

## Canadian National Undergraduate Urology Curriculum (CanUUC) Incontinence

### 1. Incontinence/Pelvic Health:

- a. Define and describe stress, urge, mixed, overflow and total incontinence.

The International Continence Society (ICS) defines the symptom of urinary incontinence as "*the complaint of any involuntary loss of urine*". The definition of incontinence describes the symptom of incontinence as perceived by the patient or caregiver.

**Stress urinary incontinence.** The symptom is the complaint of involuntary leakage on exertion or on sneezing or coughing. The sign is the observation of involuntary urinary loss from the urethra synchronous with exertion, sneezing, or coughing. Urodynamic stress incontinence is noted during urodynamic testing (filling cystometry) and is defined as the involuntary leakage of urine during increases in abdominal pressure in the absence of a detrusor contraction.

**Urge urinary incontinence.** The symptom is the complaint of an involuntary leakage accompanied by or immediately preceded by urgency. The sign is the observation of involuntary urinary loss from the urethra that is accompanied by or immediately preceded by urgency. Detrusor overactivity incontinence is incontinence related to an involuntary detrusor contraction during urodynamics.

**Mixed urinary incontinence.** The complaint of an involuntary leakage of urine associated with urgency and also with exertion, effort, sneezing, or coughing.

**Overflow incontinence** is a term used to describe leakage of urine associated with urinary retention.

**Total incontinence** is the complaint of a continuous leakage.

Réf: Campbell-Walsh Urology. 2007. Definition and classification of urinary incontinence p 2046-2047

- b. Outline the basic evaluation (including history and physical examination) of an incontinent patient.

When describing incontinence, it is important to specify relevant factors such as type, severity, precipitating factors, social impact, effect on hygiene and quality of life, measures used to contain the leakage, and whether or not the individual experiencing incontinence desires help.

In addition, incontinence may be differentiated into signs and urodynamic observations. Signs are observed by the physician by simple means (e.g., observation of the loss of urine with a cough) or by the use of diaries, pad tests, symptoms scores, and validated quality of life instruments.

Urodynamic observations are made during urodynamic studies and reflect the definitive pathophysiologic condition that is causing the incontinence (e.g., detrusor overactivity or sphincter weakness).

When a condition cannot be documented by urodynamic observation, it may be "presumed" by clinical documentation.

## History

The patient's history is important in assessing the **characteristics and severity of incontinence as well as its impact on quality of life**. It is also important in identifying risk factors or transient causes of incontinence, or both. Acute symptoms may be further defined by documenting patterns of fluid intake and output, acute infection, and recent surgery or trauma. Insight into chronic symptoms may be obtained by eliciting a history of congenital anomalies, neurologic disease, prior surgery, or general health.

Patients should be queried specifically about **neurologic conditions** that are known to affect bladder and sphincteric function, such as multiple sclerosis, spinal cord injury, diabetes, myelodysplasia, stroke, and Parkinson's disease. In this regard, it is important to ask about double vision, muscular weakness, paralysis or poor coordination, tremor, numbness, and tingling sensation. A **history of prostate surgery, vaginal surgery, or previous surgical repair of incontinence** should suggest the possibility of sphincteric injury. Abdominoperineal resection of the rectum or radical hysterectomy may be associated with neurologic injury to the bladder and sphincter. **Radiation therapy** may adversely affect bladder capacity or compliance, or both.

In establishing an incontinence history, it is important to describe the character of the symptoms, their progression, any exacerbating or alleviating factors, impact on lifestyle, and possible risk factors. Each symptom should be characterized and quantified as accurately as possible. It is common for a patient to report multiple different lower urinary tract symptoms (LUTS) or even multiple incontinence symptoms (e.g., both stress and urge symptoms), and determining the most bothersome symptom can be important.

A **medication history**, especially with respect to medications that are known to cause alterations in urinary tract function, must be obtained. For example, sympatholytic agents such as clonidine, phenoxybenzamine, terazosin, doxazosin, and tamsulosin may cause or worsen stress incontinence. Sympathomimetics and tricyclic antidepressants such as [ephedrine<sup>Rx</sup>](#), pseudoephedrine, or imipramine may increase bladder outlet obstruction and contribute to urinary retention and overflow incontinence. Diuretics, although they do not cause incontinence, may exacerbate incontinence symptoms.

The general medical history should also include questions regarding **bowel and sexual function as well as obstetric, menstrual, and hormone replacement history in women**.

It must be emphasized that the patient's history alone is not a completely accurate tool in the diagnosis of either sphincteric incontinence or detrusor overactivity and should not always be used as the sole determinant of diagnosis or treatment

**In men with incontinence, because of the association of benign prostatic obstruction with urge incontinence, a full assessment of all LUTS is important.** In all cases of incontinence, structured, condition-specific questionnaires, either clinician or self-administered, may facilitate disclosure of symptoms and their effect of quality of life.

Examples of Important Information Obtained in an Incontinence History\*

How often does the patient void during the day and night and how long can she or he

wait comfortably between urinations?
Why does voiding occur as often as it does (urgency, convenience, attempt to prevent incontinence)?
How severe is incontinence (e.g., a few drops, saturate outer clothing)?
Are protective pads worn?
Do pads become saturated?
How often and why are pads changed?
Is the patient aware of incontinence occurring, or does the patient just find herself or himself wet?
Is there a sense of urgency before incontinence occurs? If so, how long can micturition be postponed?
Does stress incontinence occur during coughing, during sneezing, while the patient rises from a sitting to a standing position, or only during heavy physical exercise?
If the incontinence is associated with stress, is urine lost only for an instant during the stress, or is there uncontrollable voiding?
Is the incontinence positional? Does it ever occur in the lying or sitting position?
Is there difficulty initiating the stream, requiring pushing or straining to start?
Is the stream weak or interrupted?
Is there postvoid dribbling?
Has the patient ever had urinary retention?

\*It is important to elicit not only the presence of the symptom but also the degree of bother and effect on lifestyle.

## Physical Examination

The physical examination should focus on detecting anatomic and neurologic abnormalities that contribute to urinary incontinence.

The **neurourologic examination** begins by observing the patient's gait and demeanor as he or she first enters the examination room. A slight limp or lack of coordination, an abnormal speech pattern, facial asymmetry, or other abnormalities may be subtle signs of a neurologic condition.

The **abdomen and flanks** should be examined for masses, hernias, and a distended bladder.

**Rectal examination** discloses the size and consistency of the prostate.

**Sacral innervation** (predominantly S2, S3, S4) is evaluated by assessing anal sphincter tone and control, genital sensation, and the bulbocavernosus reflex. With the physician's finger in the patient's rectum, the patient is asked to squeeze as if in the middle of urinating and trying to stop. A lax or weakened anal sphincter and the inability to contract and relax voluntarily are signs of neurologic damage, but some patients simply do not know or do not understand how to contract these muscles, whereas others may be too embarrassed to comply with the instructions. The **bulbocavernosus reflex** is checked by suddenly squeezing the glans penis or clitoris and feeling (or seeing) the anal sphincter and perineal muscles contract. Alternatively, the reflex may be initiated by suddenly pulling the balloon of the Foley catheter against the bladder neck. **The absence of this reflex in men is almost always associated with a neurologic lesion, but the reflex is not detectable in up to 30% of otherwise normal women.**

In women, the **pelvic examination** begins with inspection of the perineum and genitalia. The presence of any abnormal anatomic features, atrophy, excoriation, or erythema related to incontinence and pads should be noted. The vaginal epithelium should be observed for signs of atrophy. The well-estrogenized vagina has thick, pink epithelium with transverse rugae. The poorly estrogenized vagina has a paler, thinner epithelium with loss of rugae.

Ideally, a vaginal examination should be performed with the bladder both full (to check for incontinence and prolapse) and empty (to examine the pelvic organs). **With the bladder comfortably full in the lithotomy position, the patient is asked to cough or strain in an attempt to reproduce the incontinence. The degree of urethral hypermobility may be assessed by the Q-tip test.** The Q-tip test is performed by inserting a well-lubricated sterile cotton-tipped applicator gently through the urethra into the bladder. Once in the bladder, the applicator is withdrawn to the point of resistance, which is at the level of the bladder neck. The resting angle from the horizontal is recorded. The patient is then asked to strain and the degree of rotation is assessed. **Hypermobility is defined as a resting or straining angle greater than 30 degrees from the horizontal.**

A compartmentalized examination of the vagina follows, examining the anterior, apical, and posterior compartments as well as the perineal body.

- The **anterior vaginal wall** is examined first in the lithotomy position. The posterior blade from a split vaginal speculum is inserted and retracted posteriorly. The patient is instructed to strain and cough to assess for bladder, urethral, and cervical mobility and stress incontinence.
- Next, the **apex and its support** are examined. Normally this includes the cervix and uterus or the vaginal cuff in the posthysterectomy female. Reduction of the prolapse, if present, either manually or with a pessary in both positions may be necessary to demonstrate stress incontinence. Stress incontinence that is not present clinically or with a prolapse unreduced but is present after reduction of prolapse is termed **occult stress incontinence**. After the anterior vaginal wall and apex have been examined, the blade is rotated and the anterior vagina gently retracted.
- The **posterior vaginal wall and vault** are examined for the presence of posterior

prolapse (rectocele or enterocele). As the speculum is slowly withdrawn, a transverse groove separating an enterocele from a rectocele below may be visible. A finger inserted into the rectum can "tent up" a rectocele but not an enterocele. The **degree of prolapse** can be assessed by either the pelvic organ prolapse quantification system (POP-Q), which assesses each compartment separately or the Baden-Walker system where grade 1 is a descent halfway to the hymen, grade 2: descent to the hymen, grade 3: descent halfway past the hymen and grade 4: maximum possible descent.

- The **perineal body and vaginal rectal septum** are examined by palpating the septum through the vagina and rectum. **Pelvic floor strength and the ability of the patient to contract her pelvic floor muscles voluntarily** are assessed.

If incontinence is not demonstrated with the patient in the lithotomy position and in a patient who has a history of stress incontinence, the examination is repeated in the standing position. The patient should be positioned standing in front of the examiner with one foot elevated on a short stool and again asked to cough and strain.

The physical examination of men with incontinence focuses on:

- abdominal examination
- digital rectal examination (DRE). DRE includes palpation of the prostate to assess size, consistency, symmetry, and its relationship to surrounding structures
- neurologic testing of the perineum and lower extremities.
- The external genitalia (penis, scrotum, testes, and epididymis) should be carefully examined.

The man presenting with stress incontinence (e.g., after prostatectomy) should be examined in the standing position while performing Valsalva and coughing maneuvers. As in the female, the skin should be assessed for rashes and excoriation

Réf: Campbell-Walsh Urology. 2007. Definition and classification of urinary incontinence p 2059-2061.

c. Describe the medical and surgical treatment options for stress incontinence.

Medical management of stress incontinence in male and female

- Rehabilitative Techniques:
  - Behavioral modification
    - Behavioral therapy intends to teach the patient to regain control of the bladder and sphincter. It consists of a number of techniques including decreasing fluid intake, dietary changes, programmed voiding by the clock
  - Lifestyle changes
    - weight loss, exercise or work, smoking cessation
  - Pelvic floor muscle therapy (PFMT)
    - PFMT is next in the line of conservative management for stress incontinence. For some motivated patients who

are willing to pursue the rigors of long-term treatment, a reasonable degree of improvement can be expected from behavioral therapy. Although there is a paucity of data on long-term therapy, effective treatment probably requires a lifetime commitment. As with the treatment of any other chronic condition that has an inevitable toll on lifestyle and self-perception, encouragement, close follow-up, and flexibility are as important to a successful treatment as any individual therapeutic method.

- PFMT is defined as any program of repeated voluntary pelvic floor muscle contraction taught by a health care professional.
  - The rationale for PFMT in the treatment of stress incontinence is to improve strength or timing, or both, of the pelvic floor muscle contraction.
  - The end result should be
    - (1) a stronger sphincteric unit that is better able to resist increases in abdominal pressure or
    - (2) better voluntary use of a pelvic muscle contraction in anticipation of an event (e.g., a cough), or both.
  - Since the original description of "Kegel's exercises", many studies have supported the use of PFMT in general for the treatment of stress incontinence; however, no ideal exercise program has been established.
  - Also, prior to beginning a program of PFMT, patients should be assessed to ensure that they are able to perform an adequate pelvic floor muscle contraction. Once this is established, patients can begin a regular program of exercises.
  - PFMT is used in men with postprostatectomy stress incontinence and in women with stress incontinence
- Biofeedback
    - Biofeedback techniques may be used to assist in training
  - Electrical stimulation
    - Electrical stimulation that creates a "forced contraction" of the pelvic floor muscles may be considered in the realm of pelvic floor muscle rehabilitation.
  - Urethral Bulking Agents
    - Urethral bulking agents probably work by augmenting the submucosal layer of the urethra and increasing the compressive force inward toward the urethral lumen.
    - A variety of substances have been reported to be safe and effective including bovine glutaraldehyde cross-linked collagen, carbon-coated zirconium beads, polytetrafluoroethylene, hyaluronic acid/dextranomer, polydimethyl-siloxane elastomer and autologous tissues such as fat and cartilage.
    - These agents are usually injected in a retrograde fashion using cystoscopic guidance or special delivery systems. In most cases, periurethral injections are simple office procedures, which may be accomplished with the patient under local anesthesia.

- To date, no one bulking agent has been shown to be consistently superior to another. In general, early outcomes show a 25% cure, 50% improvement, and 25% failure rate.
- Duration of effect is not permanent and reinjections are required.
- Urethral bulking agents have been used in men with postprostatectomy stress incontinence, but with less favorable results than in women.

#### Surgical treatment options for stress incontinence in women

- The goal of surgical treatment for SUI in women is to restore urethral support and recreate a proper backboard to resist increases in abdominal pressure or to restore the coaptative forces of the urethra, or both.
- Burch colposuspension
- Autologous fascia pubovaginal sling
- Tension-free vaginal tape (TVT)
- Tension-free obturator tape (TOT)
- Artificial urinary sphincter (AUS)

#### Surgical treatment options for stress incontinence in men

- Artificial urinary sphincter (AUS)
- Male bulbourethral sling
- Bone-anchored perineal sling

Réf: Campbell-Walsh Urology. 2007. Urinary incontinence treatment overview p 2074-2077

#### d. Describe the medical treatment options for urge incontinence.

- Treat underlying condition (e.g., UTI, bladder stone or cancer, urethral obstruction, foreign bodies)
- Rehabilitative Techniques:
  - Behavioral modification
    - Behavioral therapy intends to teach the patient to regain control of the bladder and sphincter. It consists of a number of techniques including decreasing fluid intake, dietary changes, programmed voiding by the clock, and pelvic floor rehabilitation
  - Lifestyle changes
    - weight loss, exercise or work, smoking cessation
  - Pelvic floor muscle therapy (PFMT)
    - is an effective way to treat incontinence related to detrusor overactivity, although most of the data are in women.
    - PFMT is defined as any program of repeated voluntary pelvic floor muscle contraction taught by a health care professional.
  - Biofeedback
    - Biofeedback techniques may be used to assist in training
  - Electrical stimulation

- Electrical stimulation that creates a "forced contraction" of the pelvic floor muscles may be considered in the realm of pelvic floor muscle rehabilitation.
  - Oral pharmacologic agents
    - Antimuscarinics
      - Antimuscarinic agents are the mainstay of pharmacologic treatment of incontinence caused by detrusor overactivity.
      - These agents are competitive inhibitors of acetylcholine that block the muscarinic effects. Some drugs have mixed actions, with a poorly defined "direct" action on bladder muscle (musculotropic relaxation) in addition to their predominant muscarinic action.
      - Common side effects consist of dry mouth, blurred vision, and constipation, corresponding to effects produced by muscarinic inhibition in other organ systems. Occasionally, supraventricular tachycardia may occur.
      - Anticholinergic agents are contraindicated in certain patients with closed-angle glaucoma.
      - Antimuscarinic drugs used to treat incontinence related to detrusor overactivity
        - Oxybutynin
        - Tolterodine
        - Darifenacin
        - Solifenacin
    - Tricyclic antidepressants
      - Imipramine is a prototypical tricyclic antidepressant that has been used to treat incontinence.
      - The exact mode of action has not been clearly demonstrated, but it exerts a direct relaxant effect on bladder smooth muscle and has sympathomimetic and central effects as well.
      - The effects of imipramine on the bladder and urethra may be additive to those of anticholinergic agents. Consequently, a combination of the two may be useful.

Réf: Campbell-Walsh Urology. 2007. Urinary incontinence treatment overview p 2070-2072.