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Logan Thompson
University of Iowa

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Logan Thompson

DPT Class of 2017

Department of Physical Therapy & Rehabilitation Science
The University of Iowa

Abstract

Background: Overactive bladder (OAB) results in symptoms of urinary urgency, frequency, nocturia, and incontinence, and is often associated with other health conditions. OAB symptoms may increase fall risk, and thus increase the likelihood of morbidity, particularly in the elderly population. The first line treatment for overactive symptoms is behavioral therapies. This includes approaches to improve bladder function by changing voiding habits, and pelvic floor muscle training to improve strength and coordination of the pelvic floor to help with the urethral closure mechanism. Because this approach has been shown to be effective in treating these symptoms, it may significantly reduce the chance of falls in this population. The purpose of this report is to bring awareness to issues of pelvic health and the available treatment options. **Case description:** A healthy, active 82-year-old female reported to outpatient physical therapy with progressively worsening symptoms of urinary frequency, urgency, and nocturia 5 times a night for two years. Her main goal was to decrease the need to urinate throughout the night. **Outcomes:** A pelvic floor CareConnections survey was used to track the patient's perceived functional improvement, with pelvic floor coordination, strength, global rating of change, and patient self-reported nighttime micturition number as secondary outcomes. The patient had the same CareConnections score after five treatments, but demonstrated improved pelvic floor coordination and strength and reduced nocturia symptoms. **Discussion:** The patient showed improvement in nocturia symptoms following behavioral therapies and pelvic pyramid training. Frequently, patients with OAB symptoms have other contributing co-morbidities, requiring more significant lifestyle changes, but these intervention strategies may be enough to effect change in otherwise healthy, elderly individuals.

Background

Overactive bladder (OAB) causes symptoms of urinary urgency, frequency, nocturia, or excessive urination in the night, and urinary incontinence, and is caused by involuntary contractions of the detrusor muscles of the bladder. It is thought to affect 18.4% of females over 40 (Moon et al, 2011). Although this is a relatively large percentage, overactive bladder symptoms are not a normal part of the aging process and urgency is always pathological (Chapple et al, 2005). The risk for OAB may be increased by bladder infections, interstitial cystitis, high BMI, diabetes, neurologic conditions, certain medications, low physical activity, smoking, untreated depression, or unknown reasons (Stewart et al, 2003). Specifically for nocturia, risk factors include obesity, diuretic usage, hypertension, antidepressant medications, coronary artery disease, congestive heart failure, and diabetes (UpToDate, 2017). People with OAB have been shown to have lower scores related to mental health and sleep quality on standardized outcome measures. Importantly, injuries as a result of falls are a major cause of death in older adults, and nocturia and urgency symptoms have been shown to increase the incidence of falls (Stewart et al, 2003). This may be due to people hurrying to the bathroom to prevent incontinence, disrupted sleeping patterns causing decreased wakefulness and visual difficulty, and increased number of times having to navigate in the dark throughout the night (Moon et al, 2011).

Pelvic floor (PF) muscle coordination and strength has been shown to be impaired in people with symptoms of overactive bladder, as such, PF muscle training is a major component of the first line treatment in these patients (Teleman et al, 2004). The two main focuses of this gold standard treatment are on changing urination habits, which uses techniques like delayed voiding and bladder training, while the second component addresses PF control and urge suppression, which uses the technique of pelvic floor muscle training (PFMT) (Gormley et al, 2012). Changing urination habits includes strategies such as scheduled and delayed voiding, urge control strategies, biofeedback, dietary changes, and weight loss. These behavioral interventions are as effective as pharmacologic interventions, or more so (Burgio, 2013).

The purpose of this report is to describe the use of conservative treatment for OAB symptoms of urinary urgency, frequency, and nocturia in an otherwise healthy elderly woman. It examines changes seen over five visits in this patient who has chronically dealt with this condition, but has no known medical risk factors. The goal is to draw attention to the importance of inquiring about and addressing issues of pelvic health with all patients to help reduce risk of mortality due to falls, and to bring awareness to physical therapy treatment options and available evaluation metrics.

Case Description

The subject of this case report is an 82-year-old female with a two-year history of urinary urgency, frequency, nocturia, and constipation. The primary complaint bringing the patient into therapy is the need to get up 5 times every night to urinate, with secondary complaints of constipation and some urgency during the day. She reported difficulty sleeping regardless of the bladder symptoms, but the compounding factor of urgency and frequency magnify this issue. She saw a urogynecologist about her bladder symptoms prior to starting therapy and was referred to physical therapy. This doctor recommended decreasing fluids after 6 pm, which the patient began doing for the month prior to starting therapy, and while she believed it helped somewhat, she still reports having to get up 5 times a night.

Her past pelvic history includes a hysterectomy and oophorectomy five years ago. A systematic review found that hysterectomies for benign conditions did not increase the risk for urinary symptoms and could even improve urinary function, so this pelvic history may not be a contributing factor to her current symptoms (Duru, 2012). She also reported a history of urinary incontinence, which was corrected with a bladder mesh sling surgery five years ago. Since the surgery, she reported having stress incontinence only about 25% of the time.

In terms of bowel symptoms, patient says most days her stool is either a one or two on the Bristol Stool Chart, which would categorize her as severely to mildly constipated. She also reported having to strain hard during bowel movements about 50% of the time and not feeling like she has completely emptied her bowels 50% of the time. To address constipation she takes Metamucil, eats fibrous cereal, and hydrates, which she feels have significantly improved her symptoms. She has rectocele, which is a herniation of the rectum into the vagina due to compromised integrity of the rectovaginal septum (Beck, 2010). Vaginal finger splinting during bowel movements is frequently required due to the rectocele, as stool can accumulate in the outpocket, and the patient expressed concerns about not wanting to get surgery to repair it.

The case was selected for the unique characteristic of a healthy, active elderly woman who is pain free, not taking medications, and without other medical conditions associated with the development of overactive bladder. However, she is greatly affected by nocturia, and thus at a greatly increased risk for falls. The patient's goals were to decrease the number of times she needs to urinate in the night and to reduce constipation symptoms. The prognosis was improved due to the patient staying active with walking 2 miles a day and doing resistance training 3 days a week, but decreased due to the chronicity of the problem and a previous history of pelvic surgery. She had not previously had physical therapy services to address pelvic health.

Clinical Impression #1

The primary problem with this patient was urinary urgency and frequency, with most symptoms occurring throughout the night, with a secondary complaint of constipation. Non-musculoskeletal causes for these symptoms needed to be ruled out, such as interstitial cystitis and polydipsia (Gormley et al, 2012). This patient saw her urogynecologist prior to starting therapy and was cleared for non-musculoskeletal causes. The patient filled out a food and fluid diary and pelvic floor CareConnections survey prior to the examination. For the physical examination, the plan was to look at the strength and active range of motion (AROM) of the pelvic floor via internal palpation and to examine lumbar spine motion, since it is intimately related to the pelvis. The patient is a good candidate for a case report because she is a very active elderly woman without known medical risk factors for overactive bladder symptoms. However, she has been dealing with chronic symptoms and is at a much higher risk for a fall because of them. She provides the basis for therapists to discuss issues such as pelvic health, normal urinary habits, and screening for these symptoms. The opportunity to address fall risk and mental health issues, which is of concern to all types of physical therapists, is also present in this case. Finally, it is a good case to discuss and evaluate effectiveness of the gold standard treatment for overactive bladder symptoms.

Examination

As mentioned above, the patient filled out the pelvic floor CareConnections outcome tool. The reliability and validity have not been established on this tool, but it incorporates questions related to most bowel and bladder habits, so it seemed likely to capture impairments of this patient. It asks about physical, house, and work activity, sexual relationships, travel, extended sitting, activities without bathroom access, number of absorbent products used in a day, and number of times sleep is interrupted (CareConnections, 2017). Because this patient does not have pain and has minimal incontinence issues, many pelvic health outcome tools are likely not a good reflection of how her symptoms impact function and her progress made during treatment. The CareConnections captured her function at 94%, which is high given her reported impairments, suggesting that she may not be a good candidate for the currently established pelvic health outcomes tools. Another outcome tool that can be utilized with continent OAB patients is the OAB-q, so that would have been a second option with this patient.

The patient performed lumbar AROM in all directions and was 75% of full range in all planes. Upon observation of the pelvic region, minimal vaginal atrophy was noted and rectocele was visible. To test pelvic floor coordination and strength, an internal examination was performed. Patient was positioned in a supine, semi-reclined position and the therapist used an index finger in the vaginal canal for assessment. AROM was tested by having patient attempt to fully lift and drop the PF. The patient was 50% effective during dropping and she required using abdominals to achieve motion. Her initial instinct when cued with ROM was to push rather than lift the PF, and it took 100% cueing to perform the correct motion. For manual muscle testing (MMT) the patient was instructed to squeeze and lift the pelvic floor around the therapist's finger. During the MMT examination, the patient was graded at a mild strength impairment (4-/5), with compensatory use of abdominals and gluteal muscles. It is known that the transversus abdominus (TA) is an important core stabilizer working in conjunction with the PF muscles, and when these muscles work together, greater contraction forces are generated. Thus, optimal PF firing requires this co-contraction (Sapsford et al, 2001). Because of this relationship, we examined the patient's ability to activate TA without the use of obliques and rectus abdominus, which the patient was unsuccessful at completing.

Clinical Impression #2

Based on examination data, the patient was diagnosed with PF weakness and incoordination and rectocele, contributing to urinary urgency, frequency and constipation. These findings made the patient a good candidate for PF muscle re-training, TA re-training, and other behavioral treatments, such as education on urinary and bowel habits and diet, since these are the standards of care for OAB symptoms. The plan was to see the patient once a week for 8 weeks, with CareConnections completed every fifth visit and monitoring of nocturia symptoms and PF coordination done every visit.

Intervention

The patient was seen once a week for five weeks, after which treatment frequency was reduced to twice a month, with fifty minute sessions. Treatment for this patient incorporated multiple components of a behavioral program. Educating the patient was the initial step following the examination and included topics such as: anatomy of the pelvic floor and pelvic pyramid, urge suppression techniques, normal voiding habits, dietary changes to reduce caffeine and irritants and consume more water, and the risk of falls due to her nocturia (Beck, 2010; Moon et al, 2011). Because the patient was primarily making many healthy lifestyle choices for her PF health, we had to educate on specific changes. Emphasis was placed on normal bathroom habits, anatomy, and the importance of symptom management to reduce chance of falls. It became clear that specific language was important to grasp the anatomy concepts, such as "hammock" to describe the PF, "corset" to describe TA, and "zipper" for a PF lift.

The intervention utilized with this patient to help reduce the urinary frequency and urgency symptoms was PFMT. This has been established as a first line intervention for this patient population and has been shown to be as, or more effective, than medication (Burgio, 2013). Training the entire pelvic pyramid, consisting of the TA, PF, and multifidi, was also an integral part of treatment since these muscles work together to achieve core stability and improve PF function. It has been shown that contraction of the abdominals increases the activity of the pelvic floor and vice versa (Sapsford et al, 2001).

The patient had difficulty coordinating pelvic floor lifts and drops, so internal training was used to provide feedback about proper contractions. Neurologic re-education PF training was used by focusing on quick flicks of the muscles and lifting and dropping the floor at various levels specified by the therapist. Once the patient was able to complete lifts and drops in a coordinated manner, mirror feedback was used as the form of cueing. This was more challenging for the patient and she continued to require verbal cueing from the therapist. It has been shown that women achieve better outcomes if

they have an individual treatment with regular supervision. Consequently, each treatment session involved internal or mirror feedback with direct supervision (Burgio, 2013).

In addition to coordination training for the PF, strength training of the PF was a main treatment component. Improving PF strength works to improve the urethral closure mechanism. The general guideline is 6-8 seconds of sustained maximum contractions at 8-12 reps for three sets. It is also recommended to perform these activities three-four times a week for up to twenty weeks (UpToDate, 2017). This is approximately what the patient completed each session, and was her daily exercise prescription due to the difficulty she had sustaining contractions and the chronicity of her condition.

For pelvic pyramid training the patient was instructed in exercises of: conscious breathing, single knee to chest, swiss ball pelvic tilts, and opposite upper and lower extremity lifts while prone on a swiss ball. While completing these exercises she was instructed to activate her PF. Each exercise was performed for approximately two minutes without a given set/rep count, allowing the patient to focus on the contractions rather than counting repetitions. These were the primary exercises she completed throughout her episode of care since she did better with simple tasks where she could focus on performing the correct motions and activation patterns.

To address the constipation and rectocele, education about diet, hydration, and bowel habits was utilized. Her doctor had recommended conservative management for these symptoms, including a high fiber diet and drinking about two liters of non-alcoholic, non-caffeinated liquids over 24 hours. The patient was also educated on the importance of not straining during bowel movements, as this increases pelvic pressure, which can increase the rectocele bulge and distend the pelvic floor (Beck, 2010).

Outcome

As previously discussed, the pelvic floor CareConnections survey was selected as a main outcome measure. This allows for selection of a pelvic health condition, with urinary urgency/frequency as an option, and frames questions regarding the percentage of time affected by the condition. We predicted this survey would capture impairments this patient was experiencing, but she scored 94% initially, suggesting this outcome tool was unable to truly detect her deficits. After five treatments, the CareConnections score remained 94%, but her global rating of change was 3. The scale runs from -7 (very much worse) to 7 (completely recovered), with zero being no change. Change of 5 or more meets the criteria for “important improvement”, meaning patients who score less than this continue treatment (Kamper et al, 2009). She also reported decreased frequency of urination to 3-4 times a night, a major improvement for safety and patient goals. In terms of PF coordination, she decreased need for cues to 25-50% of the time and no longer pushed when trying to lift the PF. Manual muscle testing shows good inter and intra rater reliability, with more experienced clinicians obtaining more reliable data. However, to be confident in a true strength change, scores must change more than a full grade (Cuthbert, 2007). Our patient increased less than a full grade, so a significant strength gain cannot be reported.

Table 1. Outcome measurements at visits one and five.

Visit	CareConnections	GROC	Pelvic MMT	Nighttime micturition #
1	94	N/A	4-/5	5
5	94	3	4/5	3-4

Discussion

The purpose of this case report was to describe the evaluation, treatment, and outcome assessments for a unique pelvic health patient. While conservative intervention is a first-line treatment, many patients and therapists remain unaware of the physical therapy options for patients with OAB symptoms. She is a good subject to highlight pelvic health issues, and to discuss the importance of

educating on normal urinary habits and screening for these symptoms in all patients. Discussing these issues can help address fall risk and mental health issues, which becomes a concern for all types of physical therapists, not just women's health therapists. Falls in the US result in \$34 billion in direct medical costs and are the leading cause of death in people 65 and older according to the CDC. Screening for bowel/bladder conditions in any setting and referring to a women's health therapist could potentially help reduce the impact of falls (John Hopkins Medicine, 2017).

The patient in this case takes no medication, has no mobility deficits, and does not have a history of falls, so she has no major red flags for being a fall risk other than advanced age. Surprisingly, she has no known medical risk factors for her condition, since one study showed that people with nocturia averaged 4.5 medical conditions related to nocturia. She also maintained an active lifestyle, which is correlated with decreased chance of lower urinary tract symptoms (UpToDate, 2017). Her symptoms went untreated for two years and might have gone unnoticed if she were not a self-advocate. Many people do not seek treatment, and instead, modify activities to cope with their symptoms (Brown et al, 2000). Stigma surrounding pelvic health conditions needs to be addressed so people feel comfortable seeking treatment, and physical therapists can be part of the solution. Behavioral therapies have proven to be as, or more effective than drug treatment in nocturia patients (UpToDate, 2017). Consequently, physical therapists should be providing treatment for patients like the one described in this case report.

This case report provides support for the use of behavioral therapies in the treatment of healthy, elderly patients with OAB. Although urgency, frequency and nocturia without incontinence are symptoms not uncommon in the OAB population, studies examining efficacy of behavior therapies frequently examine incontinence symptoms as a primary outcome, and rarely are these "dry" OAB symptoms the focus. However, one recent study of older men examined frequency as a primary outcome and found that 8 weeks of behavioral treatment was as effective as drug therapy in reducing symptoms and perceived improvement. Nocturia has been examined as a secondary outcome in studies, with results showing that behavioral training is more effective than drug therapy at reducing symptoms (Burgio, 2013). The patient in this case report aligns with the results found in those studies and may provide further support for the use of behavioral therapies in this patient population. Future research could more thoroughly examine symptoms of this population as the primary outcome measure.

Our patient showed mild improvements in nocturia symptoms within eight sessions of utilizing pelvic pyramid training and behavioral changes. These improvements were not detected on the functional outcome tool utilized, so the alternative option of the OAB-q may have been a better choice. This questionnaire has a symptom bother section and a Health-Related Quality of Life section. It is established as valid and reliable for continent and incontinent OAB patients (Canadian Agency for Drugs and Technologies in Health, 2015). The limitations of this case report include a relatively short duration of treatment, lack of consistency of treatment sessions, unknown maximum potential improvement, and unknown long-term efficacy of treatment. Further research into this subject may examine behavioral therapies treatment in this population over longer duration, and whether patients are able to maintain symptom improvement after being discharged from therapy services. Improvements in our patient were likely due to neuromuscular re-education of the pelvic floor. Due to the chronicity of the patient's symptoms and history of pelvic surgery, it was anticipated that recovery would be delayed, but further gains are still possible. She was encouraged to continue with home training and follow the recommended changes to bladder habits, in addition to the less frequent therapy treatments. The results of this case suggest that pelvic pyramid training, along with fine tuned adjustments to diet and voiding habits, may be effective at reducing urinary frequency, urgency, and nocturia in otherwise healthy elderly patients. And although all symptoms were not eliminated over eight treatment sessions, the chief complaint of nocturia frequency was decreased, thus possibly reducing our patient's chance of falls.

References

1. Beck DE, Allen NL. Rectocele. *Clin Colon Rectal Surg.* 2010;23:90-98.
2. Brown JS, McGhan WF, Chokroverty S. Comorbidities associated with overactive bladder. *Am J Manag Care.* 2000;6:574-579.
3. Burgio KL. Update on behavioral and physical therapies for incontinence and overactive bladder: The role of pelvic floor muscle training. *Curr Urol Rep.* 2013;14:457-464.
4. CareConnections. Clinical Outcomes Metrics. Website accessed 11/1/17. <http://www.careconnections.com/clinical-outcomes-metrics>
5. Chapple CR, Artibani W, Cardozo LD, et al. The role of urinary urgency and its measurement in the overactive bladder symptom syndrome: current concepts and future prospects. *BJU Int.* 2005;95:335-340.
6. Cuthbert SC, Goodheart GJ. On the reliability and validity of manual muscle testing: a literature review. *Chiropr Osteopat.* 2007;15:4.
7. Duru C, Lashen H. Urodynamic outcomes after hysterectomy for benign conditions: a systematic review and meta-analysis. *Obstet Gynecol Surv.* 2012;67:45-54.
8. Gormley AE, Lightner DJ, Burgio KL, et al. Diagnosis and Treatment of overactive bladder (non-neurogenic) in adults: AUA/SUFU guideline. *J Urol.* 2012;188:2455-2463.
9. Johns Hopkins Medicine. Falls cost U.S. hospitals \$34 billion in direct medical costs. Website accessed 11/5/2017. <https://www.johnshopkinssolutions.com/newsletters/falls-cost-u-s-hospitals-30-billion-in-direct-medical-costs/>
10. Kamper SJ, Maher CG, Mackay G. Global rating of change scales: a review of strengths and weaknesses and considerations for design. *J Man Manip Ther.* 2009;17:163-170.
11. Mirabegron Extended-Release Tablets (Myrbetriq): Treatment of Overactive Bladder (OAB) with Symptoms of Urgency, Urgency Incontinence and Urinary Frequency. *Ottawa (ON): Canadian Agency for Drugs and Technologies in Health.* 2015; Appendix 5, Validity of outcome measures.
12. Moon SJ, Kim YT, Lee TY, et al. The influence of an overactive bladder on falling: a study of females aged 40 and older in the community. *Int Neurol J.* 2011;15:41-47.
13. Sapsford RR, Hodges PW, Richardson CA, et al. Co-activation of the abdominal and pelvic floor muscles during voluntary exercises. *Neurourol Urodyn.* 2001;20:31-42.
14. Stewart WF, Van Rooyen JB, Cundiff GW, et al. Prevalence and burden of overactive bladder in the United States. *World J Urol.* 2003;20:327-336.
15. Teleman PM, Lidfeldt J, Nerbrand C, et al. Overactive bladder: prevalence, risk factors and relation to stress incontinence in middle-aged women. *Int J Gynaecol Obstet.* 2004; 111:600-604.
16. UpToDate. Nocturia: Clinical presentation, evaluation, and management in adults. Website accessed 10/20/17. https://www.uptodate-com.proxy.lib.uiowa.edu/contents/nocturia-clinical-presentation-evaluation-and-management-in-adults?source=search_result&search=nocturia&selectedTitle=1~150