

Clinical Set Problem

Alice Dripsen

Alice Dripsen is a 69-year-old white woman presenting as a new patient today in the office. Her previous physician retired and Mrs. Dripsen states that she needs a new doctor. She complains of a dry, hacking cough present for 3 to 4 days associated with clear rhinorrhea. She reports that she has symptoms like this twice per year; usually in the spring and fall. She denies fever, chills, sweats, wheezing, dyspnea or chest pain. Her appetite is at her normal baseline, and she states, "Everything else is fine." She describes herself as "otherwise pretty healthy" except for being "a little overweight." She has struggled with weight issues for many years since she began having children in her mid-twenties.

Upon examining Mrs. Dripsen you notice the edge of an adult diaper and inquire about urinary incontinence. She quietly states that she "leaks urine sometimes." She states the leakage has been going on for about 3 or 4 years but usually "isn't too bad." It occurs mostly when coughing and sneezing but sometimes when laughing very hard. She used to enjoy participating in aerobics classes at the local gym but stopped going after a couple "accidents" where she had a gush of urine and became very embarrassed. She is wearing the diaper today because she knew she'd be coughing and leaking all day. Other times, she just tries to avoid activities that cause the leaking because she doesn't really like wearing the diapers. She jokes that the leakage is "just part of getting old."

Past Medical History: Mrs. Dripsen has been treated for hypertension for the past 6-7 years, most recently with valsartan-hydrochlorothiazide 160-25 (generic, Diovan HCT). She remembers being told that her blood sugars have been "borderline" in the past. She does not take any other medications. She is a G4P4 with four uncomplicated spontaneous vaginal deliveries. She had a total abdominal hysterectomy for fibroid tumors in her 50s. She is not sure whether her ovaries were removed. She has no known drug allergies. She is up to date on all recommended immunizations.

Family History: Her mother is 90 years old and living in a nursing home with "bad arthritis" and "confusion." The patient states that her mother also "leaks urine – way more than I do." Her father died from prostate cancer at age 77 years. The patient has 3 younger brothers and 1 younger sister. She is not aware of any major health problems in any of them but thinks one or two of them might also have high blood pressure. She has four grown children and four grandchildren and is expecting her fifth grandchild in a few months. They are all healthy as far as she knows. She denies any family history of cardiopulmonary disease or diabetes.

Social History: She is divorced and lives alone. She was a full-time homemaker until her kids left home and then worked part-time as a bank teller until retiring four years ago. She enjoys visiting her children and grandchildren. She is a lifelong nonsmoker. She enjoys coffee and tea throughout the day and often has a glass or two of wine in the evening.

Review of Symptoms: Constitutional: no fever, chills or recent weight changes. HEENT: clear rhinorrhea without sinus pain. Cardiovascular: no chest pain, palpitations or edema. Respiratory: cough as above, without wheezing or dyspnea. Gastrointestinal: no abdominal pain, nausea or vomiting; normal bowel movements and no fecal incontinence. Genitourinary: mildly increased frequency with rare symptoms of urgency; no dysuria or hematuria. Gynecological: no pelvic pain or pressure but does have some vaginal dryness and slight vaginal irritation. Extremities: mild intermittent knee and hip pain. Neuro: no headaches, dizziness, gait/balance problems. She has not been sexually active in at least 10 years due to lack of a partner.

Physical Exam: Height, 66 inches; weight, 192 pounds; BMI 31; temperature 98.8° F; blood pressure, 126/76; pulse, 82/minute; respirations, 14/minute. General: She is alert and oriented, well-developed and well-nourished, and in no acute distress; HEENT: clear rhinorrhea with mild nasal congestion, otherwise normal; Neck: supple with no thyromegaly, no jugular venous distention; Heart: regular rate and rhythm with no murmurs; Lungs: clear to auscultation; Abdomen: soft, nontender, nondistended, no palpable mass; Extremities: full range of motion, no edema; Musculoskeletal: no joint swelling. Vascular: normal, symmetrical distal pulses; Neurologic: normal; Psychiatric: normal mood and affect.

After providing appropriate advice for management of the patient's allergic rhinitis and reassuring her about the very low likelihood of bronchitis or pneumonia, your discussion shifts to the further evaluation of her urinary symptoms.

Based on her history and physical examination, appropriate steps in the further evaluation and management of her incontinence include

- A1 – Reassurance that her symptoms are normal for her age
- A2 – Ask patient to keep a voiding diary
- A3 – Pelvic examination with split-speculum exam
- A4 – Urinalysis
- A5 – Urine cytology
- A6 – Fasting metabolic panel (glucose, calcium, blood urea nitrogen [BUN], creatinine)
- A7 – Measurement of postvoid residual (PVR) volume
- A8 – Provocative bladder stress test
- A9 – Bedside urodynamics (Q-tip test, Bonney test)

A10 – Renal ultrasound

A11 – Cystoscopy

If ordered, assume the following findings:

Diagnostic Test	Result
Pelvic examination with split-speculum exam	No prolapse; positive “cough stress test”
Urinalysis	2+ leukocyte esterase, otherwise normal
Urine cytology	Negative
Glucose, fasting	125 mg/dL (normal, <100 mg/dL)
Calcium, serum	9.1 mg/dL (normal, 8.4-10.6 mg/dL)
Urea nitrogen (BUN)	19 mg/dL (normal, 11-23 mg/dL)
Creatinine, serum	1.0 mg/dL (normal, 0.6-1.2 mg/dL)
PVR volume	55 cc (normal, <50 mL)
Provocative bladder stress test	Positive
Bedside urodynamics	Inconclusive
Renal ultrasound	Normal
Cystoscopy	Undergoing peer-to-peer review by health plan

Mrs. Dripsen returns one week later with the 3-day voiding diary she has completed. Her recordings document frequent losses of small amounts of urine throughout the day, usually associated with laughing or coughing. These have decreased in frequency since the resolution of her cough but are still present multiple times every day. She has no incontinent episodes at night. Based on all your findings to date, you discuss the following differential diagnoses with her:

B1 – Normal age-related symptoms

B2 – Overflow incontinence

B3 – Stress urinary incontinence

B4 – Urine outflow obstruction

B5 – Diabetes

B6 – Incontinence related to medication

B7 – Mixed incontinence, urge predominant

B8 – Functional incontinence

B9 – Urinary tract infection

B10 – Bladder cancer

B11 – Neurogenic bladder

Based on the urinalysis, a urine culture was ordered and was negative. You develop a working diagnosis and recommend appropriate therapy that could include

C1 – Reassurance that no treatment is indicated

C2 – Weight loss

C3 – Modify blood pressure medication

C4 – Decrease caffeine intake

C5 – Decrease alcohol intake

C6 – Start metformin (generic, Glucophage)

C7 – Start oxybutynin (generic, Ditropan)

C8 – Start pseudoephedrine (generic, Sudafed)

C9 – Pelvic muscle exercises (Kegel)

C10 – Refer to urologist for additional diagnostic testing

Mrs. Dripsen initiated the prescribed treatment plan with ongoing help and encouragement from your clinical staff. She returns with her daughter 3 months later for follow-up. She has lost 10 lbs (BMI = 29) and decreased her caffeine and alcohol intake. Her blood pressure has been well controlled on her new regimen of valsartan (generic, Diovan) 320 mg/day alone. She has implemented a daily routine of pelvic muscle exercises. She completed another 3-day voiding diary just prior to this visit and notes she only had two very mild incontinence episodes during that 3-day period. They were associated with particularly vigorous laughing when she was watching a comedy show. She is delighted with the improvement in her quality of life that has resulted from these changes. Mrs. Dripsen introduces you to her daughter, Dottie, who is currently pregnant with her third child (Mrs. Dripsen's fifth grandchild). She is concerned that Dottie, too, will develop incontinence and asks you whether there is anything that can be done to prevent this. Appropriate advice regarding incontinence prevention includes

D1 – There are no effective strategies for prevention of incontinence.

D2 – Elderly women who have had episiotomies during childbirth have an increased risk of developing urinary incontinence.

D3 – Pelvic muscle exercises are effective in preventing incontinence in the first year after vaginal delivery.

D4 – Lifestyle changes (weight loss, smoking cessation, dietary changes) may reduce incontinence risk.

D5 – Healthy voiding practices include strict fluid restriction and straining to ensure complete emptying of the bladder

D6 – Effective management of diabetes may prevent incontinence

D7 – Effective management of depression may prevent incontinence

Mrs. Dripsen continues her ongoing primary care with you for the next several years. She has maintained her weight (BMI=29) and continues the lifestyle measures that led to her symptom improvement. She is now 72 years old, presenting for her routine follow-up of hypertension and prediabetes. She notes during your review of systems that “leaking” has again become a problem for her. While she has occasional “accidents” associated with vigorous laughing or coughing, she now has episodes of incontinence that are not related to these activities. She describes a 3-4 month history of episodes where she feels a sudden urge to urinate and then needs to get to a bathroom almost immediately to avoid wetting herself. She is generally able to get to the bathroom “just in the nick of time” when she is at home but has had several episodes where she has wet herself in public. She finds herself limiting her activities to situations where there is easy access to a bathroom and at times has started wearing absorbent undergarments again.

Following an appropriate evaluation, you determine her current diagnosis to be mixed incontinence with urge predominance. Appropriate first steps in the treatment of this condition include

E1 – Reassurance that these symptoms are normal age-related changes

E2 – Encouragement that her current management strategies of absorbent undergarments and avoidance of public functions are the best treatments

E3 – Additional weight loss

E4 – Trial of bladder retraining

E5 – Trial of prompted voiding

E6 – Trial of OTC oxybutynin patch (Oxytrol)

E7 – Trial of tolterodine (generic, Detrol)

E8 – Referral to a urologist for additional diagnostic testing

Mrs. Dripsen returns for follow-up in 3 months, having implemented the prescribed treatment plan. She feels that her episodes of urgency have decreased in frequency but are still occurring often enough to make her uncomfortable in social settings. She feels that her adherence to lifestyle and behavioral measures is as good as it can be and wonders if there is anything more that can be done. Appropriate management at this point includes

F1 – Reassurance that she is doing everything that can be done

F2 – Discussion that medications have not been proven effective for this type of incontinence

F3 – Addressing patient's goals in managing her incontinence

F4 – Trial of prompted voiding

F5 – Trial of an antimuscarinic medication (e.g. oxybutynin [generic, Ditropan]; tolterodine [generic, Detrol])

F6 – Injection of onabotulinumtoxinA into the detrusor muscle

F7 – Referral for surgical intervention

F8– Use of a pessary

F9 – Use of a urinary stimulator

Clinical Set Problem

Discussion: Alice Dripsen

Urinary incontinence is defined as the involuntary loss of urine, generally with social or hygienic consequences. It is most common in women, with some studies indicating an overall prevalence up to 50%. Prevalence increases with age in community-dwelling elderly patients and is even more common among residents of long-term-care facilities. Incontinence is associated with significant morbidity, psychological stress and social isolation. Despite this, studies indicate that most incontinent patients do not report these symptoms to their physician. Further, many

women who report symptoms do not feel that their concerns have been adequately addressed or treated. Mrs. Driksen is typical of many patients whose incontinence is discovered during the evaluation of another medical condition. Because of its high prevalence, underreporting and amenability to treatment, screening of all adult women for symptoms of incontinence is recommended. Women over 65 years of age and those with neurologic diseases or diabetes are at the highest risk. Complaints of incontinence should never be considered “normal for age” and should always receive a thorough evaluation.

Urinary incontinence is most commonly classified according to the type of symptoms the patient experiences. The most common types are listed below:

Stress urinary incontinence (SUI) – Patients experience leakage of urine usually during increases in intrabdominal pressure, such as those produced by sneezing, coughing, laughing or exercising. The leakage of urine is usually in small amounts, but can sometimes be a “gush.” It is most common in women, and felt to be caused by weakness of the pelvic floor muscles resulting in hypermobility of the urethra.

Urge incontinence (UI) – Patients experience a strong, often sudden, urge to void followed by loss of urine that often occurs too quickly for patients to reach the toilet. They often experience frequent episodes of leakage throughout the day. UI is more common in the elderly. While the etiology is often multifactorial, a significant component of UI is felt to be hyperactivity of the bladder’s detrusor muscle. This has led to the commonly used term “overactive bladder syndrome” (OABS) and can also cause symptoms of urgency without producing incontinence (OAB-dry).

Incomplete bladder emptying (overflow incontinence) – Patients often experience continuous leakage or dribbling, usually associated with hesitancy, frequency or nocturia. This may be caused by bladder outlet obstruction or a hypoactive detrusor muscle (neurogenic bladder) that can be seen in diabetes, chronic alcoholism, disc disease or as a side effect of medications (e.g., β -blockers and muscle relaxants).

Functional incontinence – This term describes the inability to reach the bathroom in time to void because of physical or cognitive impairments. The patient’s urinary tract may be physiologically normal, or this can complicate other categories of incontinence.

Mixed incontinence – Any of the above types of incontinence can occur in combination. For example, elderly patients commonly present with a mixture of stress and urge incontinence. This mixed picture complicates the diagnosis, and treatment is usually focused on the symptom that is most bothersome to the patient.

History and physical examination are essential to making an accurate diagnosis. The 3IQ Questionnaire (3 Incontinence Questions) can be used to initiate a discussion on incontinence symptoms as well as to help differentiate the type of incontinence a patient is experiencing.

Further information and a copy of this tool can be accessed at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1557357/>

History should include special focus on urogenital and neurologic symptoms as well as other potential secondary causes or systemic illnesses that may be contributing to the patient's urogenital symptoms. The mnemonic DIAPPERS can be helpful in remembering these non-urogenital causes of incontinence. (See Table 28.)

Table 28 – Causes of Urinary Incontinence Without Specific Urogenital Pathology (Also known as transient, acute, or secondary incontinence)

D	Delirium/confusional state
I	Infection (symptomatic)
A	Atrophic urethritis/vaginitis
P	Pharmaceuticals
P	Psychiatric causes (especially depression)
E	Excessive urinary output (hyperglycemia, hypercalcemia, congestive heart failure)
R	Restricted mobility
S	Stool impaction

Developed by Neil M Resnick MD

While voiding diaries are not essential in making a diagnosis, they can be useful in better elucidating the pattern and volume of incontinent episodes (SOR C; Ref 1). A sample 3-day voiding diary is available at

http://www.northshore.org/uploadedfiles/womenshealth/OAB_3Day_2.pdf. For more technologically savvy patients, there's also "an app for that" at <http://www.ip-voiding-diary.com/>

Physical examination should have special focus on the cardiovascular, abdominal, genitourinary and rectal areas, including signs of fluid overload or abdominal distention. A pelvic exam should be included in all female patients, ideally with a split speculum exam to assess the presence of cystocele or rectocele and to perform a cough stress test. This exam is accomplished using the bottom blade of the speculum and pulling it down against the posterior vaginal wall while the patient is instructed to cough. Leakage from the urethra during this maneuver is suggestive of stress incontinence, and bulging of the anterior wall suggests the presence of a cystocele. The blade can then be turned anteriorly to look for evidence of a rectocele manifested by bulging of the posterior wall when the patient coughs. Additional information on the use of this technique in diagnosing SUI can be found at <http://www.ncbi.nlm.nih.gov/pubmed/23600798>.

Provocative stress testing is also recommended in helping to differentiate stress from urge incontinence. While standing with a full bladder, the patient is instructed to relax and then cough vigorously while the physician observes for urine loss. Leakage that occurs coincident with the cough is highly suggestive of SUI. A more delayed loss of urine several seconds after the cough suggests urge incontinence.

Measurement of postvoid residual (PVR) volume is not recommended routinely but can be useful if urinary retention or outlet obstruction is suspected, or in patients who are at increased risk for these. This would include women with prior pelvic surgery (like Mrs. Dripsen), diabetics, patients with neurologic disorders or patients who have failed initial empiric therapy. A PVR of <50 mL is considered normal, while a PVR >200 mL indicates urinary retention. PVRs between 50 and 200 are nonspecific and can be seen with both normal and abnormal urinary tracts. Portable ultrasound scanners now make this procedure less risky and more accurate and minimize the risks compared with urinary catheterization. Traditional bedside urodynamics (Q-tip test, Bonney test) have not been shown to have reliable predictive value and are not recommended to do routinely.

With the exception of urinalysis, additional laboratory studies are not universally recommended. Urine cytology is not recommended in the absence of hematuria. Fasting blood sugar and serum calcium are recommended by some to rule out diabetes and hypercalcemia and are most useful when patients complain of frequency or polyuria. Routine renal function testing is not recommended in the latest guidelines but can be useful if urine outlet obstruction is suspected. Radiologic studies are not recommended in the initial evaluation unless there are abnormal findings on history or physical suggestive of disc herniation or other neurologic condition. Invasive testing like cystoscopy is not recommended in the initial evaluation of incontinence.

The urinary pattern demonstrated in Mrs. Dripsen’s initial voiding diary is most consistent with SUI – frequent involuntary voidings throughout the day associated with laughing or coughing. In addition, she is being treated for her hypertension with hydrochlorothiazide. Diuretics are one of the many classes of medication that can contribute to incontinence. A list of other common pharmaceuticals with potential to promote incontinence is provided in Table 29.

Table 29 – Pharmaceuticals Contributing to Incontinence

Pharmaceutical	Mechanism	Effect
α-Adrenergic agonists	IUS contraction	Urinary retention
α-Adrenergic blockers	IUS relaxation	Urinary leakage
Alcohol	Diuretic effect, sedation	Polyuria and/or functional incontinence
Anticholinergic agents	Inhibit bladder contraction, sedation, immobility	Urinary retention and/or functional incontinence
Antidepressants		
Antihistamines		
Antipsychotics		
Sedatives		
β-Adrenergic agonists	Inhibits bladder contraction	Urinary retention
β-Adrenergic blockers	Inhibits bladder relaxation	Urinary leakage, urgency
Caffeine	Diuretic effects	Polyuria

Calcium channel blockers	Relaxes bladder	Urinary retention
Diuretics	Increases urinary frequency, urgency	Polyuria
Narcotic analgesics	Relaxes bladder, fecal impaction, sedation	Urinary retention and/or functional incontinence

IUS, internal urethral sphincter

Mrs. Dripsen’s fasting blood sugar is mildly elevated and would not be likely to cause glucosuria. Nonetheless, it would be reasonable to discuss her elevated glucose and prescribe lifestyle measures to prevent progression to glucosuria and its potential impact on her incontinence. Her voiding pattern and normal PVR are not suggestive of overflow incontinence, outlet obstruction or neurogenic bladder. Although she reports rare symptoms of urgency, her SUI symptoms are clearly predominant. She has no evidence of cognitive or functional impairment and no clinical or laboratory evidence of urinary tract infection or bladder cancer.

In general, therapy for SUI should start with noninvasive behavioral therapies and progress to pharmacologic and/or surgical treatments only if ineffective. **Reasonable first-line treatments for Mrs. Dripsen would include a recommendation for weight loss (SOR B; Ref. 1),** a modification of her blood pressure medication to exclude the diuretic and initiation of pelvic muscle (Kegel) exercises. All three of these have good evidence of benefit. **It is also reasonable to try dietary modifications such as reducing caffeine (SOR B: Ref 1)** and alcohol, although the evidence for benefit in SUI is not as strong as those above. Medications and referral to urology would not be considered as first-line treatments.

Pelvic muscle exercises are designed to strengthen the perivaginal and periurethral musculature. Benefit has been found in SUI and mixed incontinence but not in urge incontinence. (SOR A: Ref 7) Appropriate instruction and perseverance with these exercises are essential to success. Patients are first taught to identify the appropriate muscles to contract. This can be done by asking them to squeeze the muscles that would be needed to stop the flow of urine, making sure that only the muscles in front of the pelvis and around the anus are being contracted with no contraction of the abdominal, thigh or buttock muscles. Contractions should be held for 5-10 seconds and then relaxed for the same period. At least 3 sets of 8-10 contractions/day are often recommended, although the optimal duration and frequency has not been conclusively determined. Patients should continue these exercises for 3-6 months before concluding whether or not they have led to improvement.

Currently, no medications are FDA-approved for the treatment of SUI. Alpha-adrenergic agents such as pseudoephedrine (generic, Sudafed) were commonly used in the past, but studies have shown them to be only minimally more effective than placebo. Similarly, oral estrogen therapy has been demonstrated to worsen incontinence in a large, randomized, controlled trial (The Heart and Estrogen/Progestin Replacement Study). Topical estrogens may help with vaginal atrophy, but its effectiveness in improving incontinence has not been consistently demonstrated. Duloxetine (generic, Cymbalta) is approved for this indication in Europe but not

in the U.S. because of unconvincing efficacy data. Patients with SUI who fail first-line treatments can intensify lifestyle measures or be referred for evaluation of surgical options.

Data on effective prevention of incontinence is limited. Identified risk factors in women include older age, increased BMI, decreased physical activity, smoking, depression, diabetes and neurologic disease (including stroke). There is an association between multiparity and risk of incontinence, but this relationship becomes weaker in older women and nearly disappears in women over 65 years of age. Episiotomy increases the risk of fecal incontinence, but has not been conclusively linked to urinary incontinence. Pelvic muscle exercises have been proven effective in preventing and reversing urinary incontinence for the first year after delivery. Effective management of associated conditions, including obesity, depression, diabetes, bowel abnormalities, neurologic conditions, smoking and restricted mobility may reduce the prevalence of incontinence. Healthy voiding practices include adequate fiber and fluid intake to avoid straining and dehydration while avoiding excessive fluids, especially in the evening.

When Mrs. Driksen returns in her 70s with a gradual change in her incontinence, her pattern is now more consistent with a mixed incontinence with urge predominance. Although this is a common pattern in older women with incontinence, it is not a normal change of aging and warrants evaluation and treatment. Additional weight loss can be encouraged but is less effective for UI than for SUI. First-line therapy should include a trial of bladder retraining before considering medications. Bladder retraining is a technique that helps patients learn to better control their voiding. It teaches them to void at scheduled times and also how to decrease the interim urges to void during progressively lengthening time intervals. A patient instruction sheet describing this technique in detail is available at http://www.acponline.org/acp_press/practical_gynecology/ui-7-bladder-training.doc. This technique requires a cognitively intact and motivated patient and has demonstrated effectiveness for all types of incontinence (urge, stress, and mixed). Timed voiding is a caregiver-dependent technique for patients who are either unable or unmotivated to participate more actively. Patients are placed on a fixed toileting schedule in an effort to prevent incontinent episodes rather than restore continence. In prompted voiding, caregivers prompt the patient approximately every two hours by asking whether they are wet or dry and encouraging them to use the toilet. They are praised for using the toilet and for staying dry. This has been shown to be most effective in reducing daytime incontinence. Routine awakening to toilet was not effective in reducing nighttime incontinence episodes. Referral to urology for additional testing would not be indicated until behavioral and pharmaceutical therapies had been tried.

When Mrs. Driksen returns in three months with only mild improvement, a trial of medication is warranted. Antimuscarinic agents are the drugs of choice for urge incontinence and work by decreasing the hyperactive bladder contractions. **There are currently six antimuscarinic agents in twelve formulations that are available in the United States. While all have comparable efficacy, there might be a slight decrease in dry mouth with a longer acting formulation (SOR A; Ref. 8).** Potential side effects of all these formulations include dry mouth, blurred vision, constipation, dizziness, headache, urinary retention and delirium. Oxybutynin (generic,

Ditropan) is available in short- and long-acting formulations as well as in a gel (Gelnique) and a transdermal patch (Oxytrol). The Oxytrol patch, dosed twice/weekly, was approved for OTC use in 2013. Tolterodine (generic, Detrol) is also available in both short- and long-acting formulations to be dosed either once or twice daily. Trospium (Sanctura) is not metabolized by the cytochrome P450 system so may have fewer drug-drug interactions. Solifenacin (Vesicare) and darifenacin (Enablex) are more selective for the M3 muscarinic receptors found in smooth muscle. These may lead to a lower incidence of drowsiness in some patients. Fesoterodine (Toviaz) has the same active metabolite as tolterodine but is available in a higher dosage formulation.

Mirabegron (Myrbetriq), the newest agent for urge incontinence, is a beta-3 agonist released in 2012. It can be used as an alternative for patients unable to tolerate anti-muscarinics or for whom they have been ineffective. Beta-3 stimulation relaxes the bladder muscle and increases storage capacity. There is no current data on the safety or efficacy of combining mirabegron with antimuscarinics. Of note, mirabegron is metabolized by hepatic enzyme CYP2D6, and may decrease the levels of other similarly metabolized medications such as tamoxifen.

Injection of onabotulinumtoxinA into the detrusor muscle has been shown to have similar efficacy to antimuscarinics in several small trials of short (six month) duration. Muscarinic side effects are avoided, however the risk of urinary retention is increased. This is an option for patients who are unable to tolerate antimuscarinic agents or are unwilling to take a daily medication.

For women with SUI and uterine prolapse, a pessary can provide support to relieve the prolapse and improve the incontinence. Pessaries are usually used for women for whom surgery would not be indicated due to age or medical conditions. However, there are no good studies to state which pessaries to use or the care once inserted.

Electrical stimulation is sometimes used to treat incontinence that has not responded to more conservative methods. Electrodes can be implanted in the vagina, anus, bladder, sacral nerve roots or peripheral tibial nerve. Studies regarding the efficacy of these various methods have been largely inconclusive, and in some studies, they were no better than behavioral therapy alone.

For all patients being treated for urinary incontinence, a discussion of the patient's treatment goals and assistance in setting realistic expectations are important. Complete resolution of incontinence episodes may not be possible for many patients, and treatment should be targeted on improving quality of life and allowing participation in desired activities. There are several standardized tools for assessing quality-of-life indicators for patients with incontinence. An example of one of the most popular can be found at <http://www.nice.org.uk/nicemedia/live/14271/65298/65298.pdf>.

Most uncomplicated cases of SUI, UI, and mixed SUI/UI can be appropriately diagnosed and managed by the family physician without the need for invasive testing or specialty referral. In

patients with overflow incontinence and elevated PVR, referral is indicated to rule out bladder outlet obstruction before attempting medical or behavioral management. Other indications for referral include hematuria without infection, marked pelvic prolapse, lack of correlation between symptoms and physical findings and failure to respond as expected to therapeutic interventions.

Surgical intervention may be indicated for incontinence associated with outlet obstruction, anatomic abnormality or failure of more conservative strategies. Surgery is more effective for stress incontinence than urge and includes retropubic colposuspension (abdominal approach) and sling procedures (vaginal approach).

While most of this discussion has focused on women, urinary incontinence also occurs in men, albeit at about half of the prevalence of women. Urge incontinence occurs at a higher proportion among incontinent men than incontinent women, and male stress incontinence is generally limited to those with a history of prostate surgery, pelvic trauma or spinal cord disorders. Diagnostic evaluation of incontinence is similar to that in women with the obvious additions of penile and prostate examinations. Treatment also follows the same strategies as women – progressing from lifestyle changes to behavioral therapies to medications and to more invasive strategies as needed. As with women, antimuscarinic medications are considered first-line agents for urge incontinence. Alpha-blocking medications (e.g., terazosin, tamsulosin, doxazosin) can also be used in male urge incontinence associated with benign prostatic hypertrophy (BPH) or decreased bladder emptying. There are no FDA-approved medications for male stress incontinence, however duloxetine is sometimes used. In men with signs of bladder outlet obstruction, severe incontinence, prostate or anatomic abnormalities and history of prior surgery, referral to a urologist should be considered.

Internet Resources

- 3IQ Questionnaire – <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1557357/>
- Quality of life indicator for urinary incontinence – <http://www.nice.org.uk/nicemedia/live/14271/65298/65298.pdf>
- [Bladder retraining patient instruction sheet](http://www.acponline.org/acp_press/practical_gynecology/ui-7-bladder-training.doc) – http://www.acponline.org/acp_press/practical_gynecology/ui-7-bladder-training.doc.
- Split speculum exam – <http://www.ncbi.nlm.nih.gov/pubmed/23600798>
- [3-day voiding diary](http://www.northshore.org/uploadedfiles/womenshealth/OAB_3Day_2.pdf) – [diaryhttp://www.northshore.org/uploadedfiles/womenshealth/OAB_3Day_2.pdf](http://www.northshore.org/uploadedfiles/womenshealth/OAB_3Day_2.pdf)
- 3 day voiding app – <http://www.ip-voiding-diary.com/>

Classification of individual items as follows:

Section A

Select: 3, 4, 8

Optional: 2, 6, 7

Avoid: 1, 5, 9, 10, 11

Section B

Select: 3, 6

Optional: 5, 9

Avoid: 1, 2, 4, 7, 8, 10, 11

Section C

Select: 2, 3, 9

Optional: 4, 5

Avoid: 1, 6, 7, 8, 10

Section D

Select: 3, 4, 6, 7

Avoid: 1, 2, 5

Section E

Select: 4

Optional: 3

Avoid: 1, 2, 5, 6, 7, 8

Section F

Select: 3, 5

Optional: 6, 8, 9

Avoid: 1, 2, 4, 7

Selected references:

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