Resident Assessment Protocol for Urinary Incontinence: Evaluating Medications  
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Urinary incontinence has been reported to occur in nearly 60% of nursing home residents and has been associated with pressure ulcers and declining activities of daily living (ADLs) although functional impairment and illness appear to be the primary causative factors in the latter. Incontinence may also increase the risk of falls, rashes, and negative psychosocial outcomes.

Given these concerns related to urinary incontinence, all residents need to have a complete evaluation. The Resident Assessment Protocol (RAP) on urinary incontinence is an important tool to use in this process. The RAP points out many factors which may be contributing to incontinence such as urinary tract infections, delirium, fecal impaction, and certain medications. By addressing these issues, the incontinence may be improved.

This article focuses on medications that may effect incontinence and provide the reader with an understanding of which medications are involved, the mechanism for this effect, and the type of incontinence that will be impacted. It must be understood that while some of these medications may worsen one type of incontinence, the same medication may also treat another form of incontinence. Therefore, it is important to know what type of incontinence the resident is experiencing.

Medications identified in the RAP

Fast acting, potent loop diuretics (e.g., furosemide and bumetanide) may cause an abrupt increase in urine production and exacerbate many types of incontinence such as urge and
functional incontinence. Thiazide diuretics have a slower onset and longer duration of action and therefore are not as problematic. However, the loop diuretics may be required in some residents (e.g., residents with renal dysfunction).

Sedative/hypnotics (e.g., diazepam and triazolam) may produce sedation, confusion, and mobility problems that may exacerbate all types of incontinence. Careful dosage adjustment and monitoring are required.

Anticholinergic agents may exacerbate overflow incontinence by relaxing the detrusor muscle. However, this effect would positively impact residents with urge incontinence where relaxation of the detrusor muscle is beneficial. Medications having anticholinergic effects are found in the following classes: antipsychotic agents, antidepressants, narcotics, anti-Parkinson’s agents, antispasmodics, and antihistamines. Medications within these classes vary greatly in their anticholinergic activity, and this may allow selection of an agent with less anticholinergic potential. (See Table 1)

**Table 1. Anticholinergic Activity of Select Agents by Medication Class**

<table>
<thead>
<tr>
<th>Class</th>
<th>Higher anticholinergic effect</th>
<th>Lower anticholinergic effect</th>
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</thead>
<tbody>
<tr>
<td>Antipsychotic</td>
<td>Clozapine (Clozaril®)</td>
<td>Haloperidol (Haldol®)</td>
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<td></td>
<td>Thioridazine (Mellaril®)</td>
<td>Olanzapine (Zyrexa®)</td>
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<td></td>
<td></td>
<td>Risperidone</td>
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<tr>
<td>Antidepressant</td>
<td>Amitriptyline (Elavil®)</td>
<td>Selective Serotonin Reuptake</td>
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<tr>
<td></td>
<td>Doxepin (Sinequan®)</td>
<td>Inhibitors</td>
</tr>
<tr>
<td>Anti-Parkinson’s agents</td>
<td>Diphenhydramine</td>
<td>Sinemet® COMT Inhibitors –</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entacapone (Comtan®)</td>
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<tr>
<td></td>
<td></td>
<td>Dopamine agonists – Ropinirole</td>
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<td></td>
<td></td>
<td>(Requip®)</td>
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<tr>
<td>Antihistamines</td>
<td>Diphenhydramine</td>
<td>Cetirizine (Zyrtec®)</td>
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<tr>
<td></td>
<td></td>
<td>Loratadine (Alavert®)</td>
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</tbody>
</table>
It should be pointed out that many of these agents have additional pharmacologic effects that may influence continence. For example, antipsychotic agents may produce sedation and block alpha receptors to varying degrees, and this may influence continence.\(^6\) This makes it necessary to evaluate all pharmacologic aspects of an agent to determine suitability for use.

Calcium channel blockers may cause urinary retention by relaxing the muscles in the bladder and lead to overflow incontinence.\(^9\) Conversely, this relaxation of the bladder muscles may help residents experiencing urge incontinence.\(^2\) At this time there is insufficient evidence to support use of calcium channel blockers for urge incontinence alone.\(^2\)

Agents acting on the sympathetic nervous system may impact continence. Agents that stimulate the alpha receptors of the sympathetic system (e.g., pseudoephedrine) will cause urethral constriction which will exacerbate overflow incontinence\(^1,7,9\) but will be beneficial in stress incontinence.\(^1,2,9\)

Agents blocking the alpha receptors such as terazosin (Hytrin\(^\text{®}\)) cause relaxation of the urethral outlet\(^1,8,9\) and may exacerbate or cause stress incontinence.\(^2,9\) In contrast, these agents are used to treat overflow incontinence secondary to benign prostatic hyperplasia (BPH) as they help to overcome the outlet obstruction.\(^9\)

**Medications not included in the RAP**

Agents stimulating the parasympathetic system (cholinergic agents), such as bethanechol or acetylcholinesterase inhibitors (donepezil - Aricept\(^\text{®}\), rivastigmine - Exelon\(^\text{®}\)), may cause the detrusor muscle to contract\(^10,11\) and worsen urge incontinence. Bethanechol may be useful in certain types of urinary retention, but it is not indicated for residents with overflow incontinence secondary to BPH.\(^10\)
Sympathetic stimulation via beta receptors by agents like isoproterenol will cause the bladder smooth muscles to relax and increase storage capacity\textsuperscript{11} which will also produce negative effects for residents with overflow incontinence.\textsuperscript{1,7,9,10}

Lithium may cause polyuria or mental status changes.\textsuperscript{7} These effects may exacerbate many forms of incontinence.

In summary, medications may impact the urinary system in a variety of ways. The same agent that treats one type of incontinence may exacerbate another form, and therefore it is necessary to know what type of incontinence a resident has before evaluating the contribution medications are making to the incontinence. The RAP provides a good reminder of medications to consider when evaluating a resident’s incontinence. However, other agents may also influence the resident’s incontinence, and these should also be considered in the resident’s evaluation.
References:


