompression as described for the underactive bladder if frank urinary retention exists. The majority of older men with prostate enlargement has only mild obstruction and can be managed conservatively with modification of fluids and a trial of alpha-adrenergic antagonists. It remains to be seen whether more limited or less invasive procedures for bladder outlet obstruction caused by benign prostatic hyperplasia are effective in elderly men who have shorter expected life spans.

**Adjunctive measures:** A variety of disposable pads and reusable undergarments are available, and product selection should be guided by the amount and frequency of incontinence, comfort level for the individual, and cost. Such absorbent products should not be used in lieu of other therapies designed to encourage toileting and continence. They are appropriate for subgroup of patients who remain incontinent despite more specific treatments and during the night for individuals managed by scheduled toileting during the day.

#### **Summary:**

UI can be effectively investigated and treated in the elderly population. The rehabilitation specialist is in a unique position to affect this problem positively and help many other individuals with UI. By following a simple, step wise approach to the treatment of UI, relatively easy interventions can improve the QOL of life of many older individuals.

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