SURELY WE DON'T INVESTIGATE IF THEY ARE VERY OLD?*

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INTRODUCTION

As a geriatrician, my initial response to the question I was asked to address in this presentation is: 'What difference does it make if they are very old? If incontinence is a bothersome problem for the patient, or a caregiver, why would we not investigate it?' But, the question is really quite complex, and deserves more than a simple answer. To some extent, the answer to a significant extent depends on what is meant by 'investigate' and 'very old.' The question also strikes at the heart of many issues fundamental to geriatric care. Who, among the heterogeneous geriatric population, benefits from specific diagnostic investigations and therapeutic interventions? What are the preferences of very old patients for such investigations and interventions? Are there good data, practice guidelines, or rules and regulations that assist us? How can we provide, in a cost-effective manner, high-quality care for a geriatric condition such as incontinence, that is scientifically sound, desired by patients, and demanded by public accountability?

Before answering the question 'Surely we don't investigate if they are very old?' and attempting to address the issues I have outlined, I would like to follow in the footsteps of two professors of Geriatric Medicine from the United Kingdom who taught me a lot about both geriatrics and incontinence. Professor Bernard Issacs from Birmingham (recently passed away after moving to Israel), and Professor John Brocklehurst from Manchester, helped me to understand geriatrics and incontinence better by describing individual patients. So, let me describe some typical 'very old' incontinent patients who will help illustrate the points I will make.

CASE STUDIES

Sara

Sara is 78 years old. She has diet-controlled diabetes mellitus, arthritis, osteoporosis, and congestive heart failure. All of these conditions are minimally symptomatic on regular paracetamol (acetaminophen), and frusemide taken every other day. Over the last few years, she has been increasingly bothered by incontinence when she bends, climbs stairs, laughs, and coughs; these symptoms have become so bothersome that she no longer socialises with friends. They also require her to wear pads, and make caring for her husband, Sam (see below), difficult and uncomfortable. On a visit to her primary physician, Sara complains about the incontinence, and the physician does a pelvic examination and a post-voiding residual determination estimated at 350 ml. The pelvic examination revealed a large cystocele, and cough-induced urine loss. Sara expresses a strong desire to have her incontinence 'fixed'.

Sam

Sam is 81 years old and Sara's husband. Shortly after turning 80, Sam suffered two strokes, which left him severely aphasic, immobile and dependent on Sara for the basic activities of daily living. Since the second stroke, he has been incontinent of both urine and stool. Sara changes him regularly, and says that his skin is free of irritation and pressure ulcers. She wants to know if anything can, or should be, done to evaluate and treat Sam's incontinence.

Sadie

Sadie is 98 years old and Sam's mother. She is fit and remains active. Her main complaint to her physician is that her 'bladder is weak'. Over the last 2-3 years she has had to rush to the bathroom every 1-2 hours during the day, and get up 3-4 times at night. In addition, she loses urine on the way to the toilet frequently, this requiring her to wear a pad. She has no symptoms of stress incontinence or voiding difficulty. She limits her fluid intake, avoids coffee, tea and wine (all of which she would like to have), and maintains regular bowel movements with bran and prune juice. Her symptoms are slowly worsening, and they now restrict her ability to shop and socialise. She is worried that she will fall on the way to the bathroom, and would like treatment.

Sidney

Sidney is 96 years old and Sara's father. He has longstanding insulin-dependent diabetes and had a stroke at age 92 from which he fully recovered. At age 82, he had a transurethral resection of the prostate for obstructive voiding symptoms. He ambulates with a walker, but is able to toilet independently. He is very bothered by symptoms of frequency, nocturia, urgency and urge incontinence. He also complains of voiding difficulty with a slow, intermittent urinary flow and straining to empty his bladder. He is very anxious to have treatment for these symptoms.

INITIAL INVESTIGATION

I would argue that only a small proportion of even 'very old' incontinent patients should not undergo an initial investigation. In the United States there are practice guidelines, and government rules and regulations for nursing-home care are in force and they recommend a basic assessment of incontinent patients. The Agency for Health Care Policy and Research (AHCPR) clinical practice guidelines[1] recommends the following basic assessment:

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- Focused history,
- Targeted physical examination,
- Urinalysis,
- Post-voiding residual determination.

The Resident Assessment Instrument (RAI) is a mandated process for all nursing home residents in facilities certified by Medicare and Medicaid in the United States. The RAI has two major components: the Minimum Data Set (MDS) and the Resident Assessment Protocols (RAPs).[2] The MDS is a global assessment that includes a section on continence status (Figure 1). The MDS is completed within 14 days of nursing home admission, and selected sections (including the one on continence) are completed quarterly thereafter. If incontinence is identified (or if it has worsened), the RAP for incontinence should be initiated. The incontinence RAP is similar to the AHCPR guidelines, with some areas of special focus relevant to the frail elderly.

The American Medical Directors Association (AMDA), an organisation of medical directors of long-term care facilities, has published a practice guideline on incontinence that combines elements of both the AHCPR guideline and the RAP.[3] The key differences in the AMDA guideline include: 1) The patient's overall status and preferences are included explicitly in the algorithm determining the extent of investigation; 2) A urinalysis and urine culture is not recommended for all patients, because clean specimens are difficult to collect in this population, and the results may not change treatment. Specifically, bacteriuria (with or without pyuria) would not be treated unless the incontinence is new or worsened, or there are other symptoms of infection. Treatment of 'asymptomatic' bacteriuria in this population does not affect morbidity or continence, and can result in unnecessary side-effects, expense and the development of resistant organisms.[4-6] Moreover, sterile hematuria, a clear indication for further investigation in younger patients may not require such investigation if the patient is not a candidate for cystoscopy and intervention for malignancy or other pathologies; and 3) A post-voiding residual determination (PVR) is recommended for most patients in the AHCPR guideline because symptoms and physical signs are not sensitive or specific in detecting significant residual urine. However, in the absence of a bladder ultrasound, catheterization for PVR may be difficult and uncomfortable for many nursing-home residents. The AMDA guideline therefore recommends a PVR only for those at risk for retention (e.g. diabetics, men, patients with certain neurological disorders) in whom further investigation would be undertaken if a high PVR were found.

What is the purpose of the initial investigation of very old incontinent patients? There are three basic objectives:

- Identification of potentially reversible causes and contributing factors,
- Determination of the need for further investigation,
- Development of a management plan.

Potentially reversible causes and contributing factors can be identified through the basic assessment outlined above (Table 1), as can specific criteria for further investigation (discussed in the section that follows).

1	Continence Self-control Categories (Code for resident *performance over all shifts*) 0. Continent - Complete control. 1. Usually continent - bladder, incontinent episodes once a week or less; bowel, less than weekly. 2. Occasionally incontinent - bladder, 2+ times a week but not daily; bowel, once a week. 3. Frequently incontinent - bladder, tended to be incontinent daily, but some control present (e.g.on day shift); bowel, 2-3 times a week. 4. Incontinent - had inadequate control. Bladder, multiple daily episodes; bowel, all (or almost all) of the time.	
a	Bowel continence	Control of bowel movement, with appliance or bowel continence programs, if employed.
b	Bladder continence	Control of urinary bladder function (if dribbles, volume insufficient to soil through underpants), with appliances (e.g. Foley) or continence programs, if employed.
2	Bowel elimination pattern	Bowel elimination pattern a. Diarrhoea ❑ b. Regular - at least one movement every three days ❑ c. Faecal impaction ❑ d. Constipation ❑ e. None of above ❑
3	Appliances and programmes	Any scheduled toileting plan a. ___ Did not use toilet room/commode/urinal Bladder retraining program b. ___ Pads/briefs used External (condom) catheter c. ___ Enemas/irrigation Indwelling catheter d. ___ Ostomy present Intermittent e. ___ None of above
4	Change in urinary continence	Change in urinary continence has changed as compared to status of 90 days ago (or since last assessment if less than 90 days).

FIGURE 1
Continence status section from the minimum data set. (Continence status is assessed over the past 14 days at the time of nursing-home admission and quarterly thereafter.)

It is critical to understand that the goal of identifying and managing these reversible causes and factors may not be to cure or even ameliorate the incontinence. Identifying and treating the conditions listed in Table 1 is also essential in order to:

- improve function and quality of life,
- prevent potentially morbid and expensive consequences of not identifying treatable conditions.

So which very old patients may not even be appropriate

TABLE 1
Potentially reversible conditions that can cause or contribute to urinary incontinence.

CONDITIONS	MANAGEMENT
Irritation or inflammation in or around the lower urinary tract	
Urinary tract infection (symptomatic with frequency, urgency, sudden onset or worsening of incontinence, unexplained fever or functional decline)	Antimicrobial therapy
Atrophic vaginitis/urethritis	Topical oestrogen
Stool impaction	Disimpaction Appropriate use of stool softeners and laxatives if necessary Adequate mobility and fluid intake
Increased urine production	
Metabolic (hyperglycaemia, hypercalcaemia)	Better control of diabetes mellitus Therapy for hypercalcaemia depends on underlying cause
Excess fluid intake	Reduction in intake of diuretic fluids (e.g. caffeinated beverages)
Volume overload	
Venous insufficiency with oedema	Support stockings Leg evaluation Sodium restriction Diuretic therapy
Congestive heart failure	Medical therapy
Drug side-effects	
Rapid acting diuretics causing frequency and urgency	Discontinuation of the offending medication if possible
Anticholinergics, narcotics, calcium channel blockers, alpha adrenergic agonists (in men) causing urinary retention	Dosage reduction or modification (e.g., flexible scheduling of rapid acting diuretics)
Alpha adrenergic antagonists causing urethral relaxation and stress incontinence	
Psychotropic drugs with sedative or extrapyramidal effects causing sedation and immobility that interfere with toileting	
Impaired ability or willingness to reach a toilet	
Delirium	Diagnosis and treatment of underlying cause(s) of acute confusional state
Illness, injury or restraint that interferes with mobility	Regular toileting assistance Use of toilet substitutes Environmental alterations (e.g. bedside commode)
Depression	Appropriate pharmacological and/or non-pharmacological treatment

for initial investigation? As has already been stated, very few. Examples might include: 1) Patients who are terminally ill and who desire only supportive care; 2) Patients who are so severely cognitively impaired that they cannot respond to a simple prompt to void; 3) Patients with such severe immobility, due to pain and/or other conditions, that they require a two-person transfer or a lift; and 4) Patients with severe behavioural disturbances who become verbally or physically agitated with attempts to toilet. Even in such patients, however, one could argue it may be important to perform a basic history and examination to rule out conditions such as delirium requiring specific intervention, stool impaction (which may cause both urinary and stool incontinence, and can be very uncomfortable), and environmental barriers that interfere with safe and convenient toileting.

FURTHER INVESTIGATION

Even some very old and frail incontinent patients are appropriate for further evaluation. Examples of specific criteria for further investigation are illustrated in Table 2. The rationale for further investigation is twofold:

- Diagnose conditions that require intervention to prevent medical morbidity and expense
- Determine the specific cause(s) of the incontinence, so that specific and targeted treatment can be initiated.

Examples of conditions in the first category include a history of recurrent urinary tract infections, which may indicate a structural or often pathological abnormality such as a bladder or kidney stone which should be addressed; sterile hematuria, which may be a sign of malignancy; significant urinary retention (e.g., PVR > 400 ml) that can predispose to urinary tract infection and jeopardise the upper urinary tract; and severe pelvic floor prolapse that can result in skin irritation and urinary retention if not corrected. Examples of conditions in the second category include urinary retention (i.e. PVR > 200 ml) of uncertain aetiology; patients with symptoms and signs of obstruction; and patients with unclear symptoms, who have failed conservative measures (i.e. education, behavioural therapy, drug treatment) who remain unsatisfied and want further therapeutic intervention.[7,8]

In making a decision about further investigation, one general principle is especially relevant to the very old:

'Will the results of the investigation change the way in which you treat the patient?'

If the answer to this question is yes, then investigation is warranted. If the answer is no, then further investigation should not be undertaken.

CASE STUDIES REVISITED

Sara

While Sara has typical symptoms of stress incontinence, her problem is more complicated. She meets at least three

TABLE 2
Examples of conditions that may require further investigation in very old incontinent patients.

CONDITION	RATIONALE
I. History	
A. Recurrent symptomatic urinary tract infections in addition to the incontinence	A structural abnormality or pathological condition in the urinary tract predisposing to recurrent symptomatic infection should be excluded
II. Physical Examination	
A. Marked uterine or bladder (cystocele) prolapse protruding through the vaginal introitus	Consideration should be given to surgical repair or pessary management to prevent discomfort and tissue erosion, as well as to treat the incontinence
B. Suspicion of prostatic cancer	While surgical intervention to cure the cancer would not be appropriate for most very old men, diagnosis of the cancer may be important in managing the incontinence and other complications
III. Urinalysis	
A. Haematuria (sterile)	Urological evaluation should be considered to identify urinary tract pathology requiring specific treatment
IV. Post-voiding Residual Determination	
A. Residual volumes > 200 ml	Residual volumes > 200 ml are abnormal, and should lead to consideration of further evaluation of the urinary tract to identify complications (e.g. hydronephrosis, renal function impairment) and to determine the cause of the retention (obstruction, impaired bladder contractility, both)

criteria for further investigation: 1) a large cystocele; 2) a high PVR; and 3) a desire for definitive treatment. If Sara was my patient (or my mother for that matter), I would refer her to a urologist or gynaecologist who would carry out complex urodynamic testing to determine whether surgery or some other treatment modality is most appropriate for her incontinence problem.

Sam

Sam is an unfortunate gentleman with severe multi-infarct dementia. He is well cared for by his wife Sara, and she has kept his skin free of irritation. I would argue that the results of any investigation of Sam's incontinence would not change the way I would treat him. I would therefore reassure Sara that her checking and changing is the most appropriate management at this point, and reinforce the devoted care she is providing for him.

Sadie

Sadie has typical symptoms of an overactive bladder. Despite her age of 98 she is relatively well, has a legitimate concern about falling, and would like treatment. Appropriate initial treatment for her symptoms is behavioural therapy (bladder training, pelvic muscle exercises, biofeedback) alone or combined with bladder relaxant medication. Before treating her, I would carry out a urinalysis to rule out sterile hematuria (an indication for further investigation, see Table 2), and bacteriuria. Although eradicating bacteriuria has no effects on chronic incontinence among frail nursing home residents,[6] data are less clear among community-dwelling, functional patients. In Sadie's case, I would therefore treat the bacteriuria, if present, once with a 7-10 day course of an antibiotic to see if her symptoms improve. I would also do a PVR by ultrasound, because it is non-invasive and I do not fully trust my history and physical examination to rule out significant retention. If I did not have access to a bladder ultrasound, I would probably not expose her to catheterization given her low risk for urinary retention and clinical findings. I would not carry out any further investigations.

Some experts would disagree and recommend a cystometrogram to document detrusor muscle instability. I do not believe it is necessary, because my first therapeutic intervention would be behavioral therapy, which is effective for urge, stress, and mixed incontinence.[9] Given her symptoms and age, the pre-test likelihood that she has detrusor instability is extremely high, and thus I would also feel comfortable giving her a therapeutic trial of bladder relaxant medication without further investigation.

Sidney

Despite being 15 years older than Sam, Sidney, at age 96, is an appropriate candidate for urodynamic evaluation before treatment of his incontinence. His age, symptoms, prior history of stroke, and male gender make the likelihood of finding detrusor instability (detrusor 'hyperreflexia' given his history of stroke) very high. But, unlike Sadie, Sidney has at least three reasons to pursue a urodynamic evaluation before a therapeutic trial - especially of a bladder relaxant medication. First, he has symptoms of voiding difficulty, which, while non-specific, are of concern given his overall clinical picture. Second, he has diabetes mellitus, which puts him at risk for a diabetic neuropathic bladder and urinary retention. And finally, his symptoms may be the result of prostatic enlargement, urethral stricture, or bladder neck contracture causing obstruction. Thus, Sidney is a good example of a very old patient in whom investigation of his urinary symptoms would be entirely appropriate before a therapeutic trial of drug treatment for incontinence).

CONCLUSION

It may perhaps be trite to repeat the saying that 'each patient is an individual'. The case histories given do illustrate this and emphasise the need for an individualistic approach tailored to the needs and expectations of that specific patient. In the treatment and care of the incontinent elderly patient, there is no difference.

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