Urinary Incontinence: Impact on Long Term Care

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Urinary Incontinence: Overview

• Definition
• Scope
• Anatomy and Physiology of Micturition
• Types
• Diagnosis
• Management
• Impact on Long Term Care
Urinary Incontinence: Definition

• Involuntary leakage of urine which is personally and socially unacceptable to an individual.

• It is a multifactorial syndrome caused by a combination of:
  • Genito urinary pathology.
  • Age related changes.
  • Comorbid conditions that impair normal micturition.
  • Loss of functional ability to toilet oneself.
Urinary Incontinence: Scope

- Prevalence of Urinary incontinence increase with age.
- Affects more women than men (2:1) up to age 80.
- After age 80, both women and men are equally affected.
- Urinary Incontinence affect 15% to 30% of the general population > 65 years.
- > 50% of 1.5 million Long Term Care residents may be incontinent.
- The cost to care for this group is >5 billion per year.
- The total cost of care for Urinary Incontinence in the U.S. is estimated to be over $36 billion.

Ehtman et al., 2012.
Urinary Incontinence: Impact on Quality of Life

- Loss of self esteem.
- Avoidance of social activity and interaction.
- Decreased ability to maintain independent life style.
- Increased dependence on care givers.
- One of the most common reason for long term care placement.

Health related consequences of Urinary Incontinence

- Increased propensity for fall/fracture.
- Urinary tract infection.
- Skin breakdown/skin ulceration/sacral decubitus.
- Sleep deprivation.
- Depression.
- Sexual dysfunction.
Urinary incontinence: Risk factors: Community dwelling older persons

• Aging.
• Medication side effects.
• Surgical procedures in lower urinary tract.
• Menopause.
• Child birth/Parity.
• Impaired mobility.

Medical conditions:

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<td>Diabetes</td>
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<td>Chronic Cough</td>
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<td>Chronic obstructive pulmonary disease</td>
<td>obesity</td>
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Urinary incontinence:
Risk Factors: Long term care residents

- Dementia.
- Functional impairment/impaired mobility.
- Other potentially modifiable risk factors:
  - Constipation.
  - Visual impairment.
Anatomy and Physiology of Micturition
Nerve supply of the Urinary Bladder
Nerve Supply of the Urinary Bladder

Urine Storage

Micturition

- Pontine storage center
- Hypogastric nerve
  - Contracts bladder outlet
  - Inhibits detrusor
- Pelvic nerve
- Pudendal nerve
- Urinary bladder
- External sphincter

- Pontine micturition center
- Hypogastric nerve
- Pelvic nerve
- Internal sphincter
- Pudendal nerve
- Urinary bladder
- External sphincter
Nerve Supply of Urinary Bladder
Age related changes in the Lower Urinary tract and micturition

- Bladder capacity is diminished.
- Bladder contractions become uninhibited.
- Residual volume is increased.
- Desire to void is delayed.
Urinary Incontinence: Basic Evaluation

- **Patient History:**
  - Detail voiding history.
  - Medical, neurological, surgical history.
  - Voiding diary.
  - Administer mental status examination, if necessary.
Urinary Incontinence: Basic Evaluation

• **Physical Examination:**
  • General, abdominal, neurological examination.
  • Genital and Rectal examination in men: to evaluate anal sphincter, prostate size, and fecal impaction.
  • Pelvic exam in female” Pelvic floor and vaginal wall relaxation.
  • Neurological examination: focus on cognition and innervation of sacral nerve roots (2-4), perineal sensation.

Source: McAninch JW, Lue TF; Smith & Tanagho’s General Urology, 18th Edition: www.accessmedicine.com

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Urinary Incontinence: Basic Evaluation:

- Urinalysis: Detect pyuria, glycosuria, proteinuria.
- Urine culture: Rule out infection.
- Serum BUN and creatinine for renal function.
- Serum glucose, calcium level.
- Post void residual check – PVR.
  - Ultrasound.
  - Catheter.
- Voiding diary for 3 days.
- Urodynamic evaluation, if necessary.
- Cystoscopy, if necessary.
Post Void Residual (P.V.R.)

- Measures left over urine after voiding.
- Good indicator of Bladder function.

Causes of high Post Void Residual (PVR)
- Bladder outlet obstruction
- Inadequate bladder contraction
Urodynamic Study

- Measures intravesical pressure during filling and emptying phase.
- Also Measures bladder capacity and bladder compliance.
Flexible Cystoscope

Female Pelvis

Male Pelvis
Cystoscopy

• Surgical Procedure.
• Visualizes – Urethra and Bladder.
• Can be performed under local anesthesia.
Types of Urinary Incontinence
Urinary Incontinence: Types

- All incontinence are not the same.

- Establishing the correct diagnosis of the type of incontinence is the key to the successful treatment and the management of incontinence.
Types of Urinary Incontinence:

A. Transient.

B. Long Term.
   • Urge.
   • Stress.
   • Mixed.
   • Overflow.
   • Functional.
Transient Incontinence

• Reversible or Transient conditions that may cause urinary incontinence.
• Affects 30% of community-dwelling older persons and 50% of hospitalized older persons.

“D” = Delirium.
  Dehydration.

“R” = Restricted mobility.
  Retention of Urine/BPH.

“I” = Infection.
  Inflammation.

“P” = Polyuria (Diabetes, hypercalcemia).
  Pharmaceuticals (Diuretics, Narcotics).
Long Term Incontinence: Types

- Stress.
- Urgency.
- Mixed.
- Overflow.
- Functional.
Urgency Incontinence: Over Active Bladder (O.A.B.)

• **Definition:**
  • Sudden, strong urge to urinate.
  • Individual is unable to suppress the urge, leading to urine leak.
  • Usually associated with frequency and nocturia.
• **Most common type of urinary incontinence in the elderly and in residents of Long Term Care facility.**
Pathophysiology of urge Urinary Incontinence

• Failure to store, secondary to Bladder Dysfunction.
  • Decreased bladder compliance.
  • Involuntary Bladder contractions.
  • Severe bladder hypersensitivity.
Urgency Incontinence: Causes

- Age related.
- Benign Prostatic Enlargement in men.
- Lower urinary tract infection (cystitis, Urethritis)/Bladder stone.
- **Neurological disorders:** Multiple sclerosis, diabetes, Parkinson’s disease, stroke.
- Idiopathic.
Urgency Incontinence: work-up

• History and Physical Examination.
• U.A. and Urine culture.
• Post void residual check.
• Urodynamic study, if necessary.
• Cystoscopy, if needed.
Stress Incontinence: Definition

• Urinary leakage from activity which increases intra abdominal pressure:
  • Coughing.
  • Sneezing.
  • Laughing.
  • Lifting heavy objects.
  • Exercise.

• Second most common type of incontinence in order population.
Stress Incontinence: Causes

• Failure to store: Secondary to urethral sphincter incompetence and pelvic floor muscle weakness.

• Age related reduction in ureteral resistance.

• Child birth.

• Sphincter weakness/injury secondary to pelvic surgery e.g.: prostatectomy, hysterectomy.

Figure 1. Bladder anatomy and physiology. Source: Adapted from References 6, 11, 14-16, 21, 29, 30, and 59, with assistance from the Ferris State University Graphic Arts Department.
Stress Incontinence: Work-up

• History and Physical examination.
• Post void residual check (PVR).
• Urodynamic study, if necessary.
• Cystoscopy, if necessary.
Mixed Incontinence: Definition

• Individuals with both stress and urgency incontinence of urine.
• Combination of Bladder over activity and urethral sphincter incompetence.
• One type of symptoms (e.g. urge or stress incontinence) usually predominate.
Mixed Incontinence: Work-up:

• History and Physical.
• Post void Residual (PVR).
• Urodynamic study.
• Cystoscopy, if necessary.
Overflow incontinence: Definition

• Urinary leakage when the bladder is distended with urine (urinary retention).

• Symptoms:
  • Dribbling.
  • Frequency and nocturia.
  • Slow stream, hesitancy, intermittent stream.
  • Feeling of incomplete emptying of bladder.

• Patient may or may not be aware that they have urinary retention.
Overflow incontinence: Causes

- Failure to empty:
  - Underactive bladder.
  - Chronic retention.
  - Idiopathic.

- Bladder outlet obstruction (BOO)
  - Benign prostatic hyperplasia (BPH).
  - Prostate Cancer.
  - Urethral stricture.

- Neurogenic bladder.
  - Diabetes Mellitus.
  - Spinal Cord injury.
  - Pelvic nerve damage (2nd to surgery, radiation).
Overflow incontinence: work-up

• History and Physical examination.
• Urinalysis and urine culture.
• Post void residual (PVR).
• Urodynamic study, if necessary.
• Cystoscopy, if necessary.
• Renal sonogram.
Functional incontinence: Causes

Functional Incontinence:

• Definition:
  • Urinary tract in these patients are inherently normal.
  • Urinary incontinence in these patients are secondary to factors other than the urinary tract.

Causes

• Causes:
  1. Physical weakness or poor mobility/dexterity.
     • Poor eye sight
     • Arthritis
     • Stroke
     • Contracture
     • Confusion
     • Dementia
     • Unwillingness to toilet
  3. Environmental impediments
     • Excessive distance to toilet
     • Difficult to access toilet
     • Physical restraint
     • Poor lighting

• Treatment: Address the factor affecting the use of the toilet facility.
Treatment of Urinary Incontinence

• Treatment of any underlying cause.
• Behavioral therapy.
• Pharmacotherapy.
• Absorbent products.
• External condom catheter in male.
• Clean intermittent self catheterization.
• Indwelling catheter.
• Surgical treatment for stress incontinence.
• Bladder augmentation for overactive bladder.
• Urinary diversion.
Behavioral Therapy for Incontinence

• It is the mainstay of urinary incontinence treatment especially in a Long Term Care facility.

• Other treatment should be used only if Behavioral Treatment fails.
Behavioral Treatments

- Fluid management.
- Bladder rehabilitation/bladder retraining.
- Toilet Assistance.
  - Prompted voiding.
  - Scheduled toileting.
- Pelvic floor muscle exercise.
Behavioral Treatment: Fluid Management

• Adjust fluid intake e.g. decrease evening intake for nocturia.
• Avoid caffeinated beverages.
• Avoid alcohol intake.
Bladder Rehabilitation: Bladder Retraining

• Bladder training: Technique to postpone voiding.
• Urge Inhibition training: Techniques to inhibit urinary urge.
• Urinate according to a time table rather than to the urge to void.
• Bladder training consists of:
  • Education.
  • Scheduled voiding.
  • Systematic delay in voiding.
  • Positive reinforcement.
Bladder Training: Ideal Candidate

- Individual fairly independent in activities of daily living.
- Is aware of need to urinate.
- Has only occasional incontinence.
- May wear incontinence products for occasional leakage.
- Wants to maintain highest level of continence.
- Successful bladder training program takes several weeks.
Bladder training: Not ideal candidate

• Cognitively impaired residents.
• Frail, elderly and dependent residents.
Prompted voiding:

• A behavioral technique:
  • More appropriate for dependent and more cognitively impaired residents.
  • May reduce incontinence episode by 40% for elderly, incontinent nursing home residents.
  • Prompted voiding has 3 components.
    • Prompting to toilet on a scheduled basis.
    • Schedule is adjusted based on response.
    • Positive feedback.
    • Regular monitoring.
Scheduled Voiding

• Is a behavioral technique.
  • Timed voiding, every 3-4 hours, interval based on residents usual voiding schedule pattern.
  • There is no systematic effort to have the resident delay voiding and resist urge like bladder retraining.
  • Residents who cannot self toilet may be candidate for this behavioral training.
Behavior treatment: Pelvic Floor muscle exercise (Kegel exercise)

- Effects of Pelvic Floor muscle exercise:
  - Support, lengthen and compress the urethra.
  - Elevate the urethrovessical junction.
  - Increase pelvic floor muscle tone.
Pelvic Floor Muscle Exercise: Kegel Exercises

• **Goal:** Improve urethral resistance and urinary control through the active exercise of the pubococcygeus muscle.

• **Components:**
  - Proper identification of muscle (able to stop urine at mid stream).
  - Planned active exercise:
    - Hold for 10 seconds then relax.
    - 30-80 times per day.
    - Minimum of 8 weeks.
Biofeedback therapy

- It is a non-drug treatment.
- Patients learn to control bodily functions that are normally involuntary e.g. voiding.
- Help patients learn to identify, control, and strengthen pelvic floor muscles which play an important role in urinary incontinence.
Pharmacotherapy

- Pharmacotherapy can be an effective treatment for certain types of incontinence.
- Side effects of pharmacotherapy should be strongly considered when deciding to start medication.
- 2 main types of Pharmacotherapy:
  - Antimuscarinic drugs to relax bladder.
  - α-Adrenoceptor agonist to enhance sphincter tone.
Pharmacotherapy: Urge and Mixed Incontinence

• Medications to relax bladder and increase capacity
  • Ditropan (Oxybutynin).
  • Detrol (Tolterodine).
  • Vesicare (Solifenacin).
  • Sanctura (Trospium chloride).
  • Toviaz (Fesoterodine fumarate).
  • Myrbetriq (Mirabegron).
  • Enablex (Darifenacin).

• Side effects:
  • Dry mouth.
  • Constipation.
  • Cognitive dysfunction in elderly patients.
  • Cost.
Pharmacotherapy: Stress and Mixed Incontinence

• Medications to increase urethral resistance: α adrenoceptor agonist
  • Imipramine (Tofranil).
  • Pseudoephedrine (Sudafed).
  • Amitriptyline (Elavil).
  • **Indication:**
    • Stress incontinence.
    • Mixed Incontinence.
  • **Side effects:**
    • Difficulty voiding.
    • Urinary retention.
Absorbent Pads: Undergarments
Absorbent Pads:
Condom Catheter
External Catheter for Urinary Drainage

**Advantage:**
- External catheter.
- Less risk of urinary tract infection.

**Disadvantages**
- May not stay in place.
- Penile skin irritation, ulcer.
Clean Intermittent Catheterization (CIC)

• Current standard of care for long term bladder drainage.
  • Known to have substantially lower clinical UTI rate than indwelling (Foley) catheters.

• Patient inserts a tube into his/her urethra 4-8 times a per day for voiding.

• However, many cannot reliability self – catheterize
  • Lack necessary manual, visual or cognitive ability.

• Others simply will not perform this procedure.
Clean Intermittent Self Catheterization
Indwelling Foley Catheter

Size: 8 to 24 French
CMS Guidelines for Indwelling catheters in patients with urinary incontinence in Long term care facility

1. A resident who enters a facility without a indwelling catheter is not catheterized unless the resident’s clinical condition demonstrates that catheterization is necessary.

2. A resident who is enters a Long Term Care Facility with an indwelling catheter, appropriate measures should be taken to remove the Foley catheter, if medically possible, to reduce side effects.
Indication for Indwelling catheter

- Urinary retention which cannot be corrected surgically or medically and patient is not a candidate for clean intermittent self catheterization.
- Stage III or IV pressure ulcers when urine leak will impede healing.
- Terminal illness/comfort care.
Complications of Indwelling Catheter

1. Urinary tract infection.
   • Bacteremia.
   • Fever.
   • Didymitis.
   • Pyelonephritis.
2. Hematuria.
3. Urethral trauma.
5. Catheter exchange ~3-4 weeks.
Urgency Incontinence: Treatment

- Treat any underlying cause e.g. infection, B.P.H.
- Bladder training and urgency inhibition training.
- Anticholinergic drugs.
Stress Incontinence: Treatment

- Drug therapy is not effective.
- Biofeedback.
- Surgical treatment to enhance urethral resistance.
Mixed Incontinence: Treatment

• Treat the predominant symptoms (urge/stress)
• Bladder training
• Biofeedback
• Trial of medical therapy for urge incontinence.
• Surgical therapy for stress incontinence, if necessary.
Overflow incontinence: Treatment

• Clean intermittent Self catheterization.
• Foley or suprapubic catheter drainage.
• Treatment of underlying cause e.g. Prostatectomy for B.P.H.
Surgical Treatment for Incontinence

• Surgical treatment can be used if conservative treatment fails.
• There are many highly effective surgical treatment for stress incontinence in both males and females.
• Bladder augmentation surgery can be used in urge incontinence if behavioral and pharmacotherapy fails.
• Urinary diversion should be used as a last resort if all else fails.
Conclusion

• Urinary Incontinence is a major public health issue especially in Long Term Care Facility.

• Complete evaluation and correct diagnosis of the type of incontinence is critical to the management of incontinence in LTC facility.

• Appropriate treatment of incontinence in long term care facility should improve incontinence in over 80% of Long Term Care Residents.