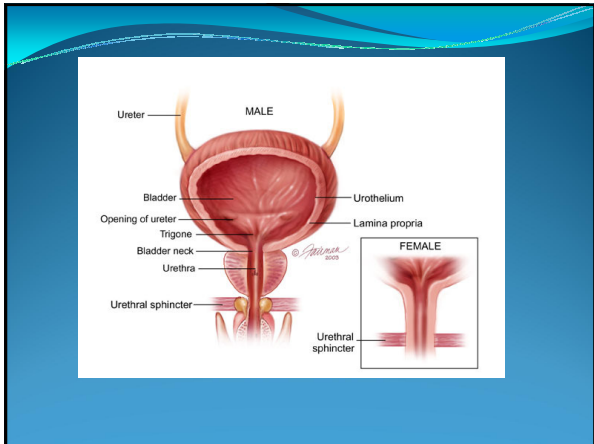


Urinary Tract Infection Prevention

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- ## Objectives
- Describe why elderly are susceptible to UTI's.
 - Identify nursing strategies to prevent/ decrease symptomatic UTI in the elderly.
 - List professional resources available to assist in LTC management of UTI.



Prevalence of UTI's in the Elderly

- Most common bacterial infection in the elderly.
- Most common nosocomial infection in LTCF
- Prevalence in both sexes increases with age
- Elderly female / male ratio 2:1
- Most common pathogen isolated is Escherichia coli (E Coli)

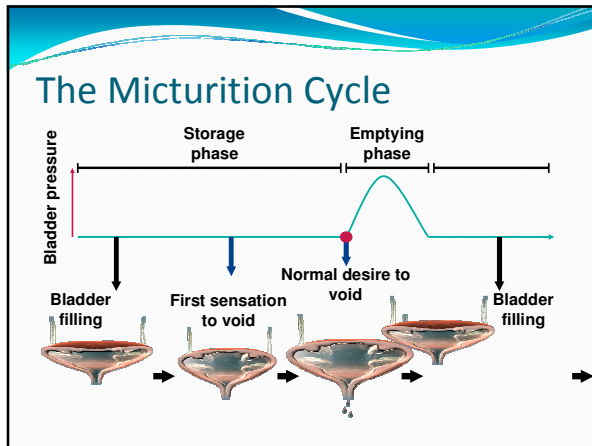
*Kamel

Why are the elderly at risk?

- Age related decline of immune function.
- Co-morbid neurologic bladders caused by diseases such as Parkinson, Stroke, Alzheimer's and dehydration.
- Age related changes in the Urinary system.

Neurologic Bladder

- Normal voiding is a spinal reflex
 - modulated by the central nervous system (brain and spinal cord)
 - coordinates the functions of the bladder and urethra.
- The bladder and urethra are innervated by 3 sets of peripheral nerves from the autonomic nervous system (ANS) and somatic nervous system.
 - Hypogastric Nerve
 - Pudendal Nerve
 - Pelvic Nerve
- Urine storage is controlled by the Sympathetic Nervous system
- Voiding is controlled by the Parasympathetic Nervous System
- The micturition control center is located in the frontal lobe of the brain.



Neurologic Bladder

- Problems occur with failure to store or failure to empty or a combination of both.
- Disorders that may affect the central or peripheral nervous system.
 - Suprapontine (lesions above the brain stem, in the cerebral cortex)
 - Suprasacral spinal cord lesions (above S2-S4)s
 - Sacral spinal cord and peripheral lesions

Age related changes affecting the Kidney

- Kidney function decreases.
 - Decrease in glomerular filtration by 30-40 %.
 - Thickened tubule membrane.
 - Stiffening of the renal vessels.
 - Connective tissue of the bladder is diminished.

Age related changes affecting the Lower Urinary Tract

- Decreased bladder capacity.
- Problems of urine storage and emptying.
- Increased urine production at night.
- Decrease in voided volume.
- Decrease in LUT sensory threshold.
- Increase incidence of urethral obstruction or stricture.

Age related changes affecting the Lower Urinary Tract

Female

- Thinning of vaginal and urethral mucosa.
- pH changes in the vagina favor E.coli colonization
- Pelvic relaxation

Male

- Prostatic hypertrophy causes narrowing of the bladder outlet.
- Partial or severe obstruction.
- Increased residual urine.

Age related changes

- Bowel changes causing fecal incontinence or impaction
- Inadequate fluid intake.
- Dehydration.
- Dietary restrictions from co-morbid diseases.
- Inability to adequately perform proper hand washing and hygiene.
- Need for Foley catheter or urinary containment.

Criteria for Urinary Tract Infections

SYMPTOMS

Presence of at least 100,000 colony forming units* in a pure culture of voided clean catch urine accompanied by symptoms

- Fever > 38 degrees C or chills
- New or increased burning pain on urination.
- New flank or supra-pubic pain or tenderness
- Changes in the character of the urine
- Worsening mental function

*APIC AND SHEA

Nursing Assessment in the Elderly

- Fever
 - Medications
 - Time temperature taken
 - Environment affects
 - Know the patient baseline.
- Chills
 - Thermoregulation impaired
- Pain
 - Chronic diseases
 - Medications mask
 - Communication of cognitive impaired
- Changes in urine or voiding habits
 - Cloudy urine maybe normal
 - Hematuria caused by medications or other conditions
 - Incontinence is a symptom & risk factor
- Changes in mental status
 - Medications
 - Altered mental state, confusion, lethargy

Nursing Assessment

- Look for other symptoms
 - Increased pulse
 - Increased respiratory rate and/or hypotension
 - GI symptoms- N,V, abdominal tenderness
 - Input from family
- Identify and monitor clinical symptoms of high risk residents

UTI complications

- recurrent UTI > 3 in 1 year or
 > 2 in 6 months.
- relapse -occurs within 2 weeks of
 completing treatment
 culturing the same bacteria.
- re-infection -occurs after 4 weeks
 culturing a different bacteria.
- complicated UTI -risk of failing treatment
 needing longer course of
 treatment. Bacterial identification
 key in treatment.

Asymptomatic Bacteriuria

- Presence of >100,000 cfu/ml of bacteria in 2 consecutive cultures in a patient without urinary tract symptoms.
- Common in elderly in LTCF, Diabetics, elderly with an indwelling catheter.
- Treatment has no clinical benefit, exception before TURP.
- Does not appear to contribute to morbidity or mortality.

Why ASB affects the elderly?

- Anatomically
 - Urinary tract obstruction
 - Pelvic prolapse/cystocele
 - BPH
 - Fecal
 - Incontinence
 - Impaction
 - Menopause
 - Vaginal atrophy
 - Estrogen deficiency
 - Bladder or prostate cancer
- Functionally
 - Incomplete bladder emptying
 - Neurogenic bladder
 - CNS disorders
 - Parkinson's disease
 - Dementia
 - Spinal cord injury
 - Insufficient fluid intake/dehydration

Why ASB affects the elderly?

- Metabolically
 - Immunosuppressed
 - Diabetes
- Other
 - Foley or CIC
 - Instrumentation procedures

Why catheter use in LTC?

- Indications for use
 - Urinary retention
 - Incontinence control
 - Wound management
 - Patient comfort
- Other
 - Increased complexity of care
 - Increased acuity
 - Severe illness with impaired voiding
 - Low staffing levels

Catheter related complications

- Bacteremia/sepsis
- Febrile episodes
- Bladder stone formation
- Urethral erosion
- Epididymitis
- Chronic renal inflammation
- pyelonephritis
- Pain
- Catheter blockage
- Leaking around the catheter
- Mobility restrictions
- UTI

Catheter Associated UTI

- Occurs with colonization & subsequent infection.
- Transmission occurs by staff during insertion of catheters, handling of drainage systems &/or providing incontinence care
- Bacteremia
- Culture at time of insertion of new catheter when indicated
- Remove catheter and consider alternatives
 - suprapubic catheter
 - CIC,
 - external catheter

CAUTI Prevention

- Use only when needed per best practice.
- Aseptic insertion – appropriate hand hygiene & use of gloves
- Maintain closed system.
- Secure the catheter to prevent tension or traction.
- Position correctly.
- Routine perineal care
- Separate container for each patient.
- Fluid intake.

Antibiotic agents

- Antibiotic resistance an ever growing threat.
- 45% of patients > 65 are resistant
- Ampicillin, TMP-SMX, Amoxicillin-clavulanic acid, and or Fluroquinolone.
- High risk factors include underlying urinary abnormalities and residence of LTCF

Prevention

- 2004 CMS Nursing Home Quality Initiative
- UTI was chosen as 1 of 8 chronic care quality measures
- Regulatory mandates
 - F Tag 441 Infection Control Program
 - F Tag 315 Incontinence and UTI management
 - F Tag 328 Avoidance of unnecessary drug use

Prevention

- Keeping the perineal area clean.
- Emptying the bladder regularly.
- Drinking enough fluid.
- Making sure the residents have good hygiene.
- Use of non-pharmacologic interventions
- Staff education.
 - Basic Urinary tract anatomy and aging changes.
 - Hand washing
 - Incontinence care and alternatives

Prevention

- Urology evaluation for recurrent UTI, voiding & incontinence.
- Modify diet to decrease bladder irritants
 - Carbonated beverages.
 - Artificial sweeteners.
 - Spicy foods and citrus juices
 - Reduce caffeine intake to <400mg/d
- Regulate bowel function
 - Dietary fiber
 - Fluid intake
 - Exercise

Prevention

- Decrease fluids 2-3 hours before bed.
- Elevate legs 2 hours before, follow with rest room
- Use of bladder scanner
- Topical estrogen
- Cranberry juice
- Lactobacilli
- Methenamine Hippurate (Hipprex)

DIAPPERS

AVOID

DIAPPERS

DELIRIUM	INFECTION	ATROPHIC	PSYCHO-	PHARMACO-	EXCESS	RESTRICTED	STOOL
(overmedication)	(overmedication)	VAGINITIS	LOGICAL	LOGICAL	FLUID	MOBILITY	IMPACTION
ASSESSMENT (bladder and bowel record completed: date:							
<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present	<input type="checkbox"/> present
<input type="checkbox"/> recent onset <input type="checkbox"/> established <input type="checkbox"/> delirium	<input type="checkbox"/> dysuria <input type="checkbox"/> urine culture result <input type="checkbox"/> urine culture result	<input type="checkbox"/> vaginal itch <input type="checkbox"/> vaginal bleeding <input type="checkbox"/> discharge <input type="checkbox"/> urgency <input type="checkbox"/> dysuria	<input type="checkbox"/> signs of depression <input type="checkbox"/> lack of motivation	<input type="checkbox"/> medication review <input type="checkbox"/> check for new medication <input type="checkbox"/> on diuretic	<input type="checkbox"/> intake > 2000 ml <input type="checkbox"/> sodium <input type="checkbox"/> evening intake high <input type="checkbox"/> caffeine, alcohol intake <input type="checkbox"/> nocturia > 2 <input type="checkbox"/> glycosuria	<input type="checkbox"/> toileting transfer difficulty <input type="checkbox"/> usual difficulty <input type="checkbox"/> resources <input type="checkbox"/> prompting	<input type="checkbox"/> check bowel record for evidence of constipation or impaction
MANAGEMENT							
<input type="checkbox"/> if recent onset, find cause & resolve if possible, or refer medication or acute illness such as urinary tract infection, influenza	<input type="checkbox"/> treat infection if symptomatic <input type="checkbox"/> avoid indwelling catheter	<input type="checkbox"/> introduce topical estrogen <input type="checkbox"/> if estrogen contraindicated, use vaginal gel <input type="checkbox"/> use pH compatible cleanser	<input type="checkbox"/> refer for management of depression	<input type="checkbox"/> discuss with physician <input type="checkbox"/> may need adjustment of: anticholinergics, sedatives, hypnotics, antacids, Ca channel blockers, diuretics, NSAIDs	<input type="checkbox"/> encourage intake of 1500-1800ml/day <input type="checkbox"/> avoid irritants: alcohol, caffeine <input type="checkbox"/> reduce evening intake <input type="checkbox"/> elevate legs in evening <input type="checkbox"/> adjust diuretic timing <input type="checkbox"/> manage diabetes	<input type="checkbox"/> mobilize <input type="checkbox"/> treat underlying cause e.g. arthritis, foot/hip problems, vision difficulty <input type="checkbox"/> introduce aids <input type="checkbox"/> normal <input type="checkbox"/> commode <input type="checkbox"/> adjust clothing <input type="checkbox"/> avoid restraints <input type="checkbox"/> raised toilet seat <input type="checkbox"/> monitor for incontinence <input type="checkbox"/> toileting	<input type="checkbox"/> disimpaction if necessary <input type="checkbox"/> bowel management
REASSESSMENT DATE (IN 2-4 WEEKS):							

http://www.learncontinence.com/DIAPPERS_assessment_form.pdf

GUPC 6/21/2011

Drugs that affect bladder function

Antidepressants, antipsychotics, sedatives/hypnotics	Sedation, retention (overflow)
Diuretics	Frequency, urgency (OAB)
Caffeine	Frequency, urgency (OAB)
Anticholinergics	Retention (overflow)
Alcohol	Sedation, frequency (OAB)
Narcotics	Retention, constipation, sedation (OAB and overflow)
Alpha-adrenergic blockers	Decreased urethral tone (stress incontinence)
Alpha-adrenergic agonists	Increased urethral tone, retention (overflow)
Beta-adrenergic agonists	Inhibited detrusor function, retention (overflow)
Calcium channel blockers	Retention (overflow)
ACE inhibitors	Cough (stress incontinence)

Organizations

- Society of Urologic Nurses and Associates
www.SUNA.org
 - Certified Urologic Nurse
 - Free source of patient education
- Wound Ostomy and Continence Nurses Society
www.wocn.org
 - Certified Wound Ostomy Continence Nurse
 - Professional standards
- National Association for Continence
www.NAFC.org

Good Resources

- National Kidney and Urologic Disease Clearing House (NKUDIC) www.kidney.niddk.nih.gov
- Urologic Disorders Adult and Pediatric Care, Mikel Gray & Katherine Moore
- Urinary and Fecal Incontinence, Dorothy B. Doughty
- Managing and Treating Urinary Incontinence, Diane K. Newman
- Overcoming Incontinence Mary Dierich, RN, C-NP, & Felecia Froe, MD
- Beyond Incontinence, Janet Hulme, MA, PT
- www.CMS.gov (resource for CMS manual)
- www.bladderbowel.gov.au (Bladder and Bowel Health website)
