UROGYNÄKOLOGIE (V YR)

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UROGYNECOLOGY

- (Female Pelvic Medicine and Reconstructive Surgery)
- A sub-specialty of Obstetrics/Gynecology that is focused on the care of women with pelvic floor dysfunction.
What is pelvic floor dysfunction?

- The pelvic floor is the system of muscles, ligaments, connective tissue, and nerves that help support and control the rectum, uterus, vagina, and bladder.

Damage to the pelvic floor can occur because of childbirth, repeated heavy lifting, chronic disease or surgery.
The Pelvic Diaphragm

- Symphysis pubis
- Urethra
- Vagina
- Rectum
- Ischial spina
- Coccygeus muscle
- Piriformis muscle
- Iliococcygeus muscle of levator ani muscle
- Obturator internus muscle
- Pubococcygeus muscle of levator ani muscle
SYMPTOMS OF PELVIC FLOOR DYSFUNCTION

- **Urinary Incontinence**: loss of bladder or bowel control, leakage of urine

- **Emptying Disorders**: difficulty urinating

- **Pain**: discomfort to the lower back, pelvis or bladder and/or urethra.

- **Overactive Bladder**: frequent need to void, bladder pressure, urgency, urge incontinence (difficulty holding back urine when having the urge to urinate)
SYMPTOMS OF PELVIC FLOOR DYSFUNCTION

• **Prolapse:**
  descent of pelvic organs; a bulge and/or pressure; ‘dropped' uterus, bladder, vagina or rectum

• **Fistulas:**
  abnormal hole between the vagina and rectum (rectovaginal), vagina and urethra (urethrovaginal), or vagina and the bladder (vesicovaginal)
Some conditions treated in urogynecology practice include:

- Urinary incontinence
- Interstitial cystitis
- Overactive bladder
- Urinary retention, voiding difficulties
- Pelvic Organ Prolapse (POP)
- Cystocele
- Rectocele, Enterocele
CLASSIFICATION OF INCONTINENCE

• Stress – loss of urine when the abdomen is under physical stress (e.g. coughing, laughing, sneezing, running)

• Urge – a sudden, strong urge to urinate combined with a sudden, uncontrollable leakage of urine (OVER ACTIVE BLADDER)
CLASSIFICATION OF INCONTINENCE

- Mixed (stress and urge)
- Overflow – frequent or constant dribble of urine
LIFESTYLE FACTORS

- Caffeine
- Alcohol
- Opioids
- Sedentary
- Cigarette Smoking
Predisposing Factors

- Vaginal Delivery
- Age
- Genetics
- Obesity
- Prior Surgery
- Chronic Lung Disease/Smoking
- Medications
How does stress incontinence occur?
How Does Stress Incontinence Occur?

- Weak Connective Tissue Supports
- Weak Musculature of pelvic floor
- Weakening of the bladder neck spinchter
- Abnormal nervous system
Pubocervical fascia acts like a hammock.
Bladder Neck Prolapse
Anterior (front) end of hammock is damaged

Pubis

Uterus
Uterine or Vault Prolapse
Posterior (back) end of hammock is damaged

Pubis

Uterus
Both front and back ends of the hammock support are damaged.
• Stress test: A test in which you cough hard or bear down while the doctor watches for urine loss.
• Cystoscopy: A test that allows the doctor to see inside your bladder and urethra through a tiny lens attached to a thin tube inserted into the bladder.
• Urodynamic tests: Tests that measure pressure in the bladder when empty and when filling.
• Postvoid residual urine (PVR) measurement: A test to measure urine volume after micturition
The Micturition Cycle

Bladder pressure

Storage phase

Emptying phase

Normal desire to void

First sensation to void

Bladder filling

Bladder filling
Potential urgency pathways

Primary micturition control

Midbrain center

Spinal efferents

Ganglion

ACH

Spinal afferents
Adapted from Abrams P, Wein AJ. *The Overactive Bladder: A Widespread and Treatable Condition.* Erik Sparre Medical AB; 1998.
Distribution of Cholinergic and Adrenergic Receptors in the LUT

- Detrusor muscle (M, β)
- Pelvic floor (N)
- Trigone (α)
- Bladder neck (α)
- Urethra (α)

M = Muscarinic
N = Nicotinic
α = α₁-adrenergic
β = β₂-adrenergic

Adapted from Abrams P, Wein AJ. The Overactive Bladder: A Widespread and Treatable Condition. Erik Sparre Medical AB; 1998.
CHARACTERISTIC SYMPTOMS OF OAB

- Frequency
- Urgency
- Urge incontinence

Bladder pressure greater than urethral pressure
URODYNAMIC STUDIES

- Frequency/volume chart (FVC).
- Bladder diary.
- Pad testing.
- Uroflowmetry ± ultrasound residual estimation.
- Pressure/flow studies:
  - Cystometry  Video cystometry  Ambulatory urodynamics.
- Urethral pressure studies.
- Other studies: Intravenous urodynamogram  Ultrasound cystodynamogram.
Treatments for Overactive Bladder

- Behavioral Therapy
- Pelvic Floor Rehabilitation (Kegels)
- Biofeedback
- Electrical Stimulation
- Neuromodulation (Interstim)
- Botox Bladder injections
- Medications
Behavioral Modification

- Education
- Timed voiding
- Pelvic floor exercises
- Delayed voiding
- Reinforcement
Pelvic Floor Exercises

- Self management program utilizing the Kegel technique or pelvic muscle exercises
- May not see an improvement in bladder control for up to 3 to 6 weeks
- May be improved with Biofeedback or Electrical Stimulation
THE PELVIC DIAPHRAGM

- Symphysis pubis
- Urethra
- Vagina
- Rectum
- Ischial spina
- Coccygeus muscle
- Piriformis muscle

- Obturator internus muscle
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- Iliococcygeus muscle of levator ani muscle
LIFESTYLE CHANGES

Avoid Bladder Irritants

- Caffeine
- Alcohol
- Chocolate
- Cigarettes
- Acidic/Spicy foods
Lifestyle Changes

Fluid Management:
Avoid Excess intake

- Drink 6-8 cups of fluids/day
- Drink throughout day instead of “binge”
- Drink most of fluid in day and afternoon
- Avoid excessive restriction: concentrated urine
LIFESTYLE CHANGES

Evaluate contributing Factors:

- Medications
- Avoid Constipation: Add Fiber to Diet
- Obesity
TREATMENT:

Medications that Decrease Bladder Contractility

- Anticholinergics
- Beta-adrenergic Agonists
- Calcium Channel Blockers
- Antihistamines, sedatives, narcotics
- Antidepressants
- Antipsychotics
TREATMENT:

Avoid Medications that increase detrusor irritability/diuresis

• Diuretics
• Caffeine
• Alcohol
TREATMENT:

Medications that increase Urethral Sphincter Tone:

- Alpha-Adrenergic Agonists
- Amphetamines
- Tricyclic Antidepressants
TREATMENT:

Avoid Medications that Decrease Urethral Sphincter Tone:

- Alpha-Adrenergic Blockers
Tolterodine
Oxybutynin (oral and Patch)
Darifenacin
Troposium
Solifenacin
WHY TREAT OAB WITH ANTIMUSCARINICS

- Detrusor contraction in the normal bladder is primarily mediated via muscarinic receptors
  - release acetylcholine from cholinergic nerves
  - stimulation of muscarinic receptors on the detrusor smooth muscle
Neurotransmitter Receptors

Cholinergic Receptors
- Nicotinic
  - Subtypes: M1, M2, M3, M4, M5

Muscarinic
- Subtypes: M1, M2, M3, M4, M5

Adrenergic Receptors
- α-Adrenergic
  - Subtypes: α₁, α₂, αₙ

- β-Adrenergic
  - Subtypes: β₁, β₂, βₙ

Adapted from Wein AJ. Exp Opin Invest Drugs. 2001;10:65-83.
Muscarinic Receptor Distribution

- M1: Neural Tissue
- M2: Detrusor, Cardiac
- M3: Detrusor, Salivary Glands and Bowel
- M4: Cerbral Cortex, Lungs
Muscarinic receptors are also located in the CNS.

Iris/Ciliary Body = Blurred Vision
Lacrimal Gland = Dry Eyes
Salivary Glands = Dry Mouth
Heart = Tachycardia
Gall Bladder
Stomach = Dyspepsia
Colon = Constipation
Bladder (detrusor muscle)

• Dizziness
• Somnolence
• Impaired Memory & Cognition

Adapted from Abrams P, Wein AJ. The Overactive Bladder: A Widespread and Treatable Condition. Erik Sparre Medical AB; 1998.
CONTRAINDICATIONS FOR ANTICHOLINERGICS

- Renal Failure
- Hepatic Failure
- Narrow Angle Glaucoma
- Gastric Retention
- History of an Allergic Reaction
Considerations in Choosing Anticholinergic Medications

- Provides efficacy by inhibiting involuntary bladder contractions
- Does not prevent normal micturitions
- Is selective for the bladder over other organs, resulting in reduced side effects and improved tolerability
- Provides clinical effectiveness—the optimal balance of efficacy, tolerability, and compliance/persistency
Sacral nerve stimulation provides an effective alternative for voiding dysfunction patients who have not been helped - or could not tolerate - more conventional treatments, including pharmacotherapy.
### Implantation: Ranking of Adverse Events in First 12 Months Post-implant

<table>
<thead>
<tr>
<th>Event</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain at neurostimulator site</td>
<td>15.3%</td>
</tr>
<tr>
<td>New pain</td>
<td>9.0%</td>
</tr>
<tr>
<td>Suspected lead migration</td>
<td>8.4%</td>
</tr>
<tr>
<td>Infection</td>
<td>6.1%</td>
</tr>
<tr>
<td>Transient electric shock</td>
<td>5.5%</td>
</tr>
<tr>
<td>Pain at lead site</td>
<td>5.4%</td>
</tr>
<tr>
<td>Adverse change in bowel function</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Note: Additional events occurred – each less than 2.0%

Data (MDT-103): 1993 - 1998
SURGICAL TREATMENT

• Burch Colposuspension
• Transvaginal Tapes
• Transvaginal Prolene mesh implants
THANK YOU