Urinary and Fecal Incontinence in Nursing Home Residents

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Abstract

Urinary and fecal incontinence (UI, FI) are co-morbid conditions affecting over 50% of nursing home residents. Both forms of incontinence are risk factors for elderly persons to be placed in the nursing home, and such institutionalization itself is a risk factor for developing incontinence. Management should focus on identifying and treating underlying causes, such as detrusor instability, urinary tract infections, diet- or medication-induced diarrhea, constipation and fecal impaction. Despite appropriate management, residents may remain incontinent because of dementia and health or restraint-related immobility. Nursing homes lack the staff and financial resources to provide residents with sufficiently frequent toileting assistance (including prompted voiding). Use of special undergarments and absorbent pads is the usual practice. The article reviews the results of studies that have documented how prompted voiding programs can significantly reduce UI and FI, particularly if the intervention includes dietary and exercise components. Recent systematic anorectal testing of nursing home residents with FI has documented impaired sphincter function (risk factor for FI), decreased rectal sensation and sphincter dyssynergia (risk factor for constipation and impaction). The data suggest that the use of laxatives and stool softeners for prophylaxis against constipation and impaction related to underlying dyssynergia may have produced sufficient fluidity in the stool to predispose the residents with impaired sphincter function to manifest FI. Documentation of non-invasive and efficacious interventions by RCT and the labor costs of implementing these measures can lead to changes in how nursing home care is provided and funded.

Keywords

Fecal Incontinence; Constipation; Urinary Incontinence

Introduction

Urinary incontinence (UI) and fecal (FI) are commonly encountered in nursing home residents, and are associated with significant morbidity and utilization of health care resources. Urinary

incontinence has been estimated to affect between 50% and 65% of nursing home residents, and a majority of these residents also have FI [1,2,3]. The fact that so many nursing home residents have both UI and FI suggests a common etiology [3].. A recent follow-up study of residents in skilled nursing facilities in Wisconsin [4] confirmed that dementia and advancing age were consistently associated with the development of incontinence, but the strongest associations were impairment of activities of daily living and the use of patient restraints.

Pathophysiology of Urinary Incontinence

Numerous physical disorders contribute to the pathogenesis of UI among nursing home residents. Urologic, gynecologic, and neurologic disorders, and functional impairments - particularly dementia and lack of mobility (including bed restraints) - are primary factors ([5]. Many cross-sectional studies have demonstrated that UI and FI are associated with urinary tract infections, respiratory infections, constipation, and other disorders [6,7,8,9]. However, recent studies suggest that reducing UI and FI alone does not improve skin health or reduce hospitalizations, or decrease urinary tract infections [10,11]. Multifaceted interventions may be necessary to improve the chronic health problems associated with both forms of incontinence among nursing home residents [12].

It is important to diagnose and treat the underlying disorder(s), especially reversible conditions in order to reduce the severity and frequency of incontinence episodes. However, even when physiological conditions are improved, nursing home residents may continue to have "functional" incontinence for several primary reasons: a) lack of mental awareness, b) physical inability to properly toilet themselves; c) failure of understaffed nursing homes to provide residents with frequent assistance in toileting (prompted voiding); d) tendency by staff to rely heavily on special undergarments and absorbent pads. In this article, we review the risk factors for the development of UI and FI and address how nursing homes can reduce incontinence by providing residents with adequate toileting assistance in the face of staff and funding limitations.

We also found that medical documentation about the daily care-delivery may be so erroneous that even the best-intentioned efforts to improve the care received by residents may not be successful [13]. A culture of inaccurate documentation is largely created by a discrepancy between expectations for health care placed on nursing homes by regulatory guidelines and inadequate reimbursement and staffing to fulfill these expectations. Nursing home staff has little incentive to implement the technologies necessary to audit and assure data quality if accurate documentation reveals that care consistent with regulatory guidelines is not or cannot be provided due to inadequate staff. A survey process that largely focuses on chart documentation to assess quality provides further incentive for care-process documentation as opposed to care-process delivery.

There are two potential solutions to this problem. The first solution is to maximize the efficiency of available staff resources by targeting residents for toileting programs who are most responsive. This would at least make it more feasible for staff to provide adequate toileting assistance to a subset of residents and in so doing would increase the probability of accurate documentation. Validated methods to accomplish such targeting will be described later in this chapter. The second solution is to implement quality monitoring programs that collect information for improvement purposes as opposed for compliance purposes. This information could be stored out of the medical record and hence protected from survey scrutiny which reduces another source of motivation for inaccurate documentation. Methods to collect accurate data about care and the type of data that is useful for improvement have been described. [14]

Urinary incontinence among nursing home residents

Immobility and dementia are the most critical factors contributing to the development of UI in nursing home residents. In three clinical trials assessing the prevalence of UI [12,15,16], 60% to 90% of incontinent nursing home residents had significant mobility problems and the average Mini-Mental Status Score for incontinent residents ranged from 8 to 14, indicating severe cognitive impairment. These data support the conclusions of other research identifying immobility and dementia as the primary risk factors for developing UI [17].

Immobility increases the likelihood of incontinence among nursing home residents by preventing them from getting to the toilet; dementia reduces their motivation to do so. There is also ample evidence of dysfunction in the lower urinary tract among nursing home residents [18,19,20]. However, any intervention in the nursing home setting must consider immobility and dementia as first-stage treatment priorities. Treating the bladder abnormalities alone will not alleviate UI especially if the resident lacks consistent access to, and motivation to use a toilet.

The degree to which both immobility and dementia contribute to UI is best estimated by clinical trials employing prompted voiding. Three intervention elements of a prompted-voiding program compensate for immobility- and dementia-associated risk factors: (1) residents are approached every 2 hours and asked if they are wet or dry; (2) residents are prompted up to three times to request assistance; and (3) when they ask for assistance, residents are socially reinforced and given that assistance to the toilet [21]. This simple intervention is labor-intensive, does not involve treatment of lower-urinary-tract abnormalities, and is effective. In various clinical trials, 33% to 60% of residents reduced the frequency of their incontinence to less than one episode per day or became continent after participating in a prompted-voiding program [22,23,24].

Treatment options for UI among nursing home residents

Bladder abnormalities that are common among incontinent nursing-home residents could be targeted for treatment. Residents who are unresponsive to prompted voiding have higher baseline voiding frequencies, smaller bladder capacities, and higher post-voiding residuals [22]. Although lower-urinary-tract disorders no doubt limit the effectiveness of scheduled toileting interventions, these problems have not been predictive of residents' responsiveness to toileting assistance [23].

The best predictor of responsiveness to prompted voiding has been a residents' ability to appropriately toilet during the first 2 to 3 days of the intervention. Residents who were appropriately toileted (defined as the number of continent voids divided by continent plus incontinent voids) 65% of the time or more during a 3-day trial period, tended to maintain continence with a toileting program over longer time periods [23,24].

This targeting protocol should result in the identification of 30–50% of residents who are most responsive to prompted voiding and it thus becomes more feasible for staff to maintain consistent toileting assistance with this limited number of responsive residents. The remaining residents are best managed with a less labor intensive changing program and the use of absorbent pads and diapers unless the reasons for their unresponsiveness to toileting assistance can be addressed.

The most common types of incontinence which may explain a residents unresponsiveness to toileting assistance and how these conditions are treated are listed in Table 1. However, it is important to note that most of the treatments listed in the table have been evaluated only in community dwelling incontinent people that were included in the treatment trials because they

were independently mobile and cognitively intact. Most long term stay nursing home residents do not meet these inclusion criteria.

The most typical types of incontinence documented in the nursing home is stress and urge with many residents showing symptoms of both. Stress incontinence is characterized by loss of urine due to increase in abdominal pressure (e.g. a cough). This condition is associated with pelvic floor or urethral weakness and treatments include surgery (bladder neck suspension) and exercises such as Kegle exercise or biofeedback. The focus of biofeedback is to teach the patient how to tighten pelvic floor muscles without increasing abdominal pressure. There are published studies showing the effectiveness of these treatments in populations outside the nursing home [25].

Urge incontinence is characterized by involuntary loss of urine due to detrusor hyperactivity and inability to delay voiding. Mediations with anti cholinergic effects and behavioral treatments such as bladder drills are recommended treatments. One recent placebo controlled trial in which oxybutynin was added to prompted voiding showed that a small sub group of residents with detrusor hyperactivity may benefit from this drug. There are no other controlled trials showing the benefits of bladder relaxant drugs in the nursing home even though new long acting preparations await controlled testing. Bladder drills require a patient to resist the sensation of urgency to postpone voiding according to a time table that is progressively increased. Initially the goal is set at 2–3 hours and than extended. This procedure has never been evaluated in an nursing home population and it is doubtful if many residents could comply with the therapeutic instructions to delay voiding.

A smaller percentage of nursing home residents have incontinence associated with incomplete bladder emptying that is characterized by high (> 200 ml) post void residuals. Treatment is suggested if these high residuals are associated with complications such as recurrent UTIs. Interventions include correcting anatomic problems such as an enlarged prostate or a large cystocle. If there is no anatomical problem than either intermittent or indwelling catheters are options.

The interventions for incontinence described in this section are either invasive or require a person to follow multiple step instructions in the case of the behavioral treatments. It is doubtful if most are widely applicable to a nursing home population and there is evidence that consumers prefer behavioral treatments over the more invasive interventions and medications.[26]

In this regard, it has been suggested that prompted voiding be a first line treatment for incontinence for all nursing home residents and that further treatment only be considered for those residents who are highly motivated to be continent but who remain frequently wet in response to prompted voiding. The choice of the intervention for this latter group of residents will largely depend on their ability to follow multi step instructions or to tolerate surgery. In addition, if the resident is unable to independently toilet then any treatment will have to be supplemented with prompted voiding [25].

Fecal incontinence among nursing home residents

In nursing homes, FI may be a marker of declining health and increased mortality. In one study, 20% of nursing home residents developed new onset of FI during a 10-month period after admission. Also, long-lasting incontinence was associated with reduced survival [27]. Immobility and dementia preclude residents from getting to the toilet in time and are important risk factors for the development of FI. Adjusting for the major reasons to apply patient restraint: dementia, blindness, arthritis and stroke, along with other risk factors for incontinence, the use of patient restraints was the most significant cause for the development of incontinence in nursing homes in one recent report [4].

Two studies that did not involve a toileting program have confirmed that dementia and immobility play a key role in the development of FI. A retrospective study found that 46% of 388 nursing home residents were affected by FI. Although diarrhea was the strongest risk factor, dementia actually played a greater role in the development of FI [1]. Borrie and Davidson [28] also found that 46% subjects (among 457 long-term care hospital patients) had FI, and concluded that immobility and impaired mental function were independent predictors of FI. Immobility was the strongest predictor of FI as measured by nursing time spent towards assisting incontinent patients, handling laundry and incontinence supplies [28].

The role of these risk factors can be minimized by a prompted-voiding program, even if residents have disorders that contribute to their FI. Two studies have estimated the effectiveness of scheduled toileting programs in reducing the frequency of FI, thereby assessing the extent to which immobility and dementia contribute to this condition [11,29]. In one study, toileting assistance for UI offered to male and female residents every 2 hours significantly decreased UI and significantly increased the number of appropriate bowel movements from 23% to 60% (n = 165) [29]. Although the frequency of FI was not decreased significantly, there was a trend in this direction. The second UI treatment trial [11] involved a comprehensive intervention that integrated toileting assistance (prompted voiding), a fluid-prompting protocol, and exercises to improve mobility. Residents showed significantly decreased UI, increased fluid intake, and improvements in mobility endurance. This program also resulted in a significant decrease in the frequency of FI from 0.6 to 0.3 episodes per day and a significant increase in appropriate fecal voiding in the toilet. However, the frequency of FI was only measured over 2-days and 46% of the residents had no fecal voids (continent or incontinent) revealing that constipation remained a persistent problem. The lack of a significant difference between the intervention and control groups in the total frequency of fecal voids during this two day monitoring period suggested that constipation was not alleviated by the intervention. Neither of these trials controlled for laxative use, medications with constipating side-effects, or caloric intake which was known to be very low, consequently fiber intake may have also been low. Also, anorectal function was not determined.

Similar to UI, several gastrointestinal disorders can play a role in the etiology of FI in nursing home residents. Common causes are impaired anorectal sensation, lower sphincter squeeze pressures, and reduced integrity of sphincter and/or pelvic floor muscles [30].One report described a subset of mentally intact but immobile nursing home residents - particularly stroke victims - who have FI but have normal anorectal function. These residents require assisted toileting more than any other interventions. This small study compared anorectal measurements for 4 nursing home residents who had FI, 6 ambulatory, elderly community-dwelling subjects who had FI, and 4 controls without FI [32]. Two of the 4 nursing home residents had normal measurements upon anorectal testing, with normal squeeze duration and squeeze pressures. Despite having intact mental status and an awareness of impending bowel movement, both individuals had stroke-related impairment of their mobility and therefore required toileting assistance. However, the other two nursing home subjects had reduced squeeze pressures and other abnormalities compared to controls. The results suggest that although symptoms normally correlate with manometric abnormalities in ambulatory persons with FI, such correlation may not exist among immobile nursing home residents with FI. An incorrect diagnosis of the factors influencing FI may have a negative effect on the perception of nursing home resident regarding their management, and may partially account for the disparity between their observed symptoms and anorectal measurements [32].

Constipation plays an integral role in the development of fecal impaction and FI among the institutionalized elderly. The incidence of constipation increases with age and is also attributable to immobility, "weak straining ability", the use of constipating drugs, and neurological disorders [33]. Defined as two or fewer bowel movements per week, hard stools,

straining at defecation, or incomplete evacuation, constipation can result from a combination of lack of dietary fiber intake, poor fluid intake and dehydration, and the concurrent use of various "constipating" medications [34]. Fecal impaction, a leading cause of FI in the institutionalized elderly [35], results largely from the person's inability to sense and respond to the presence of stool in the rectum. Decreased mobility and lowered sensory perception are common causes [36]. A retrospective screening of 245 permanently hospitalized geriatric patients [37] revealed that fecal impaction (55%) and laxatives (20%) were the most common causes of diarrhea and that immobility and FI were strongly associated with fecal impaction and diarrhea.

Constipation, fecal impaction, and overflow FI are common events in nursing home residents. Until recently, in the absence of comprehensive anorectal testing, drug-induced constipation was considered the most likely explanation. However, the high prevalence of constipation in nursing home residents is only partly due to adverse drug effects [38]. A recent study reported systematic anorectal testing of nursing home residents with FI. This preliminary report documented for the first time impaired sphincter function (risk factor for FI), decreased rectal sensation and sphincter dyssynergia (risk factor for constipation and impaction) affecting up to 75% of the assessed residents [31]. The sphincter dyssynergia documented in these nursing home residents with FI [31] has shed new light on the frequent association between constipation and FI in nursing home residents.

Treatment options for FI among nursing home residents

Unlike UI there is a paucity of data derived from randomized controlled trials of treatment regimens of FI in the nursing home setting. A Medline search of publications from 1966 to 2008 performed on May 10, 2008 yielded the following number of citations – FI (n = 6469), nursing home (n = 27343), RCT (n = 56019), evidence based (n = 40500), FI and nursing home (n = 126), FI, nursing home and RCT (n = 0), FI, nursing home and evidence based (n = 0). Much of what follows is a narration of clinical experience repeatedly reviewed in the literature.

When FI is associated with diarrhea, it is important to treat underlying disorders, such as lactose malabsorption (or intolerance), bile salt malabsorption, and inflammatory bowel disease. Antidiarrheal medications, such as loperamide [39] and diphenoxylate [39], or bile acid binders such as cholestyramine [40] may help. Gradually increasing the intake of dietary fiber can relieve constipation for many elderly subjects. Stool softeners, saline laxatives, stimulant laxatives, and single-agent osmotic products are frequently administered as prophylactic treatment against constipation and impaction. In a study of institutionalized elderly patients [41], the use of a single osmotic agent with a rectal stimulant and weekly enemas to achieve complete rectal emptying reduced the frequency of FI by 35% and the incidence of soiling by 42%. If fecal impaction is not relieved by laxatives and better toileting, a regimen should be implemented using manual disimpaction, tap water enemas two or three times weekly, and possible use of rectal suppositories [42]. However, in the presence of impaired sphincter function and decreased rectal sensation, the fluidity of the stool induced by the use of laxatives and stool softeners administered to prevent constipation and impaction may in fact predispose the nursing home residents to manifest FI. The recent finding of anal sphincter dyssynergia in a high proportion of nursing home residents with FI [31] suggests that a new approach to the management of FI should consist of neuromuscular conditioning to improve the dyssynergic sphincter function. Even though the efficacy of biofeedback therapy has been demonstrated by a randomized controlled trial in ambulatory patients [43], in nursing home residents dementia and immobility may limit the effectiveness of such treatment. Hence, other novel approaches deserve to be considered.

Skin care in nursing home residents with incontinence

The use of a defined skin care regimen that includes a cleanser and a moisture barrier is associated with a low rate of incontinence-associated dermatitis in these incontinent residents, and use of a polymer skin barrier film 3 times weekly is effective in preventing incontinence-associated skin breakdown [44]. One uncontrolled trial focused on an innovative adult brief that encouraged skin cleansing during incontinence care. The system was easily and effectively incorporated into the nursing home, was used and favored by certified nurse assistants whenever available (97% of the time). Patterns of incontinence care differed at follow-up with one step incontinence system compared to wipes placed at the bedside, with fewer linens used, fewer wipes used, and less certified nurse assistant interruption during care [45].

Summary

Multiple studies have shown that dementia and health- or restraint-related immobility contribute to UI and FI. These factors must be considered when developing interventions to improve UI or FI in nursing home residents. Two clinical intervention trials [11,29] that evaluated the effects of prompted voiding on UI and FI have demonstrated that scheduled toileting significantly increased the rates of appropriate urinary and fecal voids and can decrease the frequency of UI. However, only the trial that combined prompted voiding with a fluid intake and exercise protocol resulted in a significant decrease in the frequency of FI episodes. Even in this successful trial [11], the overall rate of bowel movements remained low: During 2 days of hourly checks, 43% of residents had no bowel movements, despite consistent toileting assistance, exercise, and increased fluid intake and exercise. Fifty-six percent of the control subjects who received no intervention also had no bowel movements during the 2 days of hourly checks. The recently described high prevalence of sphincter dyssynergia in nursing home residents with FI [31] may offer the missing link in this enigma.

Future research

Longer measurement periods, control for laxatives and medications with constipating side-effects and an intervention to increase both food and fluid intake are necessary. Feeding assistance protocols which significantly improve caloric intake in this population [46] should also be considered. Staff time requirements need to be documented. The addition of simple behavioral modification of advice to refrain from straining, so as not to trigger the development of sphincter dyssynergia, and the use of bulking agents [47,48] combined with scheduled toileting [11,29] should be compared with usual laxative prophylactic management. Finally, the role that inadequate staffing and staff management have in contributing to incontinence in so many residents should continue to be documented until policy level changes are made in how nursing homes are reimbursed and evaluated. For FI treatment, toileting assistance seems logical. The effectiveness and time requirement of a comprehensive program addressing not only immobility and dementia but also other factors including physical activity, medications, disimpaction and resolution of sphincter dyssynergia, remains to be evaluated.

Acknowledgement

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Table 1

Type	Symptoms	Common Causes	Treatment
Stress	Involuntary loss of urine usually small amounts) simultaneous with increase in intra-abdominal pressure such as those caused by coughing, sneezing, laughing)	Weakness and laxity of pelvic floor musculature resulting in hyper mobility of the bladder base and proximal portion of the urethra. Bladder outlet or urethral sphincter weakness (intrinsic sphincter deficiency) related to prior surgery or trauma.	Surgery Kegle Exercise Biofeedback
Urge	Leakage of urine (usually larger but often variable volumes) because of inability to delay voiding after sensation of bladder fullness is perceived	Detruser hyperactivity isolated or associated with one or more of the following: Local genitourinary condition such as cystitis, urethritis, tumors, stones, diverticula, outflow obstruction, impaired bladder contractility (DHIC) Central nervous system disorders such as stroke, dementia, parkinsonism, spinal cord injury, or disease	Medication Bladder Drill
Incomplete Emptying	Leakage of urine (usually small amounts) resulting from mechanical forces or an over-distended bladder	Anatomic obstruction by prostate, large cystocele Acontractile bladder associated with diabetes mellitus or spinal cord injury	Surgery Catheter