Female Pelvic Floor Disorders in the Geriatric Patient

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Subspecialty Certification Female Pelvic Medicine & Reconstructive Surgery
No Disclosures

Objectives

- Approach Pelvic Floor Disorders along the lines of Optimal Aging
- What is available to help women live life to the fullest regardless of ability or living situation
- How to optimize healthy living given current disabilities or health challenges – with regards to female pelvic floor disorders.
What are Female Pelvic Floor Disorders?

- Lower Urinary Tract Symptoms (LUTS)
- Prolapse: uterine/vaginal/rectal
- Defecatory difficulties

Quality of Life

- “I’m too old”
- “my doctor never seems to want to do anything about it”
- “normal part of getting old”
- “price we pay for having babies”
- “I don’t want to tell anyone about it”
- “I don’t dare go anywhere”
- “I just stay home”
- “I don’t want that mesh I’m hearin’ about”
Female Pelvic Medicine & Reconstructive Surgery

- aka Urogynecology
- Joint subspecialty between Urology and OBGYN
- Recognized subspecialty ABMS 2011
- First Board Certification Exam 2013
- Providers specializing in disorders of the female pelvic floor and related systems

Female Pelvic Floor Disorders

- Common LUTS
- Pelvic Organ Prolapse
- Defecatory dysfunctions
Female Pelvic Floor Disorders

- Common LUTS
- Pelvic Organ Prolapse
- Defecatory dysfunctions

Nocturia
OAB
Nocturia

- 24-hr polyuria
- Nocturnal polyuria
- Reduced bladder capacity
- Sleep disorders
Nocturia

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24-hr Polyuria

- Excessive fluid intake
- Urine production over 40ml/kg/24 hrs
  - 2800 ml (93 oz) in a 70 kg adult
- Voiding more than 8x per day
- What is considered adequate daily fluid intake?
What is Considered Adequate Daily Fluid Intake?

a. 6 to 8 full glasses
b. 84 oz.
c. 1/3 body weight in lbs = total oz. water
d. Drink with meals and when thirsty
e. Until your urine is clear
What's the Evidence

National Academy of Medicine
Food and Nutrition Board of NRC

- 1945
- 2200 cal per day
- 1ml water for each calorie of food
- 2 – 2.5 qts water per day (64-80 oz)
  TOTAL
  - 8-10 • 8oz glasses
  - 1900 – 2400 ml
<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Function</th>
<th>Life Stage Group</th>
<th>At</th>
<th>UL*</th>
<th>Selected Food Sources</th>
<th>Adverse Effects of Excessive Consumption</th>
<th>Special Considerations</th>
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<td>Maintain homeostasis in the body and allows for transport of nutrients to cells and removal and excretion of waste products of metabolism.</td>
<td>Infants 0-6 mo</td>
<td>0.7</td>
<td>No UL</td>
<td>All beverages, including water, as well as moisture in foods (high moisture foods include watermelon, mea, soups, etc.)</td>
<td>No UL because normally functioning kidneys can handle more than 0.7 L (24 fl oz) of fluid per hour; symptoms of water intoxication include hyponatremia which can result in heart failure and hyponatremia (renal muscle tissue injury) which can lead to kidney failure.</td>
<td>Recommended intakes for water are based on median intakes of generally healthy individuals who are adequately hydrated; individuals can be adequately hydrated at levels below as well as above the ULs provided. The ULs provided are for total water intake. Fluids and beverages at meals are adequate to maintain hydration.</td>
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NOTE: The table is adapted from the DRIs reports. See www.nap.edu. Adequate intakes (AIs) may be used as a goal for individual intake. For healthy breastfeeding infants, the AI is the mean intake. The AI for other life stages and gender groups is believed to cover the needs of all individuals in the group, but lack of data prevent being able to specify with confidence the percentage of individuals covered by this intake; therefore, no Recommended Dietary Allowance (RDA) was set.

UL*: The maximum level of daily nutrient intake that is likely to pose no risk of adverse effects. Unless otherwise specified, the UL represents total intake from diet and all other sources. Due to lack of suitable data, ULs could not be established for potassium, water, and inorganic sulfur. In the absence of ULs, extra caution may be warranted in consuming levels above recommended intakes.

ND*: Not determinable due to lack of data on adverse effects in this age group and concern with regard to lack of ability to handle excess amounts. Source of intake should be from foods only to prevent high levels of intake.

SOURCE: Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. These reports may be accessed via www.nap.edu.
### Nutrient Function

- **Water**: Maintains homeostasis in the body and allows for transport of nutrients to cells and removal and excretion of waste products of metabolism.

### Adverse Effects of Excessive Consumption

**No UL because normally functioning kidneys can handle more than 0.7 L (24 oz) of fluid per hour; symptoms of water intoxication include hyponatremia which can result in heart failure and rhabdomyolysis (skeletal muscle tissue injury) which can lead to kidney failure.**

### Selected Food Sources

- All beverages, including water, as well as moisture in foods (high moisture foods include watermelon, melons, etc.)

### Special Considerations

- Moisture in foods accounts for about 20% of total water intake. Thirst and consumption of beverages at meals are adequate to maintain hydration.

**NOTE:** The table is adapted from the DRI reports. See www.nap.edu. Adequate Intakes (AI) may be used as a goal for individual intake. For healthy breastfeeding infants, the AI is the mean intake. The AI for other life stages and gender groups is believed to cover the needs of all individuals in the group, but lack of data preventing being able to specify with confidence the percentage of individuals covered by this intake; therefore, no Recommended Dietary Allowance (RDA) was set.

- UL - The maximum level of daily nutrient intake that is likely to pose no risk of adverse effects. Unless otherwise specified, the UL represents total intake from food, water, and supplements. Due to lack of suitable data, UL could not be established for potassium, water, and inorganic sulfur. In the absence of ULs, extra caution may be warranted in combining levels above recommended intakes.

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**SOURCE:** Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. This report may be accessed via www.nap.edu.
Adequate Fluid Intake

- For healthy adults:
- Drink fluids with meals and when thirsty.
- Special considerations for the elderly and with medical conditions.

www.iom.edu/~media/files/activity%20files/nutrition/dris/dri_electrolytes_water.pdf

24-hr Polyuria

- How can we improve quality of life?
- Fluid management
  - Voiding diary
  - Why are they drinking this amount?
    - Weight Watchers
    - Dry mouth
    - Want to be healthy
    - polydipsia
  - Works best when daily UO over 1800 ml
Nocturia

- 24-hr polyuria
- Nocturnal polyuria
- Reduced bladder capacity
- Sleep disorders
Nocturnal Polyuria

- Interruption of sleep one or more times by the need to urinate.
- Each event is preceded and followed by sleep
- 41% prevalence in females 60-79 (Fitzgerald 2007)

Nocturnal Polyuria

- Non bladder causes
  - Mobilization of edema
  - Obstructive sleep apnea
  - Sleep disturbances assoc with aging
  - Kidney disease
  - CHF
  - Medications
Impact of Medications on LUTS in the Elderly

**Nocturia**
- Nifedipine
- Glitazones
- NSAIDS/COX2
- Gabapentin
- Pregablin

**Constipation**
- Ca Channel blockers
- Anticholinergics
- Narcotics

**Mobility**
- Antipsychotics

**Mentation**
- Sedtive hypnotics
- Benzodiazepines
- Anticholinergics

**Stress UI**
- ACE Inhibitors
- LUT Function
  - Decreased Contractility
  - Anticholinergics
  - Calcium blockers
  - ↑ Sphincter Tone
  - Alpha agonist
  - ↓ Sphincter Tone
  - Alpha blockers
  - Diuretics

**Nocturnal Polyuria**

- **Bladder causes:**
  - Detrusor Overactivity
  - Painful Bladder Syndrome
  - Outlet obstruction
    - Prolapse
    - Supine position triggers urge
  - Hypocontractile bladder
    - Inability to completely empty
Nocturnal Polyuria

- **How can we improve quality of life?**
  - Health/lifestyle issues to improve sleep
  - Optimize known medical contributors
  - Manage renal fluid and solute loads
    - Caffeine and alcohol
    - Limiting evening fluids – limited benefit
    - Fluid sequestration
    - Late afternoon/early evening diuretic

Nocturia

- 24-hr polyuria
- Nocturnal polyuria
- Reduced bladder capacity
- Sleep disorders
Reduced Bladder Capacity

- OAB
- Painful bladder syndrome
- Hypocontractile bladder with high residual
- Pelvic organ prolapse
- Neurogenic factors

Reduced Bladder Capacity

- How can we improve quality of life?
  - Treat the OAB
    - Be cautious with antimuscarinics
  - Correct prolapse
  - Prompted voiding
  - Bedside commode
Nocturia

- 24-hr polyuria
- Nocturnal polyuria
- Reduced bladder capacity
- Sleep disorders

Sleep Disorders

- Primary vs. secondary disorders
- Dementia
- Medications
- Psychiatric
Sleep Disorders

- **How can we improve quality of life?**
  - Address primary and secondary disorders
  - Review patient’s medications
    - Steroid use
    - Diuretics
    - Antidepressants
    - Psychotropics/chronic pain medications
  - Address depression

OverActive Bladder
OAB
OAB
International Continence Society

- **Urinary urgency**: sudden compelling desire to pass urine that is difficult to defer
- **OAB**: Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection (UTI) or other obvious pathology.
- Usually voiding > 8x day
- 90% idiopathic

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OAB

- Minimal Initial Evaluation (AUA)
  - Physical Exam including pelvic & neuro screen
  - UA
AUA/SUFU Guideline

DIAGNOSIS AND TREATMENT OF OVERACTIVE BLADDER (Non-Neurogenic) IN ADULTS: AUA/SUFU GUIDELINE

Approved by the AUA Board of Directors
May 2014

Authors' disclosure of potential conflicts of interest:

Purpose: The purpose of this guideline is to provide a clinical framework for the diagnosis and treatment of non-neurogenic overactive bladder (OAB).

www.auanet.org

AUA/SUFU Guideline

DIAGNOSIS AND TREATMENT OF OVERACTIVE BLADDER (Non-Neurogenic) IN ADULTS: AUA/SUFU GUIDELINE

Treatment:

First-Line Treatments:

6. Clinicians should offer behavioral therapies (e.g., bladder training, bladder control strategies, pelvic floor muscle training, fluid management) as first line therapy to all patients with OAB. Standard (Evidence Strength Grade B)

7. Behavioral therapies may be combined with pharmacologic management. Recommendation (Evidence Strength Grade C)

www.auanet.org
OAB

- **How can we improve quality of life?**
  - Behavioral Therapy
    - Prompted voiding
    - Bedside commode
  - Urge suppression/timed voiding
  - Fluid management – voiding diary
  - Weight loss
  - Physical therapy
  - Nerve modulation
  - Medications

**Medications**

- Will not help stress incontinence
- Anticholinergic medications can effect cognition
  - Least likely - Trospium, Mirabegron
- Need to be reassessed for effectiveness and discontinued if not significantly improved
- Total anticholinergic load?
Advanced Treatment Options

- PTNS
  - Percutaneous Tibial Nerve Stimulation
- SNM
  - Sacral Nerve Modulation: InterStim®
- Botox
  - Onabotulinum Toxin A

Female Pelvic Floor Disorders

- Common LUTS
- Prolapse
- Defecatory dysfunctions
What is Prolapse?
Suspension Bridge Analogy

- Vagina is suspended from boney pelvis by the PUL, ATFP and USL

Normal Pelvic Support

- Normal Levator tone: 130° vaginal angle
- Proximal vagina near horizontal – supported by levator
- Vaginal wall apposition maintained by normal levator tone
- Thought to be primary pelvic support mechanism

http://www.integraltheory.org/structure and form.html
Levator Injury

DeLancey, J. IUJ 2012;23:665–7

Levator Injury

DeLancey, J. IUJ 2012;23:665–7
Prolapse

- How can we improve quality of life?
  - Observation
  - Pelvic floor exercises
  - Pessaries
  - Surgery
Observation
Will it get worse?

Gilchrist, Neurourol Urodyn 2012
- 64 symptomatic women chose expectant management followed by POPQ exams for median of 16 months (6-91 mo)
- $\pm$ 2 cm change considered significant
- 33% were Stage 3 or 4

Outcomes:
- 78% (50/64) no change
- 19% (12/64) progression $> 2$ cm
- 3% (2/64) regressed more than 2 cm


Observation
Will it get worse?

Length of follow up did not matter

At last recorded visit:
- 63% (40/64) planned continued observation
- 38% (24/64) desired pessary or surgery
  - Level of progression was no different

Conclusion: minimal progression in women declining intervention.

Prolapse

- How can we improve quality of life?
  - Observation
  - Pelvic floor exercises
  - Pessaries
  - Surgery

Pelvic Floor Rehabilitation

- Dr. Arnold Kegel
- Published 1948
- Progressive duration of pelvic floor muscle contractions
- Thought to increase urethral resistance
  - Hypertrophy of periurethral musculature
  - Improve timing of contraction with stress event or urge.
Pelvic Floor Rehabilitation

- RCTs show improvement in symptoms when compared to no treatment (Ghrobi, 2008, Hagen 2009, Braekken 2010)
  - Both objective and subjective improvements
- Possibly arrest progression?
- If currently good pelvic floor strength - unlikely to improve with further exercises
- For highly motivated women with mild-moderate POP symptoms, PFMT might improve symptoms in short term
- Long term studies are lacking.

Prolapse

- How can we improve quality of life?
  - Observation
  - Pelvic floor exercises
  - Pessaries
  - Surgery
Pessaries

Pessary History

- As far back as 1500 BCE ancient Egyptians - Crocodile dung
- 500 BCE Hippocrates describes using half pomegranate dipped in wine
- Bathing in wine, hot oil, honey and fumes
- Middle ages linen soaked in different potions
- Glass, cork and brass followed
- Modern medical grade silicone
Pessary Candidates

- Everyone
- Poor surgical candidate
- Postponing surgery
- Childbearing female with symptoms of UI

Who chooses a pessary over surgery?

- Increasing age
- Fewer bothersome prolapse symptoms
- No prior prolapse surgeries
- Not sexually active
- When offered surgery vs pessary 2/3 chose a pessary

Kapoor IUJ 2009; 20: 1157-61
Who is Likely to Fail a Pessary Fitting?

- Short vagina and wide Gh
  - Vaginal length ≤ 6 cm
  - Gh 4 fingerbreadths
  - Gh/TVL > 0.9
- Rectocele without cystocele
- Prior prolapse surgery
- Concurrent stress urinary incontinence
  - Or occult UI uncovered with pessary
- Smoking
- Age < 65
- Lower stage prolapse (prolapse inside the hymen)

Contraindications

- Active infection
- Significant atrophy
- Exposed mesh
- Recurrent erosions/bleeding
- Sexually active – unable to remove
- **Non-compliance**
  - Most important
  - Dementia, lack of transportation, failure to show up for follow up appointments.
Follow up

- Discretion of the provider
- Patients independence with the device
  - Independent:
    - At least every 6 – 12 months
  - Dependent:
    - 1 – 4 months pending issues
    - Comfort, Discharge, Transportation

Common Problems

- Discharge
  - Not an infection!
  - Trimo-san
- Erosions (spotting)
  - Leave pessary out for a week or two
  - Add vaginal E2
- Increased UTIs
  - Prolapse also assoc with UTIs
  - Antibiotic suppression
  - Cranberry tablets
Prolapse

- How can we improve quality of life?
  - Observation
  - Pelvic floor exercises
  - Pessaries
  - Surgery

Epidemiology

  - 58 million women
  - US claims data: 311,070 women had POP or UI surgery between 2007-2011
  - **20.2% lifetime risk POP or UI surgery by age 80 (1 in 5)**
    - SUI surgery 13.6%
    - POP surgery 12.6%
      - Lifetime risk for breast cancer – 14.8%
      - Lifetime risk for colon cancer – 4.8%
Surgical Options

- There are many options
- Risk Assessment
  - Comorbidities
  - Frailty
  - Previous surgeries
  - QOL
  - Urinary incontinence
  - Sexual activity

Surgical Risk

- **Risk for death** in urogynecologic procedures in general is low
- Increasing age assoc. with increased risk of death compared to age 60:
  - 60-69 years OR 3.4
  - 70-79 years OR 4.9
  - ≥ 80 years OR 13.6
- Peri-operative complications increased in women over 80 (OR 1.4 [95%CI 1.3-1.5])

Sung, V., AJOG 2006: 194(5):1411-17
Discussions prior to Surgery

- Sexual activity
- +/- hysterectomy
- Abdominal vs vaginal route
- Need for graft augmentation?
- Occult SUI
- Long term expectations
  - What are the patient’s treatment goals?

Obliterative Techniques

- Option in the more frail patient at high anesthetic risk
- Can be done under regional or local anesthesia
Obliterative Techniques

- Success 91-100%
- Concomitant hysterectomy increases morbidity and is not necessary
- Most studies indicate increased QOL
- Prophylactic sling?
  - 7-11% risk for de novo UI post op

Fitzgerald IUJ 2008; 19(12):1603-9

Partial Colpocleisis

- LeFort Procedure classic example
- Leave most distal 2-3 cm
- 2 drainage channels
- Reapproximation of two denuded rectangles of fascia
- Sample endometrium prior (or US)
- Can be done under local

Karram OBG Mngmt 2012; 24(2):30-41
Female Pelvic Floor Disorders

- Common LUTS
- Prolapse
- Defecatory dysfunctions

Rectum and Anal Canal

- Levator Ani
  - EAS
- Rectal circular muscle
  - IAS
- Longitudinal muscle of the Anus

McBride, A., J. PMS 2003; 9(3); 103-23
Anorectal Angle

- Puborectalis muscle
  - Tone maintains the anorectal angle 90 - 120° under normal conditions
  - Angle closer to 80° with adequate squeeze
- Primary continence for solid stool

McBride, A., Anatomy of the Pelvis J. PM&S 2003; 9(3);103-23

Physiology of Anal Continence

- Puborectalis
  - Maintains solid stool continence
  - Allows increasing stool to accumulate within rectum until convenient to empty
Physiology of Anal Continence

- EAS & IAS primarily liquid and gas continence
  - 85% of continence from IAS tone
  - 65% with rectal distention (so EAS kicks in)
  - Any sudden increase in intraabdominal pressure increases EAS tone – “Gaurding Reflex”
    - Becomes weak with aging or damage resulting in flatal incontinence initially
- Anal Cushions
  - Contribute to anal continence by improving anal mucosal coaptation

Physiology of Anal Continence

- Normal Anorectal Function
  - Rectal compliance normally high
    - Allows for ample fecal storage within rectum
  - Rectal stretch receptors stimulate urge to defecate
  - “RAIR” RectoAnal Inhibitory Reflex
    - Inhibition of IAS tone, increased EAS tone
    - IAS – involuntary control
    - EAS and puborectalis – voluntary control
  - “Sampling” - decision to defecate or not
Physiology of Defecation

- **Defecation permitted:**
  - Voluntary relaxation of the EAS
  - Voluntary relaxation of the puborectalis and increasing the ARA
  - Abdominal wall and rectal wall muscular contraction
  - Evacuation of fecal material
  - Closing reflex:
    - Once rectum emptied, EAS, IAS and puborectalis reflexively contract

Anal Continence

- Competent EAS and IAS
- Puborectalis
  - Maintains the ARA
- Anorectal sensation/sampling reflex
  - Differentiate between solid, liquid or gas
- Normal rectal compliance and capacity
- Optimal stool consistency
- Colonic transit time
- Conscious control
  - i.e. dementia
Fecal Incontinence
Definitions

- Fecal Incontinence
  - Involuntary loss of feces
  - Solid
  - Liquid
- Anal Incontinence
  - Above plus involuntary loss of flatus

Prevalence of AI

- 1995 community survey
  - Wisconsin phone survey 2570 households
    - 153 reported AI (2.2%)
  - Incontinent patients:
    - 30% older than 65, 63% female
    - 36% solid
    - 54% liquid
    - 60% gas
  - Risk factors: female. Age, physical limitations and poor health

Medications Associated with Fecal Incontinence

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<th>Mechanism of Drug Action</th>
<th>Example of drug(s)</th>
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<td>Alters sphincter tone</td>
<td>Nitrates, Calcium channel antagonists, beta-blockers, sildenafil, SSRI</td>
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<td>Antibiotics affect healthy gut flora</td>
<td>cephalosporins, penicillins, erythromycin</td>
</tr>
<tr>
<td>Topical drugs applied to anus to reduce pressure</td>
<td>Glyceryl trinitrate ointment, diltiazem gel, bethanecol cream, onabotulinum toxin A</td>
</tr>
<tr>
<td>Drugs causing profuse loose stools</td>
<td>Laxatives, metformin, Mg++antacids, digoxin, SSRIs, orlistat</td>
</tr>
<tr>
<td>Drugs causing constipation</td>
<td>Antidiarrheals, anticholinergics, antihistamines, iron supplements, diuretics, opiates</td>
</tr>
</tbody>
</table>

Clinical Guideline No. 49 NICE, 2007

Warning Signs

- Rectal bleeding
- New onset obstructive symptoms
  - Incomplete emptying
  - Straining
- Weight loss
- Decrease in stool caliber
Endoscopy

- Endoscopy should be considered early in the evaluation if not performed recently or new onset of symptoms

Initial Evaluation

- Review History/Physical exam
- Defecatory focused evaluation
  - New onset?
  - Bowel habits
  - Bristol Stool Chart
  - Bowel diary
  - Validated questionnaires
**Bowel Diary**

### ROME III Diagnostic Criteria

C3. Functional Constipation
#### Diagnostic criteria*
1. Must include two or more of the following:
   a. Straining during at least 25% of defecations
   b. Lump or hard stools in at least 25% of defecations
   c. Sensation of incomplete evacuation for at least 25% of defecations
   d. Sensation of anorectal obstruction/blockage for at least 25% of defecations
   e. Manual maneuvers to facilitate at least 25% of defecations (e.g., digital evacuation, support of the pelvic floor)
   f. Fewer than three defecations per week
   g. Loose stools are rarely present without the use of laxatives
   h. Insufficient criteria for irritable bowel syndrome

*Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

### Bristol Stool Chart

**Type 1**
Separate hard lumps, like nuts (hard to pass)

**Type 2**
Sausage-shaped but lumpy

**Type 3**
Like a sausage but with cracks on its surface

**Type 4**
Like a sausage or snake, smooth and soft

**Type 5**
Soft blobs with clear-cut edges (passed easily)

**Type 6**
Fluffy pieces with ragged edges, a mushy stool

**Type 7**
Watery, no solid pieces; Entirely Liquid

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**Rao, S., Am J Gastro Practice Guidelines 2004**
Interventions

■ How can we improve quality of life?
  ■ Behavioral/lifestyle changes
  ■ Physical Therapy
  ■ Medications
  ■ Occlusive devices
  ■ More invasive options
  ■ Newer options
Behavioral/Lifestyle Changes

- Without suspected anatomic or neurologic abnormalities, initial treatment should be conservative
  - Dietary evaluation
  - Avoiding laxatives
  - Increase fiber
  - Correct bad bowel habits
    - Scheduled defecation best after breakfast.
    - Flexed at the thighs on the toilet
  - Adequate fluid intake
  - Barrier creams – Desitin
  - Assess for physical and facility limitations

Squatting

Squatting is the only natural defecation posture.
Behavioral/Lifestyle Changes

- Exercise can improve FI in assisted living pts
- Smoking – no relation to FI
- Facilities
  - Too far to travel – bedside commode
  - Clothing too difficult to remove
  - Caregivers distracted/overworked
  - Raised toilet seat, stools
- Medication side effects

Treat Any Underlying Causes

- IBS
- Fecal impaction
- Rectal prolapse
- Colorectal cancer
- Diarrhea
- **Caution**: treating constipation in the aging population can increase FI up to 50%
Interventions

- How can we improve quality of life?
  - Behavioral/lifestyle changes
  - Physical Therapy
  - Medications
  - Occlusive devices
  - More invasive options
  - Newer options

Physical Therapy

- Recommended after other lifestyle and behavior modifications have been tried
- Utilizes balloon distention (ARM) and/or electrostimulation
  - Electrostimulation not rec for FI by 5th ICI
- Few long-term studies
  - Most indicate improvement 1-5 years
- **Best in motivated patient without neurologic impairment**
Physical Therapy
How Does it Help FI?

- Biofeedback Goals:
  - Correct any bad habits
- Sensory Training
  - Improved rectal sensitivity to less and less distention
- Strength Training
  - Improved EAS strength and endurance
  - Improved endurance better indicator of success
- Coordination Training
  - Improved anal tone in response to anal filling

Physical Therapy

- Predictors of failure:
  - Neurologic impairment
  - Passive FI (no sensation)
  - High rectal sensitivity thresholds
Interventions

- How can we improve quality of life?
  - Behavioral/lifestyle changes
  - Physical Therapy
  - Medications
  - Occlusive devices
  - More invasive options
  - Newer options

Medical Therapy Goals

- Reduce diarrhea
  - Slow down transit time
- Increase resting anal canal pressure
- Prevent or treat constipation
  - Constipation key risk factor for FI in elderly
  - Treating constipation can cause FI
Medications

- Loose/watery stools
  - Polyethylene glycol - PEG (MiraLax®)
  - Fiber
  - Loperamide (Imodium®) 4 mg tid
    - Slows transit time
- Second line agents for constipation:
  - Refractive constipation: linactolide (Linzess®) or Lubiprostone (Amitiza®)
  - Nursing home with impaction – daily enemas

Interventions

- How can we improve quality of life?
  - Behavioral/lifestyle changes
  - Physical Therapy
  - Medications
  - Occlusive devices
  - More invasive options
  - Newer options
Anal Plugs

- One time use
- Foam cup compressed and coated with dissolvable film
- Strings can soil and be irritating
- Stay in place max 12 hrs

http://www.continenceproductadvisor.org/products/faecaldevices/analplugs

Intravaginal Device

- Eclipse®
- 61/110 successfully fit
- 85% - bowel symptoms very much better
- Adverse Events:
  - None serious
  - 22% cramping/pain
  - 28 unsuccessfully fitted
- FDA approved 2/2015

Richter OBG 2015, 125(3):540-7
Interventions

- How can we improve quality of life?
  - Behavioral/lifestyle changes
  - Physical Therapy
  - Medications
  - Occlusive devices
  - More invasive options
  - Newer options

Perianal Bulking Agents

- **Solesta®**
- Dextranomer-hyaluronic acid
- Limited trials
- “Office procedure”
- One RCT found improved continence for a little over half of patients in the short term

Cochrane Database Syst Rev 2013, Feb 28;2:CD007959
SNM

- InterStim®
- Most trials with normal sphincter anatomy
- Requires intact reflex activity
- MOA: unknown
- Success for most who fail conservative therapy
  - 87% had 50% reduction at 3 years (Wexner 2010)
- 7 yr avg battery life
- expensive

Sphincteroplasty

- Best candidates:
  - Obstetric trauma or iatrogenic injury
  - Neurologically intact
  - Good puborectalis contraction on US (Zufferey, 2009)
- Good short-term outcomes but disappointing outcomes at 10 years (Zutshi 2009)
- Pain and poor wound healing significant
Sphincteroplasty

- Depends on size of defect + severity of FI
  - Defect <1 quadrant – Behav + BF
  - Defect >1 quadrant – sphincteroplasty appropriate
- Pain and wound healing common problems

Interventions

- How can we improve quality of life?
  - Behavioral/lifestyle changes
  - Physical Therapy
  - Medications
  - Occlusive devices
  - More invasive options
  - Newer options
Magnetic Bead Implants

- Fenix®
- Titanium magnets implanted around the EAS
- FDA Approved Dec 2015
- Feasibility Study:
  - 14 pts
  - 3 dropped out
  - 7 with Aes
  - 5 had 6 mo fu data
  - All showed improvement

Lehur Dis Colon Rectum 2010; 53(12):1604-10

TOPAS

- Transobturator Post-Anal Sling
- Minimally invasive
- Not FDA approved
- Future in jeopardy

Future?

- Stem cell injections

Fini
62 yof complaining of a vaginal bulge
Case Examples

- Have a case or two at the end to help trigger questions
  - Difficulty urinating with complete prolapse?
  - New onset UU associated with bladder cancer
  - FI associated with inability to leave the house
  - High risk 90 year old female with complete procidentia nursing home patient neglected – think colpocleisis under local
  - VAGINAL VAULT PROLAPSE video
Transrectal Sonography
Normal Sphincters

Transrectal Sonography
Sphincter Defect
PTNS

- Small studies with modest improvements in about 50% of pts.
- Remains investigational and not FDA approved

Refractory FI
Supportive Testing

- Anorectal Manometry
- Defecography
- Neurophysiologic testing
- Saline Infusion Test
- Transrectal or Translabial sonography
- MR

Surgical Options

- SNM
- Sphincteroplasty
- Other advanced surgical options
Perioperative Assessment of the Geriatric Patient

Surgical Risk

- Risk for death in urogynecologic procedures in general is low
- Increasing age assoc. with increased risk of death compared to age 60:
  - 60-69 years OR 3.4
  - 70-79 years OR 4.9
  - ≥ 80 years OR 13.6
- Peri-operative complications increased in women over 80 (OR 1.4 [95%CI 1.3-1.5])

Sung, V., AJOG 2006: 194(5):1411-17
Physiologic Changes

- Renal mass and function declines
- Age related decrease in maximum heartrate
- Decreased pulmonary surface area
- Muscle mass is decreased
  - Fall risk, impaired mobility
- Increased insulin resistance
- Decreased immunities

Can Result in:

- Greater prevalence of chronic disease
- Decreased organ function and reserve
- More susceptible to infection
  - Decreased ability to fight it off
Surgical Risk

- Consider age, comorbidities and functional status
- Discuss surgical goals
- Sexual activity
- Consider obliterateive procedures

Clinical Predictors of Perioperative Cardiac Events

- Ischemic heart disease
- Congestive heart failure
- Cerebrovascular disease
- Insulin-dependent diabetes
- Serum Creatinine <2.0 mg/dl
- Age (minor risk factor)

Endoanal Ultrasound

- Or Translabial
- Review 100 pts found 27% primiparous women had detectable anal sphincter defect
  - 29% those with defects were symptomatic
  
  Oberwalder BJS 2003; 90:1333

- Case-control study 352 women MN
  - Rectal urgency not OASIs the main risk factor for FI in women
  
  Bharucha AJGastro 2006;101:1305