

Urinary incontinence in dementia

A practical approach

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BACKGROUND

Urinary incontinence is a common problem in dementia. Almost invariably, the person with dementia will develop incontinence as the disease progresses. However, the primary reasons for incontinence are often not because of any significant pathology in the urinary system. Rather, it is due to factors outside the urinary system. The term 'functional incontinence' has hence been applied. Maintenance of continence requires mobility, manual dexterity, mental capacity and motivation. Clearly, the person with dementia is vulnerable to developing problems in these domains.

OBJECTIVE

This article provides a comprehensive overview of how the stage and type of dementia may account for cognitive and functional deficits, the psycho-emotional world and behaviour of the patient, their care environment, and possible medical factors and pathology in the urinary system.

DISCUSSION

Management is directed at turning around reversible factors, preserving independence and dignity of the patient, and providing sensitive and empathetic care even if the problem is not completely remediable. In those with more advanced dementia, timed and prompted voiding have shown the most promise.

The International Continence Society defines urinary incontinence as the 'involuntary loss of urine that is objectively demonstrable and presents a social or hygiene problem'.¹ This definition implies a failure of the controls associated with normal storage of urine resulting in involuntary passing of urine. However, a failure to toilet appropriately can also arise when there is no pathology in bladder function and the micturition mechanism. This can happen when the awareness of the need to toilet does not result in a socially accepted means of voiding. A case in point is a man who wets himself only because he is nonambulant and confined to his bed. This form of incontinence has been termed 'functional incontinence'. Much of the incontinence seen in dementia may not necessarily be true incontinence but functional incontinence. In patients with dementia the term 'toileting difficulty' may be more useful.

Prevalence and significance

Both dementia and incontinence are common problems

in the elderly. Urinary incontinence rates are noted to be higher in those with dementia (53%), compared to those without dementia (13%).² Based on existing literature, the prevalence of urinary incontinence in dementia varies as much as from 11 to 90%,³ depending on the methodologies and definitions used in estimation. However, the institutionalised elderly invariably have a higher prevalence compared to community dwelling elderly.

The consequences of incontinence are both physical and sociopsychological. The sufferer can experience skin irritation and pressure ulcers, falls, fractures, and is more predisposed to urinary tract infections. Incontinence in a person with dementia increases their level of dependency and places heavier care burden on caregivers, resulting in earlier institutionalisation.^{4,5}

These problems are often not easy to manage. Investigating the root of the problem is a necessary step toward successful management. In dementia associated incontinence the causes are often multiple and management must similarly be multifaceted.

How cognition enables continence

Continence is maintained by an interplay of several factors. Jirovec states there must be: 'the presence of an adequate stimulus to initiate the micturition reflex, neuromuscular and structural integrity of the genitourinary system, the cognitive ability to interpret and respond to the sensation of a full bladder, and the motivation to want to inhibit the passage of urine. Also, the individual must be mobile enough to react to the sensation of a full bladder before the urge to urinate overwhelms inhibiting ability'.⁶ Therefore, a flaw in any of these factors can predispose a person to incontinence.

Cognitive deficits in patients with dementia such as loss of gnosis and visuospatial abilities, apraxia, procedural memory loss, and frontal lobe dysfunction (causing socially inappropriate and disinhibited behaviour), can interfere with the ability to:

- recognise the need to go to toilet
- hold on until it is appropriate to go
- find the toilet
- recognise the toilet
- disrobe and use the toilet properly.

Apathy and depression occur commonly in dementia and could also account for poor volition to maintain continence.

Predictors of incontinence in dementia

The two important predictors of incontinence in dementia are the severity of cognitive impairment and the degree of immobility.⁷⁻¹⁰ Mobility problems and the inability to transfer have been shown to be greater predictors of incontinence than severity of actual dementia.¹¹ Typically, incontinence occurs in the moderately severe stages of Alzheimer disease. At this point, the person with dementia also begins to display problems in other activities of daily living, such as dressing and bathing. They may begin to experience slowing of motor abilities that can increase the risk of falls. Issues in caregiving (eg. use of restrainers, inappropriate use of diapers, and poorly accessible toilet facilities) are significant contributors to functional incontinence.

Certain types of dementia can be associated with incontinence earlier in the course of the disease:

- normal pressure hydrocephalus where incontinence is a characteristic feature of

the defining triad of dementia, gait apraxia and incontinence

- vascular dementia, as there can be damage to the frontal subcortical circuits, and
- frontal temporal dementia if there is damage to the cortical inhibitory centre for micturition.¹²

Detrusor hyperactivity (DH) was traditionally thought to be the principal cause of incontinence in dementia.¹³ Brain disease leading to loss of the brain's inhibitory influence on the micturition reflex, resulting in involuntary bladder contractions was the proposed mechanism.¹⁴ More recent findings suggest that DH alone may not account for incontinence in dementia.^{15,16} It may, however, increase vulnerability to developing incontinence if other factors are present.

An approach to evaluation

Figure 1 gives an overview of a possible approach to evaluating the problem. Categorising incontinence as passive or active can be helpful in elucidating the aetiology of the problem. Passive wetting can suggest a very confused state due to delirium or advanced dementia, or apathy or depression with no motivation to maintain continence. A person who is restrained all the time or has been using diapers for a considerable period may continue to void passively because this has become a conditioned behaviour. An accurate description of the toileting difficulty, the circumstances surrounding the event, and the behaviour of the patient is a necessary prerequisite to understanding the issues inherent to the problem.

The mnemonic DIAPPERS (*Table 1*) assists in identifying potentially reversible causes of incontinence.¹⁷ A thorough history, physical examination and review of medications is imperative. Per rectal examination is a high yield yet simple procedure that should not be forgotten in clinical evaluation. It may reveal an enlarged prostate or faecal impaction, both of which can result in increased residual urine or urinary retention. Measurement of postvoid residual urine should also be done.¹⁸ Urinary retention can result in overflow incontinence. Volumes greater than 200 mL indicate inadequate emptying. Possible reasons include constipation, drugs (eg. anticholinergics), bladder outlet obstruction, or a hypocontractile

bladder. Although stress testing is usually done in a routine assessment, it is understandably difficult to perform in persons with cognitive impairment.¹⁹

Assess possible cognitive, behavioural and mobility problems contributing to functional incontinence (*Figure 1*).²⁰ In selected patients where the clinical suspicion of an established cause for urinary incontinence is high, or where remediation of the reversible factors does not alleviate the problem, further evaluation with urodynamic studies (UDS) may be warranted. However, a full UDS would be difficult to perform and should be considered only when other attempts at treatment have been unsuccessful and the results of the test will have direct influence on patient management.³ A limited study (eg. filling cystometry) may still yield useful information about bladder compliance and detrusor activity.

Managing the problem

Management of incontinence is primarily targeted at treating the causes identified. *Table 2* delineates possible interventions. Potentially reversible causes such as urinary tract infections, constipation or an enlarged prostate with secondary bladder hyperactivity should be treated.

Caregiving and environmental factors

Investigation of caregiving and the environment is necessary to alleviate incontinence contributed by the functional component. Adequate fluids of minimum 1500 mL a day is recommended. Fluids should be reduced in the evening and before sleep to reduce nocturnal micturition, and caffeinated drinks avoided if possible. The toilet can be made more recognisable with prominent visual cues, while adequate lighting and easy toilet access are essential. Providing walking aids, grab-bars and raised toilet seats are means to facilitate independent toileting in a person with mobility problems.²¹ If the person has difficulty going to the toilet, it may be possible to bring the toileting facility to them in the form of a bedside commode, urinal or bedpan. Simplifying clothing by using velcro straps instead of buttons and zippers and elastic waistbands for trousers, can help a person with apraxia manage their garments more easily. Restraint use must

always be reviewed, and automatic use of diapers is strongly discouraged.

Communication

Effective communication is often key to alleviating caregiving problems in dementia. Being stubborn and uncooperative during

activities such as toileting and bathing is often seen as difficult behaviour on the part of the dementia sufferer. Remembering that toileting is a very private issue to everyone can help one understand the resistance sometimes encountered during caregiving. Allowing privacy and plenty of time, encouraging independence,

facilitating with simple step-by-step instructions, avoiding derogatory remarks, and being constantly reassuring will help maintain dignity and independence in self care activities.

Paying attention to behaviour and to nonverbal cues is also important. Unexplained agitation, restlessness, pacing, and tugging on trousers may signal the need to toilet, especially in those with more advanced dementia.

Sometimes a hyperactive person is able to sit on the toilet seat only for a short period of time. Allowing the patient to get up and down a few times is often more effective than forcing the patient to remain seated from the start. One person may need distraction to keep them on the seat, while another may be calmed by music. Each person with dementia is unique. The key to successful care is to know the person well.²²

Toileting strategies

Toileting strategies have been tried with varying success in dementia. In general, the less severely demented and more mobile patients benefit more.³ Timed (fixed schedule) and prompted voiding have shown most promise.^{23,24} In timed voiding, the person is toileted on a fixed schedule and their voiding is recorded in a voiding chart. The schedule can then be gradually adapted to match the individual's voiding pattern. For prompted voiding the person is again toileted on a regular schedule, but is asked if they need toileting assistance before they are toileted. The seven step prompted voiding strategy²⁵ is to:

- focus the person's attention on continence by asking if they are wet or dry
- check for wetness and give feedback
- ask if they would like to use the toilet and prompt three times if they refuse initially
- toilet the person if they respond positively to the prompting
- provide positive verbal feedback for dryness and appropriate toileting
- offer fluids to maintain good hydration status, and
- remind the patient of the time of the next toileting opportunity.

Medications and other therapies

Medications such as anticholinergics and smooth

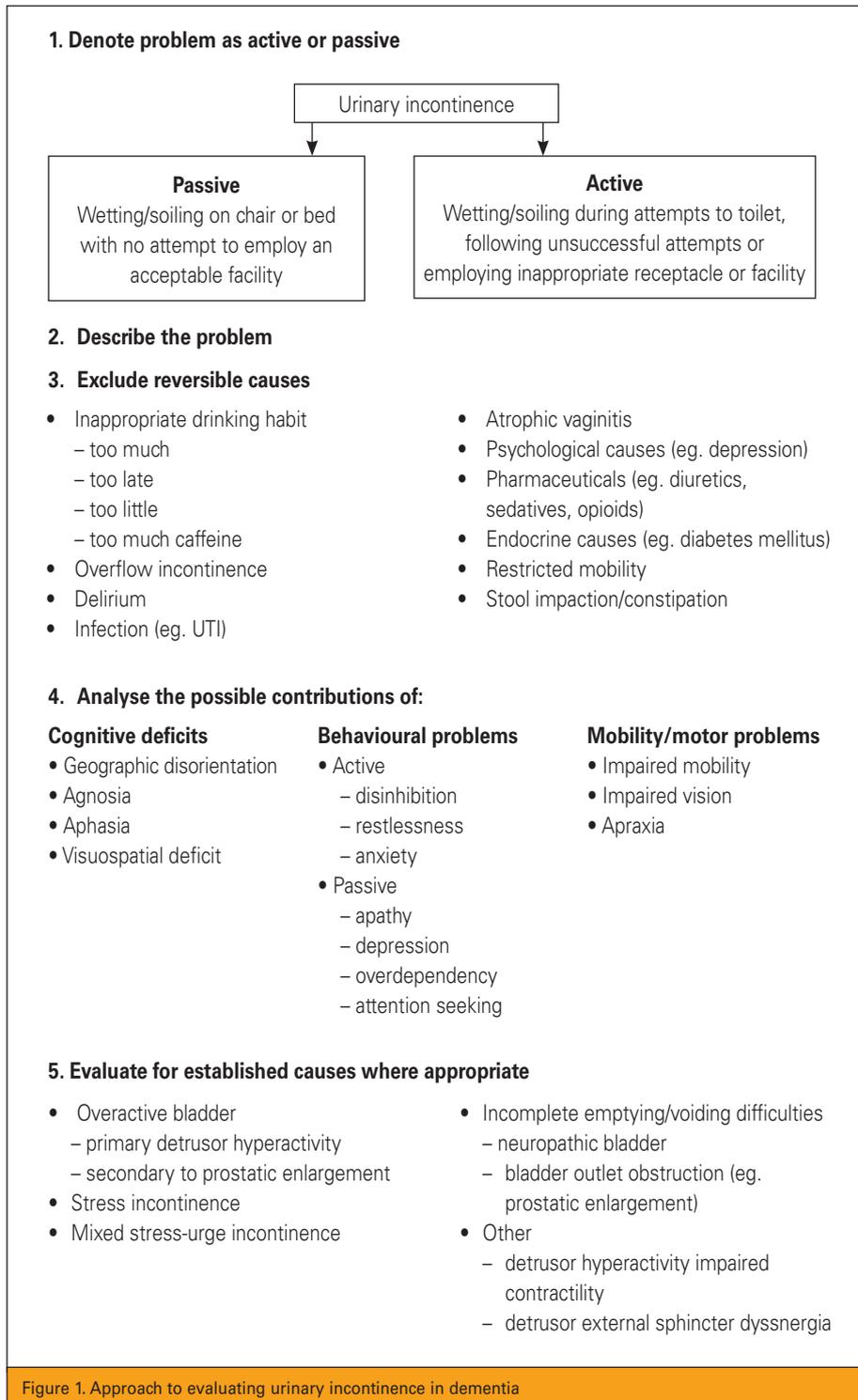


Figure 1. Approach to evaluating urinary incontinence in dementia

muscle relaxants have been used to reduce detrusor hyperactivity. There are no studies on the use of bladder relaxants as first line therapy in persons with severe cognitive impairment, especially if it has not been established that urge incontinence is the primary pathology.²⁵ The anticholinergic side effects of these drugs are a concern, as they can worsen constipation and cognition, raising the risk of delirium in the person with dementia. Although tolterodine, a popular drug for treatment of overactive bladder, has been shown to have a low incidence of central nervous system side effects,²⁶ instances of the drug inducing delirium have nevertheless been reported.²⁷ Perhaps, then, the role of the newer agents such as the selective muscarinic receptor antagonist darifenacin,²⁸ which does not cross the blood brain barrier, needs to be further explored in the person with overactive bladder and impaired cognition.

There is little data to support the use of pelvic floor exercises, biofeedback, and electrical stimulation (which are useful in people with no cognitive impairment) in people with dementia.

The role of continence aids

When all attempts at keeping the person continent fail, the use of continence aids is a last recourse. In this circumstance, the goals are to upkeep hygiene and cleanliness, prevent skin irritation and breakdown, reduce the risk of infections, decrease falls, and ease the caregiving task.

Indwelling and external catheters are discouraged as they can predispose to urinary tract infections,²⁹ while the latter can result in pressure necrosis around the genitalia. Catheters often precipitate confused behaviour

as the cognitively compromised person attempts to remove an object that is foreign to them and possibly causing discomfort. Nonetheless, catheters have a role in the temporary relief of acute urinary retention, in patients with open sacral sores to facilitate wound management, and when urine output monitoring is necessary.

Occasionally the person with dementia may pull off their diaper, much to the exasperation of their caregiver. Pull up pants can be an alternative here. Otherwise, applying absorbent pads on the undergarments can be attempted. The person with dementia may not always be aware of their deficits and may view attempts

to maintain continence and hygiene as intrusive. They may therefore react with resistance and even aggression, and an empathic approach is required.

Conclusion

Incontinence in dementia is complex because it is often multifactorial and does not lend itself to easy solutions. A comprehensive assessment is required, including looking at the stage and type of dementia with its resultant effects on the cognitive and functional abilities of the person, exploring their psycho-emotional world and behaviour, scrutinising the environment, and examining for medical factors and pathology in the urinary system. Management is directed at ameliorating the predisposing causes with the ultimate goals of maintaining independence, self esteem and health of the person with dementia. Finally, it should be remembered that in any intervention undertaken, the comfort and preference of the person remain priorities. The primacy of the person underlies all attempts at providing care.

Summary of important points

- Much of the incontinence seen in dementia may be functional incontinence where the cognitive impairment interferes with the ability to toilet.
- Potentially reversible causes of urinary incontinence should always be considered first, and treated accordingly.
- Cognitive, behavioural and mobility problems can contribute to functional incontinence.
- Effective communication is the key to alleviating caregiving problems in dementia.

Conflict of interest: none.

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Table 2. Management of incontinence in dementia

Therapeutic interventions

- Bladder/stool charting
- Timed/prompted voiding
- Intermittent urethral catheterisation
- Indwelling urethral catheterisation
- Absorbent pads/diapers/pull up pants
- Physiotherapy/ambulatory aids
- Medications for problems identified:
 - constipation: laxatives (eg. sennakot, lactulose)
 - overactive bladder: anticholinergic (eg. oxybutynin, tolterodine)
 - benign prostatic hypertrophy: alpha antagonist (eg. terazosin, alfuzosin)
 - Atrophic vaginitis: conjugated estrogen cream, pessary
 - urinary tract infection: antibiotics
 - behavioural and psychological symptoms of dementia: antipsychotics, mood stabilisers, antidepressants

Education

- Constipation protocol
- Dietary/fluid advice
- Perineal hygiene and care counselling
- Teaching behavioural intervention techniques for behavioural problems (eg. distraction, validation, resolution)
- Teaching supportive intervention techniques for motor or cognitive deficits (eg. for apraxia, mobility problems, agnosia, aphasia, spatial deficits)

Table 1. Reversible causes of urinary incontinence (DIAPPERS)

- Delirium
- Infection
- Atrophic vaginitis
- Psychological/behavioural causes
- Pharmaceuticals
- Endocrine causes
- Restricted mobility
- Stool impaction/constipation

- dementia. *J Geriatr Psychiatry Neurol* 1992;5:45–52.
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