Learning Objectives:

• Recognize the relationship between bladder symptoms including urinary incontinence and fall risk in elders.
• Identify bladder problems as an essential intervention to reduce fall risk in elders.
• Describe continence management strategies to reduce falls risk in elders and support quality of life.
Prevalence of Urinary Incontinence (UI)

- UI is high throughout the world
- Affects 17 million Americans
- Twice as common for women as men
- Prevalence is highest in the elderly with 50% of the homebound and institutionalized incontinent
- Increasing problem for adults over age 65
- Occurs in 43% of all American women with 55% increase in 80-90 year old women
Prevalence in Community Dwelling and LTC Settings

- In community-dwelling settings:
  - 15-30% of these older adults have UI (Fantl, Newman, Colling, et al., 1996)
  - Fewer than 50% of affected patients report their symptoms to a health care provider
  - Social stigma and embarrassment associated with bladder problems contribute to not seeking treatment
  - A vast number of women will alter their lifestyle rather than seek treatment for UI (Diokno, 2002)
    - Bathroom mapping
    - Dark clothing
    - Fluid restriction
    - Avoidance of activities
• In LTC:
  - 50% of residents are incontinent of urine on admission
  - Non-random sample of nursing homes, only 15% of residents were assessed for UI and of these only 3% received treatment. (Watson et al, 2000)
  - 99% of residents wore absorbent products. (Palmer and Newman, 2004)
UI and falls are leading reasons for nursing home admission.

- Each year 30-40% of people over the age of 65 experience at least one fall
- In Nursing Homes, as many as 75% of people fall at least once per year
  - An average of 2.6 falls per person per year
  - About 25% of these falls result in fracture, laceration or hospitalization
Impact on Health Status

- Significant UI related Co-Morbidities:
  - Depression, isolation and low self-esteem
  - Skin Breakdown
  - Urinary Tract Infections
  - *Falls and fall related injuries*

- Significant Psychological Sequelae associated with UI:
  - Depression, embarrassment, fear, guilt, lowered self-esteem, a sense of dependency, social isolation, sexual abstinence (Dugan et al, 2000)
Economic Impact

- Expensive!

- $16-26 billion spent annually on UI
  - Pads and laundry make up 37% of money spent
  - 1% spent on evaluation and management
  - 44% of expenses are incurred following adverse consequences of UI

(Sampselle 2000, Stilling Burkhart 2000)
In elderly patients with one or more falls:
- Annual hospital costs can increase by >$11,000
- NH costs increase by >$5,000
- Total healthcare costs increase by almost $20,000
- NH falls resulting in multiple injuries are associated with costs of >$22,000 per patient visit/year

(Sorenson et al – A taxonomy and economic consequences of NH falls. Drugs Aging. 2006; 23-251-262.)
Causal Relationship Between UI and Falls

- *National Audit of Continence Care of Older People* concluded recurrent falls are a relevant condition associated with UI.
- UI was established as one of the strongest predictors of falls in community-dwelling elderly.
- 20-50% of falls in institutions are associated with toileting – moving to or from the bathroom or using a bedside commode.

Morris & Brown et al conclude:
- UI has been repeatedly demonstrated as a significant risk factor for falls
- *However*, UI has not been routinely included in interventions targeted to reduce falls
- Decreasing fall risk should involve identification and management of incontinence for elders across living settings
Identifying Incontinence Risk Factors

- **Lifestyle Factors/Health Habits**
  - Fluid restriction
  - Bladder irritants (caffeine, alcohol, nutrasweet)
  - Smoking/chronic cough
  - Over weight

- **Environment**
  - Poor lighting
  - Inappropriate footwear
  - Lack of handrails
  - Wet floors/loose rugs
  - Mechanical restraints
• Physiological/Functional
  ▫ Gait/balance disturbances
  ▫ Muscular weakness (core & lower extremity)
  ▫ Impaired mobility
  ▫ Sensory disruption
• Medical Health Problems/Chronic Illness
  ▫ Cognitive impairment
    • Dementias
  ▫ Neurologic Disease
    • Parkinson’s Disease, MS, CVA
  ▫ Progressing or uncontrolled chronic disease
    • Diabetes, Heart Failure, Arthritis
  ▫ Depression
  ▫ Constipation
  ▫ Prostate enlargement
    • BPH
• Gender – Women More at Risk
  ▫ Live longer
  ▫ More likely to have had pelvic surgery
  ▫ Pregnancy/childbirth
  ▫ Hormonal Effect - Hypoestrogen
    • Menopause – natural, surgical, medical
    • Atrophic Vaginitis
  ▫ Pelvic floor weakness
  ▫ Pelvic organ prolapse
• Review of Medications
  ▫ Diuretics
  ▫ Anti-hypertensives that cause or exacerbate hypotension
  ▫ Sedatives and Muscle Relaxants
  ▫ Narcotic analgesics
  ▫ Anti-depressants, anti-psychotics
  ▫ Anti-cholinergics
  ▫ Anti-histamines
• Beers Criteria Updated 2012
Types of Incontinence

- Stress
- Urge
- Functional
- Overflow
Stress UI

- Most common type of UI found in women prior to menopause (female athletes, post-partum women)
- Very likely to occur in men with prostatectomy and radiation (37-65% after prostate surgery)
- Urine loss with increased intrabdominal pressure
- Short urethra, poor pelvic floor muscle tone
Normal

Stress Incontinence

External urethral sphincter

Sudden increase in intra-abdominal pressure
Overactive Bladder with or without Urge UI

- The most common type of UI in older adults
- Overactive Bladder:
  - Urgency
  - Frequency
  - Nocturia
- Urge UI
  - Involuntary urination that occurs soon after feeling an urgent need to void
  - Results in loss of urine before getting to the toilet
  - Inability to suppress the need to urinate
• Simply – the bladder muscle acts in an uncoordinated way
• Results in:
  ▫ Urgency
  ▫ Frequency
  ▫ Nocturia
  ▫ Involuntary loss of urine
Brown et al examined the association between UUI and falls in 6049 community-dwelling women participating in the Study of Osteoporotic Fractures

Results:
- Weekly or more frequent UUI independent risk factor for increased falls
- Identification and treatment of UUI effective intervention for reducing fall risk and fractures

Functional UI

- Inability to reach the toilet because of environmental barriers, physical limitations, loss of memory, disorientation
- Dependent on others and have no genitourinary problems other than UI
- Higher rates of functional incontinence are present in adults who are institutionalized
Overflow UI

- Involuntary loss of urine associated with over distention of the bladder
- Occurs when bladder becomes so distended that voiding attempts result in frequent release of small amounts of urine, often dribbling
- Possible causes:
  - Obstruction of the urethra by fecal impaction or enlarged prostate
  - Smooth muscle relaxants that relax the bladder and increase capacity
  - Impaired ability to contract due to peripheral neuropathy or chronic disease processes
  - Pelvic Floor Disuse Atrophy
Initial Interventions to Assess UI

- Environmental Assessment
- Initiation of a Bladder Diary
- Implementation of a Toileting Program
  - Habit Training (Scheduled Toileting)
  - Prompted Voiding
- Use of the Bladder Scan
• Environmental Interventions
  ▫ Lighting
  ▫ Toilet availability
  ▫ Location and accessibility
  ▫ Assistive devices/adaptive clothing
  ▫ Avoidance of physical barriers and restraints
• **Bladder Record**
  - wide variety of tools exist
  - implement for 3 days
  - use to gather data, look for pattern, assess frequency and amounts of voids
• Implement Toileting Program
  ▫ Is the person able to take responsibility for own toileting?
  ▫ Would the person benefit from assistance to improve continence?
Toileting Programs

• **Independent or Individualized Toileting**
  - Resident has cognitive and physical abilities to recognize urge to void and toilet self
  - Implement strategies to support function and mobility

• **Habit Training**
  - Goal: To find a schedule that works for dryness
  - Keep a record, go by the clock
  - Every 2-3 hours is usual
  - Better yet tailor according to the patient’s activities for a more individualized approach
    - i.e. upon rising, after meals, after nap, before bed
Prompted Voiding

- Habit training + rewards for continence behavior
- Effective in mild dementia
- Relationship of the caregiver to the patient very important

Steps:
- 1. Remind on a schedule
- 2. Assist as needed to the toilet
- 3. Positive reinforcement (praise) for success
- 4. Remind when you will be back
• **Bladder Scan**
  - Portable ultrasound that scans the bladder for urine presence
  - Used to obtain:
    - Bladder volume (how much is in there)
    - Post-void residual (how much is left after voiding)
Educating Patients and Families about UI

- Age-Related Bladder Changes
  - Kidneys less able to concentrate urine during the day, bladder has less capacity resulting in frequency, urgency, nocturia
  - Delayed sensation resulting in urgency and less time to get to the toilet
  - Decreased muscle tone in the pelvic floor resulting in leaking or sudden loss of urine
Self-Care Strategies

- Avoidance of bladder irritants - caffeine, alcohol, artificial sweeteners
- Maintain adequate fluid intake - water!
- Stop smoking - treat chronic cough
- Avoid constipation
- Pay attention to weight
- Dress comfortably - avoid restrictive clothing
- Consider ability to access the toilet - assistive devices, negotiating a proactive plan with caregivers
- Manage chronic health problems i.e. diabetes, COPD
- Maintain good genital hygiene - keep clean, wipe from front to back
Additional Assessment

- Continence history
- Focused physical exam
- Diagnostic Testing
Continence History

- Specifically
  - HPI
  - Chronic conditions
  - Surgeries
  - Medications
  - Health Habits
  - Cognitive and Functional Status
  - Bladder and Bowel Symptoms
  - GU
  - GYN
Focused Physical Exam

- General Constitution
- Mental Status
- Musculoskeletal
  - Ability to manage clothing, hygiene, transfer to toilet
- Abdomen
- Uro-Genital Exam for women
  - Hypoestrogenemia
  - Structural changes (i.e. cystocele, rectocele, prolapse) – supine and standing
  - Pubococcygeal muscle strength (0-5)
- Objective Testing
  - Q-tip test
  - Stress Test
• Uro-genital Exam for Men
  ▫ Testicular exam

• Rectal exam
  ▫ Bulbocavernous Reflex
  ▫ Presence of Stool
  ▫ Rectal Tone
  ▫ Prostate Exam
  ▫ Confirm Bimanual

• Neuro Exam
  ▫ Lower extremity reflexes
  ▫ Sensation
  ▫ Position Sense
Non-Invasive Diagnostic Testing

- As indicated
  - PVR (post-void residual)
Strategies for Treating/Managing UI

• Based on type(s) of Incontinence
• Goal: Individualized Plan of Care
Individualized Treatment Plans

• Could include:
  ▫ Behavioral Interventions (toileting regimes, bladder urge inhibition/retraining, fluid management/self-care strategies)
  ▫ Pelvic floor rehabilitation (PME, biofeedback)
  ▫ Incontinence Devices (vaginal estrogen replacement, pessaries)
  ▫ Pharmacologic Treatments (anti-cholinergics, bladder relaxants)
  ▫ Interventions to treat and manage contributing factors
Comments on the Use of Absorbent Products

• Should NOT be given to CONTINENT residents!

• Product should be specific for urine absorption
  ▫ DO NOT USE MENSTRUAL PADS!
  ▫ Should be appropriate for amount of urine lost - mini pads, pads and briefs available
  ▫ Change as soon as they are wet

• Consider other collection devices

• National Quality Performance Standards for Disposable Adult Absorbent Products for Incontinence in the Frail, Elderly and/or Disabled (July 2012)
Pelvic Floor Rehabilitation

- Person must be cognitively able to perform
- Pelvic Muscle Exercises
  - Isolating pelvic floor muscles to strengthen bladder and pelvic floor muscles
  - Can also be used to suppress urge
- Biofeedback with and without EMG
  - Requires trained clinician
- Both assist in
  - Isolation of correct muscles
  - Strengthening of muscles
  - Result in significant improvement of bladder
Intravaginal Support Devices

- **Estring**
  - Estrogen contained within a supportive ring
  - Only 1 size

- **Pessary**
  - Worn intravaginally
  - Stabilizes the ureterovesical junction and increase urethral closure pressures
  - Treats cystocele, rectocele and uterine prolapse in patients who are not candidates or do not desire surgery
  - Must be fitted
Vaginal Estrogen

- Vaginal Estrogen
  - Increases urethral vascularity, tone and alpha-adrenergic responsiveness resulting in increased bladder outlet resistance
  - Reduces risk of UTI, urgency
  - Should be given in form of
    - *estrogen ring* (Estring inserted and worn vaginally for 90 days),
    - *vaginal cream* (Estrace vaginal cream 1 applicator vaginally at hs x 2 weeks, then decrease to 1/2-1 applicator twice weekly)
    - *vaginal tablets* (Vagi-Fem 1 tablet inserted vaginally at hs x 2 weeks, then decrease to 1/2-1 tablet twice weekly)

- *Oral estrogen is not effective for treating UI!*
Pharmacologic Treatment

- Can be effective however cautious use in the elderly
- Increased risk of side effects – leaky blood-brain barrier
- Cumulative affect of medications also with anti-cholinergic properties
- Only approved for treatment of OAB/UUI
Anti-cholinergics

- Only approved for treatment of OAB/UUI
- Based on targeting of muscarinic receptors
- Act as direct, smooth-muscle relaxant
- Most common side effects:
  - Blurred vision
  - Confusion
  - Dry mouth
  - Constipation
- Contraindicated in elders with narrow-angle glaucoma
- Treatment regimes for Urge UI may be used indefinitely or short-term (until other treatment modalities become effective)
• Muscarinic Receptors located throughout the body
1st Generation M2 Anti-cholinergic options include:

- Oxybutynin chloride extended release (Ditropan XL) 5mg, 10mg, or 15mg one table daily, maximum 30mg daily
- Tolterodine tartrate long-acting (Detrol LA) 4mg, 1 tablet daily, maximum 8 mg daily dose
  - *Extended release oxybutynin and tolterodine are more effective and have fewer side effects
  - Avoid short acting formulations in the elderly

*Extended release oxybutynin and tolterodine are more effective and have fewer side effects

Avoid short acting formulations in the elderly
- Transdermal Oxybutynin (Oxytrol patch)
  - Releases 3.9mg daily into the bloodstream
  - Applied twice weekly to hip, abdomen, or buttock – rotate sites
  - 50% less side effect profile
• 2nd Generation M2/M3 Antimuscarinic agents
  ▫ Solfenacin (Vesicare) 5 max dose 10 mg daily
  ▫ Trospium (Sanctura) 20mg twice daily - extended release 60mg daily
  ▫ Darifenacin (Enablex) 7.5mg max dose 15mg daily
New Formulations

- Fesoterodine fumarate extended release tablets (Toviaz) 4mg and 8mg dose
- Gelnique 10% gel (Oxybutynin) – premeasured dose of 1 gram applied once daily to abdomen, upper arm/shoulder or thigh
Strategies for Medication Reconciliation

- Gradual increase in dosing
  - start low and go slow
- When possible baseline measure of cognitive function
  - MMSE
  - Animal Fluency
  - BIMS
• Assess for cumulative anti-cholinergic load of all medications
  ▫ Make recommendations for adjusting/reducing doses on medications when possible
  ▫ Make recommendations for discontinuing medications when possible
• Monitor side effects and assess risk for adverse event
  ▫ **Examples:**
    • Dry mouth = swallowing difficulty
    • Change in cognitive function is affecting toileting abilities, increasing fall risk
    • Constipation – review bowel plan
Take Home Points

- UI has been repeatedly demonstrated as a significant risk factor for falls *however* UI has not routinely been included in interventions targeted to reduce falls
- Assessing UI frequency, severity and risk factors are key
- Determining the type of UI and implementing an individualized continence improvement plan is essential
- Step wise approach to management is an effective strategy for improving continence and reducing fall risk
• Few nurses and providers are well prepared to provide continence evaluation
• Remains a barrier to care for elders
• Education essential to improve confidence and competence in delivery of continence care
• Coming soon:
  ▫ Continence Nurse Education Program
  ▫ Champion Continence Care within your organization
Thank You for all you do!

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