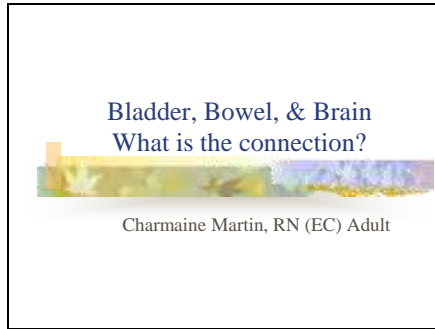
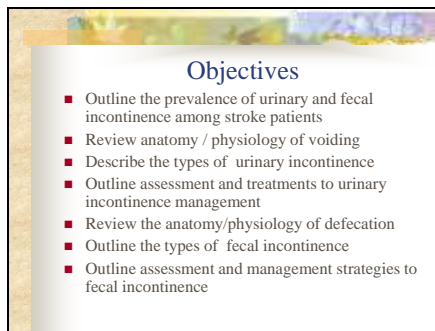


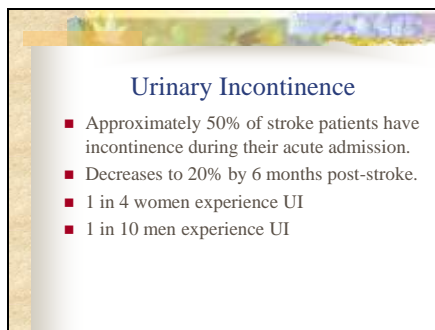
Slide 1



Slide 2



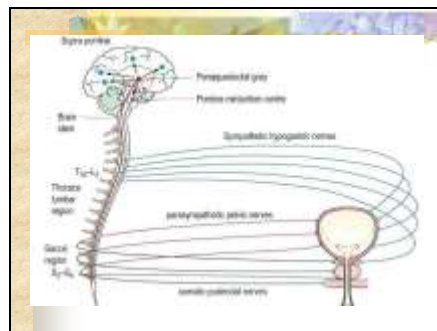
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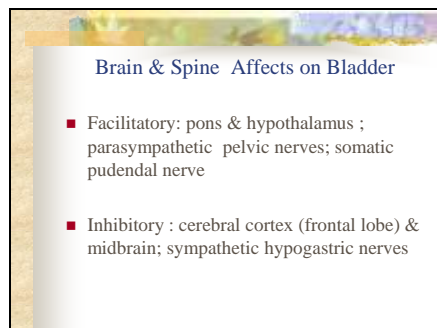
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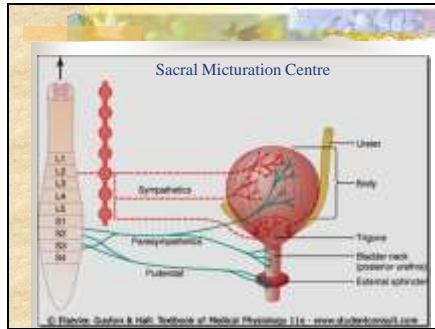
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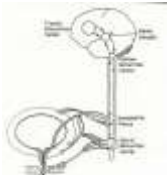
Slide 7



Slide 8

Physiology of Voiding - Storage of Urine

- Receptors in detrusor muscles send message via spine reflex arc through pons / basal ganglia to frontal lobes.
- Message returns to the detrusor muscle to relax
- Internal and external sphincters contract



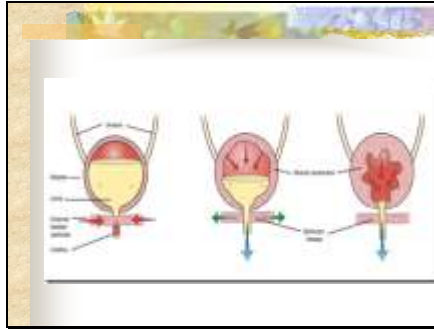
The diagram illustrates the human urinary system. It shows two kidneys at the top, each with a renal pelvis and renal calyces. Urine flows from the kidneys through ureters into the bladder. The bladder is shown with its internal structure, including the trigone and the urethra. The urethra leads to the urethral orifice. Labels include: Ureter, Urethra, Urethral orifice, Bladder, Trigone, Uterus, Vagina, and Uterine orifice. A caption at the bottom reads: "FIGURE 10-10 The urinary system. The kidneys are the primary organs of the urinary system. The ureters are the tubes that carry urine from the kidneys to the bladder. The bladder is the organ that stores urine. The urethra is the tube that carries urine from the bladder to the outside of the body." data-bbox="558 812 942 942"/>

Slide 9

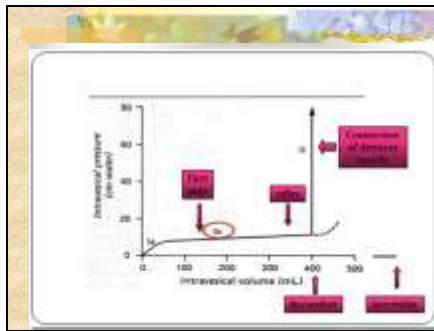
Physiology of Voiding Erectile Phase

- Message from pons / cerebral cortex to proceed with micturition.
- Bladder neck and external sphincters relax
- Detrusor muscle contracts causing a rise in intravesical pressure and triggers voiding

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Risk Factors Associated with UI

- Age : decreased bladder capacity
 - : residual urine
 - : sensory awareness decreased
 - : detrusor instability
- Diabetes: diabetic neuropathy
 - : polyuria
 - : Increased risk of UTI
- Severity and location of Stroke
- Prior Urological dysfunction and other disabling diseases

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Types of Incontinence

- Urge Incontinence
- Retention with or without overflow incontinence
- Functional Incontinence
- Stress Incontinence
- Mixed Incontinence

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Urge Incontinence

- Loss of urine with a strong unstoppable urge to urinate
- Usually associated with frequent urination during the day and night
- Referred to as overactive bladder
- Occurs in post stroke 37% (Gelber)

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Urge Incontinence

Pathophysiology:	Contributing Factors:
■ Detrusor instability	■ Neurological disorders
■ Detrusor hyperreflexia	■ Caffeine
■ Brain, spine, peripheral nerve damage	■ Constipation
	■ Atrophic Changes
	■ UTI
	■ Medications-eg diuretics
	■ Bladder Disorders

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Overflow with Urinary Retention

- Periodic or continuous dribbling of urine
- Usually associated with symptoms of slow stream and difficulty urinating
- Can occur post stroke – 21% (Gelber).

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Overflow Incontinence due to Retention

Pathophysiology:

- Outlet Obstruction
- Under active detrusor muscle
- Injury to brain (pons / frontal lobe), spine or peripheral nerves.

Contributing Factors

- BPH
- Urethral Strictures
- Peripheral Neuropathy – diabetes
- Neurologic disease – UMN; LMN; Peripheral nerves
- Anticholinergic / antispasmodic meds

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Stress Incontinence

- Loss of urine with a sudden increase in intra-abdominal pressure (i.e. Cough, sneeze, exercise)
- Most common in women
- Can occur in men after prostate surgery
- Should be aware if patient had this condition prior to stroke for treatment planning.

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Stress Incontinence

Pathophysiology

- Sphincter incompetence
- Urethral Instability

Contributing Factors

- Pelvic prolapse after childbirth
- Caffeine
- Decreased estrogen - postmenopausal
- Sphincter weakness or damage - prostatectomy

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Functional Incontinence

- Urine Leakage associated with an inability to toilet appropriately because of cognitive or physical impairments, psychological factors, or environmental barriers

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Functional Incontinence

Pathophysiology

- Normal bladder and urethral function

Contributing Factors

- Physical
- Cognitive
- Environmental
- Psychological
- Language barrier
- Physical restraints
- Hospital Environment
- Fatigue

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Nursing History for UI

Characteristics of incontinence

- Onset and duration
- Frequency and time of day
- Precipitating factors (i.e. sneezing / coughing)
- Associated urgency
- Type of urinary flow
- Leakage – Use of protective pads/ briefs

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History

- Toileting Patterns – frequency during the day and night
- Awareness of a full bladder
- Ability to delay voiding
- Sensation of incomplete bladder emptying
- Obstructive symptoms
- UTI symptoms

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History

Genitourinary History

- Childbirths, surgery, prolapsed organs
- recurrent UTI
- Previous incontinence Hx & tx

Relevant Medical Hx

- Diabetes, Depression, Acute Illnesses, Renal disease, CHF, Previous strokes, Parkinsons, and/or dementia, cancer (gyne/CNS)

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History

- Medications – Diuretics, sedatives, hypnotics, anticholinergics, amitriptyline, opioids
- Prior caffeine and alcohol drinking patterns
- Client's / caregivers perceptions
- Environmental factors

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Physical Examination

- General Neurological Status
- Cognition and Affect
- Mobility – manual dexterity, gait and balance
- Language abilities

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Physical Examination

Abdominal Examination

- Visual Inspection – asymmetry, scars, mass
- Palpation / Percussion of bladder
- Sensory Assessment – depends on type of stroke
- Assess for suprapubic tenderness

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Physical Examination

Genital / Rectal Examination

- Assess for bruising, bleeding, swelling, skin breakdown / condition , organ prolapse and discharge.
- Anal – sphincter tone and sensation, fecal impaction

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Diagnostic Tests of UI

- Urinalysis
- Urine culture
- Post void residuals (> 150 mls demonstrates inadequate voiding) – done with bladder scanner – 3 post void scans or in/out catheters (gold standard)
- Urinary diary –3 days pre-implementation
- Urodynamics, cystoscopy, cystometry

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Treatment of UI

- Promoting adequate fluid intake – primarily during the day time – limit after supper
- Limit or eliminate caffeine intake
- Treat any symptomatic UTI
- Assess medications contributing to UI – adjust timing of diuretics; review analgesics and sleeping medications

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Treatment of UI

- Avoid foley – In / out catheters preferred
- Early Mobilization / toileting – use of adaptive clothing
- Proper positioning
- Prevention of constipation
- Language impairments – communication system

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Treatment of UI

Urge Incontinence

- Scheduled / Timed Voiding - voiding at consistent times - keep clients dry by toileting at regular intervals but not best long-term solution for cognitively intact people
- Bladder retraining – a bladder pattern is determined for 3 days and the client learns to extend the times and inhibit urge to void

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Treatment of UI

Urge Incontinence

- Prompted Voiding (RNAO Guidelines)
 - Monitoring
 - Prompting
 - Praising

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Urge Incontinence

- Medications: Anticholinergic medications
eg. Ditropan; detrol – decrease the detrusor
contractions, thus increasing bladder
capacity
- Biofeedback
- Physical therapy – functional ability; pelvic
floor muscles

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Behavioural Strategies

- Bladder retraining – Mind / Body:
Increase the time between voiding and the
patient's ability to suppress the bladder
contractions by education on urge
suppression techniques
kegel exercises

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Urinary Retention after Stroke

- Deficient detrusor muscle contraction
strength - primary cause of urinary
retention in stroke patients.
- Smooth muscles of the bladder do not
contract.

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Treatment of UI

Urinary Retention with Overflow

- PVR > 150mls
- Frequency of in/out caths based on volumes – keep volumes under 500mls
- Sterile technique only on immuno-compromised patients – otherwise teach patient clean technique
- Cholinergics: bethanecol chloride – stimulates contraction of detrusor muscle

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Fecal Incontinence

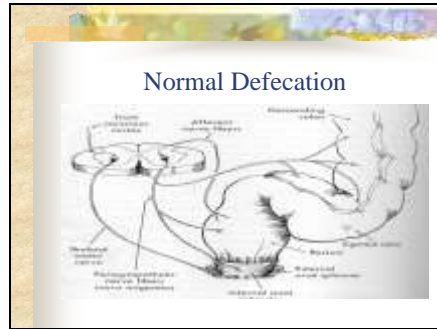
- Fecal incontinence affects 30% in first 7-10days, 11% in 3 months, and 15% in 3 years.
- Continued fecal incontinence after 3months signals a poor prognosis.
- Stroke patients prone to constipation for physiological and clinical reasons.
 - Delayed colonic transit time
 - Impaired mobility, dehydration, polypharmacy, dietary factors, impaired cognition

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Fecal Incontinence after stroke

- Fecal Incontinence:
 - Constipation and fecal overflow (more common)
 - Neurogenic impairment – spinal injury

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History

- Former bowel habits – frequency, habits, time of day, prior use of laxatives, enemas
- Past Hx – GI and colon disease (GERDS, constipation, diverticuli, diarrhea, celiac, hemorrhoids, rectal prolapse) – tx / Sx; Neurological Diseases; Diabetes
- Prior Medications

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Physical Examination

- Neurological exam
- Cognitive / Affect
- Physical ability
- Language ability
- Diet and Appetite – Hydration – 2 – 2.5liters (unless restricted).
- Dysphagia

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Physical Examination

- Visual inspection of abdomen
- Auscultate for bowel sounds
- Palpate for masses
- Assess for sensation in perineal region
- Assess rectum voluntary control of sphincter and rectal tone
- Assess rectum for fecal load

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Tx of Fecal Incontinence

Constipation Guidelines (RNAO)

- Cleanse bowel
- Regular schedule
- Increase fluid intake
- Increase fiber intake
- Increase exercise
- Privacy
- Adaptive clothing /communication system

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Tx of Incontinence

- Position in upright sitting position
- Bowel protocol and suppositories to assist
- Some medications may make constipation worse
- Patients with Frontal strokes usually need regular routines due to lack of frontal cortical input

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