Turkish Journal of Geriatrics
2014; 17 (3) 324-330

Semiha AYDIN
Nezihe KIZILKAYA BEJİ

Review Article

MANAGEMENT OF INCONTINENCE IN THE FEMALE GERIATRIC POPULATION: BEHAVIORAL THERAPY

Abstract

During the aging process, the female lower urinary tract begins to show changes such as muscle atrophy due to estrogen deficiency, replacement of muscle tissue by fat tissue and a consequent reduction in the contraction strength of pelvic floor muscles, which may lead to involuntary urine loss. Urinary incontinence is not an event that directly threatens the lives of people, but for 37-57% of elderly women it negatively affects their quality of life. The treatment of urinary incontinence uses both surgical and conservative treatment methods. Conservative treatment is commonly preferred because conservative methods, in contrast to surgery, have little risk of mortality and are simple, easy to implement, less invasive, more reliable, and requires a lower level of patient compliance than more invasive urinary incontinence treatments. Behavioral treatment, which is a component of conservative treatment in the geriatric female population with urinary incontinence, is used as the first choice of treatment. Behavioral treatment methods include pelvic floor muscle exercises, bladder training, timing of voiding, and developing healthy lifestyle behaviors. Behavioral treatment methods require an individual\'s active participation and health care professionals' time and effort. Most elderly people experience a decrease in urinary incontinence symptoms and an improvement in their quality of life with behavioral therapy. This paper includes a literature review that describes behavioral treatments, the first choice of treatment for urinary incontinence with the geriatric female population.

Key Words: Urinary Incontinence; Aged; Female; Behavior Therapy/methods

Derleme

GERİATRİK KADIN POPÜLASYONUNDA İNKONTİNANS SORUNUNUN YÖNETİMİ: DAVRANIŞSAL TEDAVİ

Öz

Yaşlanma süreci ile birlikte yaşlılıkta, östrojen eksikliğine bağlı kadınlarda alt üriner sistem kas atrofileri, yağ dokusu ile kas dokusunun yer değiştirmesi, pelvik taban kaslarının güçlü kasılmalarının azalması gibi fizyolojik değişiklikler meydana gelir. Bu değişiklikler istemsiz idrar kayıplarına yani üriner inkontinansa neden olabilir. Üriner inkontinans doğrudan kişinin yaşamını tehdit eden bir olay olmasa da yaşlı kadınların %37-57'sinin yaşam kalitesini olumsuz yönde etkilemektedir. Üriner inkontinansın tedavisinde cerrahi yöntemler ve cerrahi yöntemlerin dışında kalan konservatif tedavi yöntemleri kullanılmaktadır. Konservatif yöntemler cerrahi yöntemlere göre mortalitenin eşlik etmemesi, basit olması, kolay uygulanabilmesi, en az girişimsel olması, daha güvenilir olması, yan etkilerinin olmaması, hasta uyumunun yüksek olması nedeniyle üriner inkontinansın tedavisinde yaygın olarak tercih edilmektedir. Konservatif tedavinin bir bileşeni olan davranışsal tedavi yöntemleri üriner inkontinanslı geriatrik kadın popülasyonunda tedavide ilk seçenek olarak kullanılmaktadır. Davranışsal tedavi yöntemleri arasında pelvik taban kas egzersizleri, mesane eğitimi, işeme programı oluşturma, sağlıklı yaşam biçimi davranışlarının geliştirilmesi yer almaktadır. Davranışsal tedavi yöntemleri bireyin aktif katılımını, sağlık profesyonellerinin zaman ve çabasını gerektirmektedir. Davranışsal tedavi yöntemlerinde yaşlıların çoğunluğu üriner inkontinans semptomlarında azalma ve yaşam kalitelerinde iyileşme deneyimlerler. Bu derlemede üriner inkontinanslı geriatrik kadın popülasyonunda tedavi için ilk seçenek olan davranışsal tedavi yöntemleri ele alınmıştır.

Anahtar Sözcükler: Üriner İnkontinans; Yaşlı; Kadın; Davranışsal Tedavi.

İletişim ***(Correspondance)***

Semiha AYDIN
İstanbul Üniversitesi Florence Nightingale Hemşirelik Fakültesi İSTANBUL

Tlf: 0212 440 00 00
e-posta: semihaaydin44@gmail.com

Geliş Tarihi: 07/04/2014
(Received)

Kabul Tarihi: 24/04/2014
(Accepted)

İstanbul Üniversitesi Florence Nightingale Hemşirelik Fakültesi İSTANBUL

INTRODUCTION

Developments in science and technology have improved living conditions and health care services, decreased death rates, and thus caused an increase in life expectancy as well as in the proportion of elderly people in the general population, not only in our country but also across the world. Aging is experienced in all living beings; and it is a chronic and universal process which encompasses all the irreversible structural and functional changes in the organism (1). Elderly people, with their decreased adaptability due to physiological changes, experience psychosocial problems such as chronic illnesses, dependency in their daily activities and problems regarding their care. Due to estrogen deficiency, aging brings physiological changes such as lower urinary tract muscular atrophy, replacement of muscle tissue with fatty tissue, and a decrease in the strong twitch of the pelvic floor muscles. These changes can cause involuntary leakage of urine, namely urinary incontinence (2).

The most common types of urinary incontinence in elderly women are grouped as urge incontinence (involuntary leakage of urine associated with a sudden, strong desire to urinate), stress incontinence (leakage of urine with physical activity), mixed incontinence (combination of stress and urge incontinence), and overflow incontinence (involuntary release of urine from an overly full bladder) (3).

Stress incontinence, after urge incontinence, is the most common incontinence type in elderly women. In addition to estrogen deficiency in old age, the severity of stress incontinence can increase due to such factors as pelvic operation history, frequent vaginal delivery history, or obesity. Urinary incontinence is experienced with some activities that increase intra-abdominal pressure; examples include coughing, laughing, exercising, and changing positions. On the other hand, stress incontinence can be experienced as a result of intrinsic stricture deficiency in old age, trauma caused by anti-incontinence surgery, or serious urethral atrophy. Even slight increases in intra-abdominal pressure may cause incontinence, or continuous urine leakage that is experienced throughout the physical activity (4).

Urinary incontinence is considered important because it requires long-term care and causes loss of independence, poor quality of life, limitation of social activities, and increased anxiety and social isolation in the elderly (5).

The prevalence of urinary incontinence varies depending on the type and severity of the incontinence as well as the population investigated. Although urinary incontinence is not a life threatening factor in itself, it has negative effects on the quality of life of 15 to 30 % of the general female population, 20% of middle-aged women, and 45% of elderly women (6). In their cohort study which aimed to define the disease profile in elderly patients aged 85 and over, Collerton et al. (2009) found a prevalence of urinary incontinence of 42.1%. The prevalence of severe urinary incontinence was found to be 21.3% (7).

Ateşkan et al. investigated 2000 elderly people aged 65 and over (1276 women and 724 men) in Turkey, and found an overall prevalence of urinary incontinence of 44.2%, and a prevalence in women of 57.1%. The study found that the most common form of urinary incontinence type was mixed type, in which stress and urge incontinence symptoms are seen together (70.1%) (8).

Urinary incontinence is treated with both surgical methods and conservative treatment methods other than surgery. Conservative treatment methods are generally preferred because they involve no mortality; they are easily implemented; they are the least interventional methods; they are safer; they have no side effects; and they have high patient compliance (9). Conservative methods include medication, behavioral treatment, electrical stimulation and neuromodulation (10). This review discusses behavioral treatment, the first-line treatment method in the female geriatric population with urinary incontinence.

Behavioral Treatment

Behavioral treatment, which is a component of conservative treatment, is recommended as a first-line treatment in all guides on the treatment of urinary incontinence, overactive bladder, and lower urinary tract symptoms. Behavioral treatment includes regulating urinary habits, maintaining healthy life behaviors, and reforming the strength and control of the pelvic floor muscles. The aim of changing elderly people's behavior is to decrease or cure the symptoms. Clinical practice is individualized according to each patient's unique needs and situation, and behavioral methods can be used together. Behavioral treatment methods are generally based on two approaches. One of these approaches focuses on improving pelvic floor strength/control, emptying the bladder, and teaching the patient how to suppress urgent need to urinate. The other approach focuses on regulating bladder function by making changes in urination habits and delaying urination. Patients are trained with a view to helping them change behaviors (9, 10).

The components of behavioral therapy include pelvic floor exercises, bladder training, planning an urination schedule, and developing healthy lifestyle behaviors.

Pelvic Floor Muscle Exercises

Pelvic floor muscle exercises (PFME), first defined by Arnold Kegel in 1948, aim to strengthen pelvic floor muscles, improve urethral sphincter function, stabilize the vagina by reducing pelvic organ prolapses, increase bowel control, and reduce sexual problems and laceration risk in vaginal deliveries (10).

PFME is the first-line treatment of stress incontinence in elderly people. Older women benefit from PFME as much as younger women do. Kegel exercises can reduce the frequency of stress incontinence in motivated and cognitively compliant elderly women (9).

Randomized controlled studies in the relevant literature show that PFME are effective in increasing and maintaining continence (5). However, PFME in the elderly were found to be most effective in curing stress type urinary incontinence (11).

Similarly, in their systematic review published in a Cochrane data base, Dumoulin and Hay-Smith (2010) reported that women with incontinence complaints who did PFME demonstrated more improvement compared to a control group. It was also found that a decrease in women's average age and an increase in the duration of the exercise program increased the percentage of recovery, and that PFME are more effective in curing stress incontinence than in curing urge or mixed types. The treatment was more effective in women who did PFME for at least three months (12).

In terms of evidence-based medicine, the relevant literature mentions Group A evidence regarding PFME in treating stress incontinence in general population. Muscle training for PFME should start with 8 contractions at least three times a day (Category A). The training should continue for at least three months (Category A). Implementing pelvic floor muscle training with the guidance of a physiotherapist or continence nurse is of great importance, not only for good practice but also for monitoring improvement (GPP= good practice point). Pelvic floor muscle exercises can be considered for cognitively compliant elderly people, but there is not a sufficient number of studies on the issue for this age group (Category C) (13).

Appropriate instruction of patients in PFME, which is accepted as the first-line treatment in stress incontinence, is important for elderly women's use of the right muscles. Elderly women should be motivated verbally and provided with the necessary anatomic information before the instructions (9, 10). They should wear comfortable clothes and their bladder should be emptied before starting the exercise. The patient should not contract stomach, hip, and thigh muscles or do the Valsalva maneuver while doing the exercises. The International Incontinence Society recommends that exercises should be completed three times a day with at least 8 contractions, and continued for at least three months (10). The exercise program should be maintained and monitored regularly. Muscle strength assessments should be done once a month with a view to increasing elderly people's motivation and modifying the program. Elderly people might need longer education intervals.

Bladder Training

Bladder training was first defined by Jeffcoate and Francis in 1966. In an article entitled "Bladder training and related therapies for urinary incontinence in older people", Hadley mentioned four types of bladder training: bladder training, habit training, timed voiding, and prompted voiding (14).

Bladder Training: Bladder training aims to reduce frequent urination, increase bladder capacity, eliminate the feeling of urgent urination, and increase urination intervals up to 3-4 hours. Bladder training is a formal program that generally lasts 6-8 weeks and aims to teach urination at certain time intervals that are increased weekly (10). This program uses a behavior modification technique in which urination is included and the intervals between urinations are increased slowly. At the beginning, the interval between urination attempts is 1 hour. Whether there is a need to urinate or not, the patient has to urinate according to the schedule. If the patient is ready, urination intervals should be increased by 15-30 minutes every week. The purpose is to increase the interval for urination attempts to 2-4 hours. Bladder training continues for 6 weeks. Incontinence episodes can be reduced by 60%. Desensitization techniques can be used for specific events that trigger incontinence (for example the urge to urinate with the sound of water). Success depends on the motivation of both the woman and the doctor (11). Evidence-based studies in the literature recommend bladder training for the treatment of stress incontinence in the general population when appropriate (Category B) (15).

Habit Training: Habit training is scheduled toileting which is planned in accordance with the patient's micturition habits. The patient is assessed to see if she is dry at the scheduled micturition time. Recording micturition takes a lot of time. If the patient maintains a toileting schedule, the training aims to increase the micturition intervals. This practice requires patient compliance and cognitive competence (16).

Timed Voiding: Timed voiding enables the patient to go to the toilet and urinate at certain times. The urination schedule is identified beforehand. The only differences are that no intervention is implemented in order to delay or suppress the feeling of urination, and urination intervals are not extended to longer intervals each time. The purpose is to keep the patient dry by making her urinate before she experiences incontinence (10).

Prompted Voiding: Prompted voiding is generally implemented by caretakers. Nursing home patients are frequently checked by the caretakers and asked to use the toilet. It is done when they start to comprehend the feeling of fullness and the need to go to the toilet. The patient is praised when she maintains urinary continence and attempts to urinate. She is encouraged to go to the toilet in every 2-4 hours or is provided with a bedpan. This period is proven to be effective for dependent patients or patients with reduced cognitive competence. Moreover, it can be used with patients whose cognitive competence is not enough to use more complex behavioral treatments (10).

In their randomized controlled study conducted with participants aged 55 and over, Diokno et al. (2004) found that behavioral therapy given over the course of 4 weeks increased pelvic floor muscle strength and urination intervals, and urination frequency was within normal ranges. It was reported that the therapy resulted in statistically significant differences (17). Evidence-based studies recommend timed voiding for elderly and cognitively incompetent patients (Recommendation Level: A) (15).

Healthy Lifestyle Behaviors

Lifestyle factors that are considered to be effective in improving and maintaining lower urinary tract functions include weight control; management of liquid intake; quitting smoking; limiting caffeine, alcohol, and other things that irritate the bladder; exercising; and developing regular bowel habits. Changing lifestyle and urination habits requires making significant behavior changes in daily life as well as adapting to these changes. Evidence-based studies recommend lifestyle changes for improving urinary incontinence symptoms (Recommendation level: C) (15).

Losing Weight: Intra-abdominal pressure caused by increased body weight is one of the reasons for pelvic floor innervation and decline in muscle structure. The increase in intra-abdominal pressure causes an increase in vesical pressure and urethral mobility. Thus, stress incontinence is more common in obese women (18). In their randomized controlled studies conducted in different periods, Subak et al. found that a 5% weight loss with the help of behavioral weight loss programs, which included a low calorie liquid diet and exercise, reduced the prevalence of urinary incontinence by 50% (19). Another study revealed that a three-month behavioral weight loss program including only a low-calorie liquid diet helped the participants in the experimental group lose 14 kilogram more than those in the control group, which resulted in a 60% decrease in the prevalence of urinary incontinence (20).

Management of Fluid Intake: Approximately 7 to 40% of women with urinary incontinence limit liquid intake so as to deal with its symptoms. Descriptive studies conducted with women aged 55 and over demonstrate a low or medium positive relationship between liquid intake and the severity of incontinence (21). Clinical studies show that common urinary incontinence symptoms recover with fluid restriction (22). However, elderly people should drink at least 2 liters of liquid (8 to 10 glasses) every day in order to meet their daily need (1). Urine concentration may increase when fluid intake is limited in order to reduce incontinence, which may irritate the bladder. Therefore, elderly people should be encouraged to take in liquid at certain intervals even when they are not thirsty in order to meet their daily need. Older people should be advised to take in liquid during the day so as to decrease nocturia; fluid intake can be limited after 6 o'clock in the evening (9). Evidence-based studies recommend that elderly people in nursing houses should take in enough oral liquid to increase urine volume (Recommendation level: C) (15).

Quitting Smoking: Smoking is known to have an unquestionable relationship with the development of diseases in many systems. Although there is limited data about whether cigarette smoking is a risk factor for urinary incontinence, a descriptive study has revealed a highly significant relationship between smoking and detrusor instability (23). In their study conducted with women aged between 30 and 70 who had stress incontinence, Fuganti et al. (2001) found an independently significant relationship between obesity and smoking and maximum intravesical pressure increased by coughing. Although losing weight reduced maximum intravesical pressure, quitting smoking was found to have no effect on peak intravesical pressure. It was also highlighted that quitting smoking without a change in lifestyle would have no positive effects on stress incontinence (24).

Diet: Management of incontinence problems in the female geriatric population requires making changes in diet as well.

Box 1— Food That Can Replace Bladder Irritants.

Bladder Irritants	Food That Can Replaced Bladder Irritants
Caffeine, alcohol, acidic fruit and fruit juice, tomatoes and tomato products, artificial sweeteners, spices, yoghurt, cheese, carbonated drinks, vinegar, onion, mayonnaise, banana and nut.	Water, herbal tea, milk, caffeine reduced drinks, white chocolate, apple, pear, peach, grapes, melon, watermelon, almond, pine nut, garlic.

Food that irritates the bladder should be excluded from the diet. If no change is observed in the incontinence problem, the food is allowed to remain in the diet. Potential bladder irritants and that can replace bladder irritants demonstrates Box 1 (11). Studies investigating the relationship between urinary incontinence and caffeine consumption, which is known to be a potential urinary irritant, demonstrated no significant relationship between caffeine consumption and urinary incontinence. It was reported that further studies on the issue are needed (25). Evidence-based studies show contradictory evidence regarding the effect of caffeine intake on incontinence (Recommendation Level B/C). Reducing caffeine intake in elderly people should be considered (Recommendation Level C (15).

Developing Regular Bowel Habits: There is a positive relationship between stress incontinence and defecation difficulties and constipation. Strain during defecation may cause pudendal nerve damage or weakness of the pelvic floor muscles. The diet should include enough fluid and highly fibrous food so as to prevent the development of constipation. Stool emollients can be used if necessary. Developing regular bowel habits and doing age-appropriate physical activities for symptoms of urinary incontinence are recommended (10).

In conclusion, behavioral treatment methods are recommended as the first-line treatment for urinary incontinence in the female geriatric population. Although behavioral treatment methods are cost-efficient, they require the active involvement of the individuals as well as the efforts and time of health professionals. The majority of patients using behavioral treatment methods experience a decrease in incontinence symptoms and improvement in their quality of life.

References

1. NN Hairi, TG Hiong, A Bulgiba, et al. Physical Function in Older People, In: C.S. Atwood (Eds). Geriatrics. InTech, Croatia 2012, pp 3-23.
2. Virtuoso JF, Mazo GZ, Menezes EC. Urinary incontinence and perineal muscle function in physically active and sedentary elderly women. Rev Bras Fisioter 2011;15(4):310-7. (PMID:21860992).
3. Miller KL. Urinary incontinence in elderly women. Primary Care Update for OB/GYNS 2003;10(5):242-6.
4. Kirby M. Managing stress urinary incontinence - A primary care issue. Int J Clin Pract 2006;60(2):184-9. (PMID:16451292).
5. Kim H, Suzuki T, Yoshida Y, Yoshida H. Effectiveness of multidimensional exercises for the treatment of stress urinary incontinence in elderly community-dwelling Japanese women: A randomized, controlled, crossover trial.J Am Geriatr Soc. 2007;55(12):1932-9. (PMID:17944890).
6. Shakespeare K, Barradell V, Orme S. Management of urinary incontinence in frail elderly women. Obstetrics, Gynaecology&Reproductive Medicine 2011;21(10):281-7.
7. Collerton J, Davies K, Jagger C, et al. Health and disease in 85 year olds: Baseline findings from the Newcastle 85+ cohort study. BMJ 2009;339:b4904. (PMID:20028777).
8. Ateşkan Ü, Mas MR, Doruk H, Kutlu M. Urinary incontinence among the elderly people of Turkey: Prevalence, clinical types and health- care seeking. Turkish Journal of Geriatrics. 2000;3(2): 45-50.
9. DK Newman. Conservative Therapy for Incontinence. In: H.B. Goldman, S.P. Vasavada (Eds). Female Urology A Practical Clinical Guide. Humana Press, New Jersey 2007, pp 63-79.
10. D Wilson. Outcomes of conservative treatment. In: L.Cardozo, D.Staskin (Eds). Textbook of Female Urology and Urogynecology Third Edition. Informa Healtcare, United Kingdom 2010, pp 407-27.
11. Kim H, Yoshida H, Suzuki T. The effect of multidimensional exercise treatment on community-dwelling elderly Japanese women with stress, urge, and mixed urinary incontinence: A randomized controlled trial. Int J Nurs Stud 2011;48:1165-72. (PMID:21459381).
12. Dumoulin C, Hay-Smith J. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochrane Database Syst Rev 2010;20(1):CD005654. (PMID:20091581).

13. National Institute for Health and Clinical Excellence. Urinary incontinence: The management of urinary incontinence in women. (Clinical Guideline 40.) 2006. http://www.nice.org.uk/nicemedia/live/14271/65143/65143.pdf Accessed:5.11. 2013
14. Hadley EC. Bladder training and related therapies for urinary incontinence in older people. JAMA 1986;256(3):372-9. (PMID: 3723724).
15. DuBeau CE, Kuchel GA, Johnson T, Palmer MH, Wagg A. Incontinence in the frail elderly: Report From the 4th International Consultation on Incontinence Neurourol Urodyn. 2010;29(1):165-78. (PMID:20025027).
16. Demirci N, Coşar F. Behavioral therapy techniques for urinary incontinence. S.D.U. Electronic Journal Systems. 2009;16(3):35-40
17. Diokno AC, Sampselle CM, Herzog AR, et al. Prevention of urinary incontinence by behavioral modification program: a randomized, controlled trial among older women in the community. J Urol. 2004;171(3):1165-71. (PMID:14767293).
18. Osborn DJ, Strain M, Gomelsky A, Rothschild J, Dmochowski R. Obesity and female stress urinary incontinence. Urology 2013;82(4):759-63. (PMID:23972338).
19. Subak L, Quesenberry C, Posner SF, Cattolica E, Soghikian K. The effect of behavioral therapy on urinary incontinence: A randomized controlled trial. Obstet Gynecol 2002;100(1):72-8. (PMID:12100806).
20. Subak LL, Whitcomb E, Shen H, Saxton J, Vittinghoff E, Brown JS. Weight loss: A novel and effective treatment for urinary incontinence. J Urol. 2005;174(1):190-5. (PMID:15947625).
21. Wyman JF, Elswick RK, Wilson MS, Fantl JA. Relationship of fluid intake to voluntary micturitions and urinary incontinence in women. Neurourol Urodyn 1991;10:463-73. (PMID:8481726).
22. Rasmussen A, Mouritsen L, Dalgaard A, Frimodt- Moller C. Twenty-four hour pad weighing test: reproducibility and dependency of activity level and fluid intake. Neurourol Urodyn 1994; 13(3):261-5. (PMID:7920683).
23. Bulmer P, Yang Q, Abrams P. Does cigarette smoking cause detrusor instability in women? J Obstet Gynaecol. 2001;21(5):528-9. (PMID:12521814).
24. Fuganti PE, Gowdy JM, Santiago NC. Obesity and smoking: Are they modulators of cough intravesical peak pressure in stress urinary incontinence? Int Braz J Urol 2011;37(4):528-33. (PMID:21888706).
25. Townsend MK, Resnick NM, Grodstein F. Caffeine intake and risk of urinary incontinence progression among women. Obstet Gynecol 2012;119(5):950-7. (PMID:22525905).