OVERACTIVE BLADDER: PAST, PRESENT AND FUTURE!

Gina Porter RN, NCA
Overactive Bladder (OAB): Past

• Used informally in publications as early as 1989.
• Overactive Bladder (OAB) - 1997 Consensus Conference: “The Overactive Bladder; From Basic Science to Clinical Management”
  Co Chairs - Paul Abrams & Alan Wein
• Goal- develop a symptom based definition rather than a urodynamic based classifications i.e. Unstable bladder/ detrusor instability and detrusor hyperreflexia.
• Suggested Definition: “The overactive bladder is a medical condition referring to the symptoms of frequency and urgency, with or without urge incontinence, when appearing in the absence of local pathologic or metabolic factors that would account for these symptoms”
Overactive Bladder (OAB): Past

- Defined as “Urgency, with or without urge incontinence, usually with frequency and nocturia” (Abrams, et al, 2002)
- The term has been and continues to be a source of debate among top Urologists around the world.
- As it was a “New Term” prevalence was unknown initially.
- Treatments: Conservative - kegels, behaviour modification, Bio/stim Pharmaceutical - Anticholinergics (gold standard)
  Surgical - Implantable Neuromodulators, “Clam”
- Increasing awareness of the condition.
Overactive Bladder (OAB): Present

SYMPTOMS AND DEFINITIONS:

• Urgency - is the sudden compelling desire to pass urine which is difficult to defer
• Frequency - >8/day
• Nocturia - >1/night and bothersome
• Urge Urinary Incontinence - the complaint of involuntary leakage accompanied by or immediately preceded by urgency

“It is estimated that most people with overactive bladder experience only the symptoms of urgency and frequency (63%). The remaining 37% have wetting accidents (urge incontinence) in addition to urgency and, often, frequency.”

(ICS) (The Canadian Continence Foundation - TCCF)
Overactive Bladder (OAB): Present

**PREVALENCE:**

- It is estimated that nearly 1 in 5 Canadians over the age of 35 suffer from overactive bladder. (The Canadian Continence Foundation)
- Overall prevalence in US – 16.5% (NOBLE) - Similar in Europe
- Increases with age - 20% of 70 year olds and older
  - 30% of 75 year olds and older
  (Ellsworth, 2014)

“2011 prevalence study estimated that 10.7% of the 2008 worldwide adult population was affected by OAB”. (Irwin, Kopp, et al, 2011)

“As life expectancy increases, the prevalence of OAB is expected to rise.” (Staskin, 2005)
Overactive Bladder (OAB): Present

IMPACT OF OAB

- Interference with social activities and intimacy
- Quality of life changes
- Lack of confidence
- Negative impacts on careers
- Fear of being discovered
  - All of which lead to isolation and depression
- May be associated with increased morbidity and mortality in the elderly.
- Contributing factor to fall related injuries in the elderly population.

Overactive Bladder (OAB): Present

**ETIOLOGY OF OAB SYMPTOMS:**

- **Nonneurogenic:** UTI
  - Bladder outlet obstruction (BOO)
  - Post Surgical (eg anti-incontinence surgery)
  - Bladder Tumor
  - Bladder stones and foreign body
  - ? Sphincteric incontinence
- **Neurogenic:** Neurogenic Detrusor Overactivity - NDO
  - Stroke
  - Parkinson’s disease
  - Multiple sclerosis
  - Spinal cord injury
  - Myelodysplasia
  - Transverse myelitis

(Wein, Rackley, 2006)
Overactive Bladder (OAB): Present

**OTHER CAUSES OF OAB SYMPTOMS**

- **Medications**: Diuretics
  - Antihypertensives
  - Antidepressants
  - Hypnotics & sedatives
  - Narcotics & analgesics
- **Miscellaneous**: Poorly controlled diabetes
  - Peripheral edema
  - Pregnancy
  - Constipation

(Staskin, 2005)
Overactive Bladder (OAB): Present

ASSESSMENT

INITIAL:
• Thorough History and Physical – including Meds
• Bladder diary
• Urinalysis, C&S
• +/- Post Void / Uroflow

FURTHER:
• Urodynamic Study
Overactive Bladder (OAB): Present

**ASSESSMENT**

- **History** - any neurological symptoms or conditions
  - Duration of symptoms and severity (degree of bother)
  - any urinary incontinence
  - past vaginal or bladder surgeries or radiation Tx.
  - complete list of prescribed and OTC medications

- **Physical** - observe gait and demeanor
  - abdomen and flanks - r/o masses, hernia, distended bladder
  - rectal/ vaginal - prostate, rectal tone, pelvic organs (POP)

- **Labs** – Urinalysis, C&S ➔ Urine for Cytology

- **Bladder Diary** – kept for 3-5 days and include fluid intake
  (Wein, Rackley, 2006) (Gormley, Lightner, et al., 2012)
# Bladder Diary

- A simple yet valuable tool
- Provides objective information on a patient’s voiding habits
- Can be repeated post-treatment to measure efficacy

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**St. Joseph’s Hospital**  
Saint John, NB

**Urodynamic / Urology Wellness Clinic**  
Patient Bladder Chart

**Instructions:**

Write down the Date, Time, and Volume of every **void** (Bladder emptying) and **drink** (Intake) you have. Also any episodes of wetting or loss of control should be noted by Date, Time and check (✓) in the wetting column. A container for measuring the volume of urine will be given to you with this sheet.

Please ensure you chart every void and drink and measure the volume each time – this information is very important and helpful. The chart should be kept for three to five consecutive days and nights.

If you have any questions, please contact the Urodynamic / Urology Wellness Clinic at 632-5720. Please note the clinic is not always open every day of the week. All information is kept strictly confidential.

<table>
<thead>
<tr>
<th>VOIDS (Bladder emptying)</th>
<th>INTAKE (Drinks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Time</td>
</tr>
<tr>
<td>Example - May 20/05</td>
<td>6:30 am</td>
</tr>
<tr>
<td></td>
<td></td>
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Overactive Bladder (OAB): Present

TREATMENTS:

- CONSERVATIVE
- PHARMACOLOGICAL THERAPY
- SURGERY
Overactive Bladder (OAB): Present

CONSERVATIVE TREATMENTS

- Kegel exercises
- Life style changes
- Behavior modification
- Biofeedback and stimulation
- Stoller Afferent Nerve Stimulation (SANS) / Percutaneous Tibial Nerve Stimulation (PTNS) / Transcutaneous Electrical Nerve Stimulation (TENS)
KEGEL EXERCISES

• Regular exercise program
• Work to the point muscle is tired but not exhausted
• Use both fast and slow twitch fibers
• No use of accessories
• Do NOT stop start urine flow!
• Appropriate Use (the knack)

Note: There is no evidence based guidelines on Kegels.
KEGEL EXERCISES

REGULAR EXERCISE PROGRAM

For slow exercises:
• Hold the contraction for 10 seconds
• Rest for 10 seconds
• Do 10 exercises
• Do 3 sets twice a day

For fast exercises:
• “Twitch” the muscle quickly i.e. 10 exercises in 10 seconds.
• Rest for 10 seconds
• Do 3 or 4 sets
MODIFIED OXFORD SCALE:

0  NO CONTRACTION FELT
1  FLICKER
2  WEAK CONTRACTION
3  MODERATE CONTRACTION
4  GOOD CONTRACTION
5  STRONG CONTRACTION
LIFE STYLE CHANGES

- Adequate Fluid intake
- Caffeine / Alcohol Intake
- Bowel Management
- Smoking cessation
- Medications
Factors Contributing to Constipation

- Low fluid intake
- Low dietary fiber intake
- Prolonged use of laxatives
- Ignoring urge to defecate
- Sedentary lifestyle
- Polypharmacy
- Lack of awareness
Reducing Constipation

• Education
• Fluid intake should be 1500-2000 mls per day
• Dietary fiber intake should be 25-30 grams per day
• Fresh fruits, vegetables, whole grains & high fiber (Ground Flax Seed or Bran Buds)
Stools have been classified into seven types, on what is called the Bristol Stool Form Scale (see below), according to their appearance as seen in the toilet water. Type 1 has spent the longest in the colon and type 7 the least time.

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Separate hard lumps, like nuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2</td>
<td>Sausage-like but lumpy</td>
</tr>
<tr>
<td>Type 3</td>
<td>Like a sausage but with cracks in the surface</td>
</tr>
<tr>
<td>Type 4</td>
<td>Like a sausage or snake, smooth and soft</td>
</tr>
<tr>
<td>Type 5</td>
<td>Soft blobs with clear-cut edges</td>
</tr>
<tr>
<td>Type 6</td>
<td>Fluffy pieces with ragged edges, a mushy stool</td>
</tr>
<tr>
<td>Type 7</td>
<td>Watery, no solid pieces</td>
</tr>
</tbody>
</table>

Stools at the lumpy end of the scale are hard to pass and often require a lot of straining. Stools at the loose or liquid end of the spectrum can be too easy to pass – the need to pass them is urgent and accidents can happen. The ideal stools are types 3 and 4, especially type 4, as they are most likely to glide out without any fuss what-so ever. Also, they are least likely to leave you with an annoying feeling that something is left behind.
Listening to the call of nature, don’t hold off!
Behavior Modification

- **Timed Voiding**: Voiding on a schedule based on time between incontinent episodes. (cognitively intact)

- **Bladder Retraining**: Increasing bladder capacity and awareness.

- **Prompted Voiding**: Reminding or asking pt if they need to void on a schedule based on their voiding pattern. (cognitively impaired)
BIOFEEDBACK AND ELECTRICAL STIMULATION

Biofeedback: a technique by which the patient receives visual, auditory or sensory information in relation to a particular body function.

Stimulation:
- Improves proprioception of the Levator Ani group of muscles (pelvic floor).
- Maximizes contraction, improves circulation & increases mobilization of tissue.
- Used to treat stress, urge and mixed incontinence.
SANS / PTNS / TENS

- Tibial nerve - cephalad to the medial malleolus (approximately 3 finger breadths)
- 34 Gauge needle / surface electrode
- 30 minute stimulation of the tibial nerve
- Initial - 8 - 12 week assessment/ treatment period
- Minimally invasive
- Few Side Effects
Overactive Bladder (OAB): Present

**PHARMACOLOGICAL THERAPY**

- **Antichololnergics** - Detrol, Ditropan, etc
- Antispasmodic – Trosec (Trospium) less CNS effects
- Antidepressants – Amitriptyline
- **Local Estrogen** replacement therapy
- DDAVP /Desmopressin (Nocturia)
- **Beta-3 adrenergic receptor agonist** - Mirabegron
- Botox
Anticholinergic Agents

- Oxybutynin (Ditropan)
- Oxybutynin transdermal (Oxytrol)
- Tolterodine (Detrol)
- Solifenacin (Vesicare)
- Trospium chloride (Sanctura)
- Darifenacin (Enablex)
- Fesoterodine (Toviaz)
- etc
How Do Anticholinergic Medications Work?

- Block nerves that control bladder muscle contractions and allow for relaxation of the bladder smooth muscle.
- Inhibits acetylcholine from binding to M2 and M3 receptors on the bladder wall.
- This diminishes bladder contractions and:
  - ↓Urgency
  - ↓Frequency
  - ↓Urge Incontinence
  - ↑Bladder capacity
ANTICHOLINERGIC AGENTS

POSSIBLE SIDE EFFECTS

**Common:**
- Dry mouth
- Constipation
- Nausea
- Dizziness
- Drowsiness
- Difficulty urinating
MIRABEGRON
The New Class of Drug!
Beta-3 adrenergic receptor agonist

- Relaxes the detrusor smooth muscle
- “Decreases the frequency of rhythmic bladder contractions during the filling phase without suppressing the amplitude of bladder contractions during micturition” (Takasu et al, 2007)

- After market studies going on
- **Side effects:** Gastrointestinal upset, Headache, Infections, low rate of dry mouth. High doses – Increased heart rate and BP. (Bhide, et al, 2011)
Estrogen

• Local- cream, tablet or ring
• works by improving the tissues of the vagina and urethra in post-menopausal women
• S/E - Breast pain or tenderness; headache; hair loss; mild nausea or vomiting; spotting or breakthrough bleeding; stomach cramps or bloating.

• risk concerns
  • breast cancer
  • uterine cancer
Botox

- **OnabotulimumtoxinA**
- FDA approved Botox for the treatment of NDO in August 2011 and OAB in 2013.
- Health Canada:
  - approved the use of Botox in NDO in 2011
  - OAB has been filed for approval.

(Nitti et al., 2013)(Chapple et al., 2013)
Botox

- Total Dose 100 U
- An intravesical instillation of diluted local anesthetic with or without sedation, or general anesthesia may be used prior to injection
- Injected into the detrusor muscle (20 injections, sparing trigone) using a flexible or rigid cystoscope
- Inhibits acetylcholine release at the pre-synapsis cholinergic junction
- Axons resprout in 3-6 months

(Getfliffe, Dolman, 2007)
Botox

POSSIBLE SIDE EFFECTS

- urinary tract infection (26%)
- dysuria (11%)
- bacteriuria (8%)
- Urinary retention (6%)
- residual urine volume (3%)
- pollakiuria (2%).

(BOTOX® Product Monograph. Allergan, Inc., 2013 as per the Pivotal Phase 3 Clinical Trials)
Multimodality often the most effective!
Surgical treatment Option

When other treatment therapies have been ineffective

- Neuromodulation - InterStim Device
- Augmentation cystoplasty (Clam)
- Detrusor myectomy
- Urinary Diversion
InterStim Therapy

• InterStim Therapy modulates the sacral nerves with mild electrical pulses. This helps the brain and the nerves to communicate so the bladder and related muscles can function properly.
• It's a proven treatment option for people who have not had success with other overactive bladder treatment options, such as medications and behavioral therapy.
• Over 100,000 patients implanted worldwide.
• Possible S/E – infection, pain, device problems, etc

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Overactive Bladder (OAB): Future
Overactive Bladder (OAB): Future?

- Gene Therapy – “to replace, supplement or suppress a protein or cytokine to correct a disease process”
- Stem Cell Tissue engineering – to help rebuild or repair the damaged bladder

(Chancellor, 2002)

- More research is needed to better understand the pathophysiology behind overactive bladder in order to truly cure this debilitating condition.
CASE STUDY

- 52 yr old female
- Teacher
- c/o urgency, freq q1h and noct x 4-5
- Flud intake mostly H2O, 1 C coffee/day
- Bowels regular
- Non smoker
Nursing Management

1\textsuperscript{st} visit
- Intake & Output Chart (48-72hrs)
- Taught Kegels – for urge suppression.

2\textsuperscript{nd} visit
- Lifestyle changes - eliminate caffeine
  - spread out fluid intake
  - Dietary changes
- SANS (Stoller Afferent Nerve Stimulation)
• Dec 2003 started SANS.
  - At 8th Tx- voiding q2-3H, noct. x 2-3

• Continued Txing q2weeks until Spring 2005 when S/S worsened.
  - Major dietary changes & added Detrol.

• Nov 2005 switched to TENS – tx 1/week
  • Over time S/S worsened again

• Botox July 2009
  - Voiding q 4-5h, noct. x 2-3
  - Still having issues with Urgency
• Botox June 2010
  - Significant decrease in urgency
  - Voiding q 1-4h, noct. x 3
  - Stopped TENS tx

• October 2013 – Current status:
  • Voiding q2h, noct x 3, urgency still ok
  • Voiding max of 200mls
  • Told to contact Dr. when freq. increases to 20 times /day and can repeat Botox.
  • Restarted TENS 2x/week
YOU CAN BE PART OF THE SOLUTION!
QUESTIONS??