Unknown Risks in Medicare Patients with Overactive Bladder

NMQF Summit
April 24, 2017

Pamela Bradt, MD, MPH
Executive Medical Director, Urology
Medical Affairs, Americas
Disclaimer

● This study was funded by Astellas Pharma, Inc.

● Pamela Bradt, MD, MPH is an employee of Astellas Pharma Inc.

● Study Team
  Astellas
  • Katherine Gooch, PhD, MAppEpi
  • David Walker, PhD

  NMQF
  • Gary Puckrein, PhD
  • Liou Xu, PhD

● The speaker is a paid employee of Astellas. This presentation is intended for informational purposes only and does not replace independent professional judgment. Statements of fact, positions taken and opinions expressed are those of the speaker individually and, unless expressly stated to the contrary, do not necessarily reflect the opinion or position of the speaker’s employer, Astellas, or any of its subsidiaries and/or related entities.
Contents

- Urinary Incontinence & Overactive Bladder
- Epidemiology of Incontinence & Overactive Bladder
- Astellas Study Collaboration with NMQF
- OAB in the Medicare Population
- Treatment Guidelines for OAB and Treatment Rates
- The Unexpected Burden of Incontinence & OAB
- Potentially Inappropriate Medication Use in OAB
- Summary

- Slides 3-4
- Slides 5
- Slides 6-8
- Slides 9-10
- Slide 11 - 14
- Slide 15-19
- Slides 20-22
- Slide 23
Urinary Incontinence

- Urinary incontinence (UI) may be the result of bladder dysfunction, sphincter dysfunction, or a combination of both \[1\]
- UI has been estimated to impact 15 to 35% of the adult ambulatory population\[2\]
- In men, the prevalence of incontinence is much lower than in women, about 3% to 11% overall, with urge incontinence accounting for 40% to 80% of all male patients \[1\]
- In women, the prevalence increases with age, from 28% for 30- to 39-year-old women to 55% for 80- to 90-year-old women \[3\]
- There is a misperception that urinary incontinence is part of the normal aging process and it is therefore underreported by the elderly population \[4\]

Overactive Bladder (OAB)

The current definition of overactive bladder (OAB) is “urgency, with or without urge incontinence, usually with frequency and nocturia in the absence of an underlying metabolic or pathologic condition.” [1]

- The diagnosis of OAB is based upon the presence of specific symptoms such as: [2,3]
  - **Urgency**, the hallmark symptom of OAB, which can be described as a sudden, compelling desire to pass urine that is difficult to defer
  - **Frequency**, which is defined as having to void too often during the day
  - **Nocturia**, or the experience of waking at least once during the night to void
  - **Urge urinary incontinence**, which is the involuntary leakage or loss of urine accompanied by, or immediately preceded by, urgency
    - Frequency and nocturia may or may not be accompanied by urgency urinary incontinence
- OAB symptoms occur due to the failure of the bladder to store urine normally[4]

---

An estimated 29.8 million adults aged ≥40 years in the United States have bothersome OAB symptoms.[1]

Data were gathered in the Epidemiology of Lower Urinary Tract Symptoms (EpiLUTS), a population-based, cross-sectional survey conducted in the United States, United Kingdom, and Sweden. In the US, 20,000 men and women aged 40 years or older were recruited from Internet-based panels developed from consumer and voter databases. All respondents were asked to complete a series of questions about their symptoms.

Astellas’ Study Collaboration with NMQF
Study Objectives

● To describe the prevalence of OAB in a Medicare population
  • Demographically: Age, Race and Gender
  • Geographically: County

● To describe the rate of OAB medication treatment rates in the Medicare population
  • Demographically: Age, Race and Gender
  • Geographically: County

● To describe the use of Potentially Inappropriate Medications (PIMS) in the Medicare OAB population according to 2015 Beers Criteria
  • Demographically: Age, Race and Gender
  • Geographically: County
Methods

Datasets
- The 2013 Medicare Beneficiary Part B Carrier Claims File (Carrier)
- Part D Drug Event File (PDE)
- The Medicare Beneficiary Annual Summary File (BASF) for patients over 65 years

Race Categories
- White, not Hispanic
- Black, not Hispanic
- Hispanic
- Asian
- Other

Identification of OAB
- At least one OAB related diagnosis code OR
- Use of OAB medications (antimuscarinic, β3 adrenergic agonist or onabotulinum toxin A)

Age Categories
- 65-74 years
- 75 years and older
Results: Prevalence

Prevalence of OAB, Overall by County. National 2013
## Results: Prevalence

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.7%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>65-74</th>
<th>75 &amp; Older</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.4%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>White</th>
<th>Black</th>
<th>Asian</th>
<th>Hispanic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>7.4%</td>
<td>5.8%</td>
<td>6.7%</td>
<td>5.9%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Overall prevalence rate of OAB among Medicare FFS: 7.2%
Treatment for OAB
American Urological Association (AUA): OAB Treatment Guidelines

1st Line Treatment
- Behavioral therapies for all patients (eg, bladder training, bladder control strategies, pelvic floor muscle training, fluid management)

2nd Line Treatment
- Oral agents and transdermal preparations (eg, oral antimuscarinics (a subgroup of anticholinergics) or oral β3 adrenergic agonists)
- Dose modification or switch to a different oral agent if inadequate efficacy or poor tolerability
- These work best when combined with behavioral therapies

3rd Line Treatment
- Sacral neuromodulation (SNS)
- Peripheral tibial nerve stimulation (PTNS)
- Intradetrusor onabotulinumtoxinA
- Other surgical options

* Adapted from the AUA OAB treatment guidelines.

Results: Treatment Rates

Percentage of OAB patients using β3 adrenoceptor agonist or antimuscarinic, Overall, by County. National 2013

Legend
2013 Percent of OAB Patients on Medication, β3 adrenoceptor agonist or any antimuscarinic. Overall by County

- Not Reported to NMQF
- 17.5% or Less
- 17.6% - 24%
- 24.1% - 30.5%
- 30.6% - 40%
- 40.1% or Greater
Results: Treatment Rates

<table>
<thead>
<tr>
<th>GENDER</th>
<th>Overall medication treatment rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13.1%</td>
</tr>
<tr>
<td>Female</td>
<td>29.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE</th>
<th>22.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-74</td>
<td>19.4%</td>
</tr>
<tr>
<td>75 &amp; Older</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RACE</th>
<th></th>
<th></th>
<th></th>
<th>29.5%</th>
<th>17.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>21.2%</td>
<td>22.1%</td>
<td>24.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*On an antimuscarinic or β3 adrenergic agonist at any time in 2013
The Unexpected Burden of Incontinence & OAB in Older Patients
The Impact of Urinary Incontinence

- Sinclair and Ramsay\(^1\) state that:
  - Women with urinary incontinence have a significantly poorer quality of life than their continent counterparts
  - Between 25–50% of women with urinary incontinence experience sexual dysfunction
  - Urinary incontinence commonly leaves the sufferer with psychological morbidity, particularly depression
  - Up to 23% of women take time off work because of their incontinence

- Prevalence of urinary incontinence in nursing homes is much higher than that in the community. Rates are 60% to 78% in women and 45% to 72% in men and increase with age \(^2\)

- Morrison and Levy\(^3\) reported that the attributable fraction of nursing home admissions due to UI in the elderly population was 10% for men and 6% for women \(^2\)

- A database analysis by Thom et al \(^4\) of members aged 65 years and older, of a large health maintenance organization in northern California found the adjusted risk of admission to a nursing facility was 2.0 times greater for incontinent women and 3.2 times greater for incontinent men

---

Potentially Inappropriate Medications (PIMs)

- Anticholinergic medications, such as antimuscarinics are prescribed for a variety of conditions.[1]
- However, the anticholinergic properties of these medications have been associated with adverse cognitive effects.[2]
- More than 50% of elderly patients use at least one medication that has anticholinergic effects.[3]
- Elderly patients can be particularly sensitive to the anticholinergic action of medications because of the physiological changes that often accompany the aging process.
- This has been described in the 2012 and updated 2015 American Geriatrics Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults.[4,5,6]

---

Cognitive Impairment

- An Astellas funded study was undertaken to determine the association between total daily anticholinergic cognitive burden (ACB) score, cognitive impairment and healthcare utilization.

- Results indicated that every one-point rise in daily anticholinergic burden score was associated with increased risk of cognitive impairment, an increased likelihood of an inpatient admission, and more outpatient visits.

- A manuscript describing the study was published in Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy [1].

![Diagram showing risk of cognitive impairment, likelihood of inpatient admission, and mean number of outpatient visits per patient.](image)

Falls and Fractures

- Use of inappropriate medications has been associated with an increased risk of falling in elderly persons.\(^1\)

- Among older nursing home residents the use of anticholinergic drugs have been associated with important negative outcomes, such as functional decline, falls, and delirium.\(^2\)

- A recent study of older, postmenopausal women aged 65 to 79 found anticholinergic medication use was associated with increased risk for recurrent falls.\(^3\)

- Symptoms associated with overactive bladder (OAB) are established risk factors for falls and fractures, as confirmed by Tinetti et al.\(^4\) and Stewart et al.\(^5\)

- Estimates of the percent of OAB Patients Experiencing a Fall have ranged from 25.3% to 50% over a one year period

---

Methods

Datasets
• The 2013 Medicare Beneficiary Part B Carrier Claims File (Carrier)
• Part D Drug Event File (PDE)
• The Medicare Beneficiary Annual Summary File (BASF) for patients over 65 years

Race Categories
• White, not Hispanic
• Black, not Hispanic
• Hispanic
• Asian
• Other

Age Categories
• 65-74 years
• 75 years and older

Identification of OAB
• At least one OAB related diagnosis code OR
• Use of OAB medications (antimuscarinic, β3 adrenoceptor agonists or onabotulumintoxinA)

Potentially Inappropriate Medication
OAB patients with recorded prescriptions for an antimuscarinic, who also had
• either a diagnosis code of delirium or dementia
• OR at least a 60-day overlap with another anticholinergic medication
Potentially Inappropriate Medication Use in Medicare Patients with OAB

Prevalence of Potentially Inappropriate Use by County, 2013.
Potentially Inappropriate Medication Use (PIM) in Medicare Patients with OAB: Prevalence Rates

Overall US Prevalence of PIM Use: 28%

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>26%</td>
<td>29%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Asian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>29%</td>
<td>28%</td>
<td>31%</td>
<td>23%</td>
<td>24%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>65-74</th>
<th>75 &amp; Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>19%</td>
<td>34%</td>
</tr>
</tbody>
</table>
Summary

- There is a misperception that incontinence is just part of normal aging process.
- Overactive Bladder appears to be underdiagnosed in Medicare patients.
- Overactive Bladder appears to be undertreated in Medicare patients.
- Patients with OAB have an increased risk of falls and fractures.
- The use of potentially inappropriate medications in Medicare patients with OAB was 28%.
- The use of potentially inappropriate medications is associated with an increased risk of cognitive impairment and falls and fractures.
- Hispanic women ages 75 and older with OAB were at the highest risk for exposure to potentially inappropriate medications.
- These findings highlight the unexpected burden of OAB in the Medicare population and the association with cognitive impairment and falls and fractures in this patient population.
BackUp
American Geriatrics Society (AGS) Beer’s Criteria

- The 2012 AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults[1] cautioned against the use of antimuscarinics in combination with other medications with anticholinergic properties.

- An Astellas collaborative study with Humana examined the prevalence and costs of potentially inappropriate antimuscarinic medication use in OAB patients, based on the 2012 Beers Criteria.
  - Results showed 31.1% of OAB patients receiving an antimuscarinic met the study criteria for potentially inappropriate medication use. [2]

- In 2015, the AGS updated the 2012 Beers Criteria to include the following:[3]
  - Constipation was removed as a drug-disease/drug-syndrome category.
  - Drug-drug interactions strongly associated with harmful outcomes in older adults were added to the Beers Criteria for the first time. Among the list of drug-drug interactions to be avoided were anticholinergic interactions that increase risk of cognitive decline.
  - The list of “Drugs with Strong Anticholinergic Properties” was updated.

Healthcare Costs Among Medicare Beneficiaries are Higher in OAB Patients

- An analysis of Truven Health MarketScan® Commercial and Medicare data aimed to quantify the economic impact of OAB on total healthcare expenditures and indirect costs, such as lost work productivity.
- Direct costs of OAB were examined within the elderly Medicare beneficiaries with employer-sponsored supplemental coverage.
- The average per member per month costs were significantly higher for OAB Medicare beneficiaries than for similar patients without OAB.
- The average healthcare costs of OAB patients were 85.6% higher than similar patients without OAB.
- Results of the study were presented as a poster at the Academy of Managed Care and Pharmacy (AMCP) annual conference in March, 2017.

*SPPM = Per Patient Per Month
Socioeconomic Burden of OAB

Predicted US National Direct and Indirect Costs of OAB[1]

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Costs</th>
<th>Indirect Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$65.9</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>$76.2</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>$82.6</td>
<td></td>
</tr>
</tbody>
</table>

Due to the aging of the general population, the OAB population is projected to increase from 34 million in 2007 to 41.9 million in 2020, thus resulting in an increase in costs [3].

**Direct Costs include:**
Direct Medical (e.g., physician visits, surgical procedures) and Direct Non-Medical (e.g., pantiliners, disposable pads)

**Indirect Costs include:**
Lost work productivity (e.g., income and fringe benefits)

---