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REVIEW / PRACA POGLĄDOWA

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URINATION DISORDERS OCCURRING IN THE ELDERLY – POINT OF VIEW OF A PHYSIOTHERAPIST

ZABURZENIA ODDAWANIA MOCZU WYSTĘPUJĄCE U OSÓB STARSZYCH – PUNKT WIDZENIA FIZJOTERAPEUTY

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Summary

International Continence Society defines urinary incontinence as involuntary urine leakage in subjective assessment. It is essential that urinary incontinence is regarded to as a symptom not as a separate disease. Until recently, majority of the elderly society considered disorders connected with urinary continence a taboo topic. Higher awareness level and easier access to knowledge enable even the elderly patients to start therapy in the area of these afflictions more willingly.

According to the world standards of urination disorders, in the first stage of treatment noninvasive treatment should be used and when it fails, surgical treatment is to be applied. It is especially crucial in geriatrics patients whose polymorbidity poses contraindications or higher risk to general anesthesia procedures.

The following article presents the point of view of a physiotherapist and possibilities of using a wide range of noninvasive methods in the therapy of urination disorders. Classification of urination disorders is presented, as well as possible comorbidities relevant during urological physiotherapy.

Streszczenie

Międzynarodowe towarzystwo Kontynecji definiuje nietrzymanie moczu jako mimowolny wyciek moczu w subiektywnej ocenie. Istotnym jest fakt, że nietrzymanie moczu traktowane jest jako objaw a nie jako osobna jednostka chorobowa. . Zaburzenia związane z trzymaniem moczu były do niedawna uznawane przez większość starszego społeczeństwa jako temat tabu. Większa świadomość oraz łatwiejszy dostęp do wiedzy powodują, że nawet starsi pacjenci chętniej podejmują terapie w zakresie tych dolegliwości.

Wg światowych standardów leczenia zaburzeń oddawania moczu w pierwszym etapie leczenia należy wykorzystać leczenie nieinwazyjne, a gdy ono zawiedzie – zastosować winno się metody operacyjne. Szczególnie jest to istotne w przypadku pacjentów geriatrycznych, gdzie ze względu na wielochorobowość zabiegi pod narkozą są często objęte przeciwwskazaniem lub zwiększonym ryzykiem.

Poniższy artykuł przedstawia punkt widzenia fizjoterapeuty i możliwości zastosowania szeregu nieinwazyjnych metod terapii zaburzeń oddawania moczu. Ukazuje również klasyfikację zaburzeń związanych z oddawaniem moczu oraz przedstawia możliwe dolegliwości współistniejące istotne podczas pracy fizjoterapeuty urologicznego.

Key words: urinary incontinence, urologic physiotherapy, pelvic floor therapy, geriatrics
Słowa kluczowe: nietrzymanie moczu, fizjoterapia urologiczna, terapia dna miednicy, geriatria

INTRODUCTION

Urination disorders belong to a group of conditions that occur more frequently in the elderly patients. Until recently, majority of the elderly society considered disorders connected with urinary continence a taboo topic. However, the willingness to obtain help in this respect is becoming more and more popular. It is a result of a higher level of awareness of possibilities of diminishing the symptoms or eradicating them completely. Consequently, the number of elderly patients undertaking therapy is growing [1].

International Continence Society defines urinary incontinence as involuntary urine leakage in subjective assessment. It is essential that urinary incontinence is regarded to as a symptom not as a separate disease. However, it must be stressed that there are many types of urinary incontinence connected with diversified etiology and the symptoms presented. The above conditions affect 39% of women above the age of 55. This percentage indicates how serious social and economic problem it is [2].

It should be emphasized that urological diseases are not exclusively connected with urinary continence. They are also connected with passing urine. Urination disorders coexist with other symptoms connected with pelvic floor disorders, what very frequently stays underestimated by the patients and healthcare professionals. The following article helps to systematize the knowledge of classification of disorders connected with urination and presents possible comorbidities and current trends in urological physiotherapy [3].

LITERATURE REVIEW

Urination disorders are becoming an increasingly difficult health problem. Healthy lifestyle popularity makes the female patients more frequently seek help of doctors or physiotherapists in their attempts to improve the quality of life. For the purpose of the article, urination disorders were divided into two groups: afflictions connected with urinary continence and passing urine.

CONDITIONS CONNECTED WITH URINARY CONTINENCE

Stress urinary incontinence

Stress urinary incontinence (SUI) is a symptom with complex etiology. It consists in passing urine while intra-abdominal pressure rises with the lack of activation of the detrusor muscle. SUI is such a complicated condition that its pathophysiology stays unclear [4].

The SUI risk factors include positive family history, pluriparity, high birth weight, and surgical procedures in the pelvic area. Women who suffer from the symptoms of SUI during pregnancy are more prone to developing the condition in the future. In addition, the perinatal injuries of the pelvic floor structures such as nerves, muscles and ligaments damages result in disorders of the urinary system. In some cases the perinatal injuries give no symptoms. However, as aging processes progress and the involution changes start influencing body structures, urinary incontinence symptoms may occur. Sometimes unhealthy lifestyle – obesity and high overburden may lead to SUI. More frequently, SUI may be observed in women who spend their free time in an active way, which leads to pelvic floor muscles overburdening to such an extent that they cannot keep the right tension during the intra-abdominal pressure rise [5].

Scientific reports claim that SUI affects mainly women at the age of 29-50 and the frequency of SUI diminishes with age. Question should be posed: why does it diminish with age? Does it change into a different type of urinary incontinence or other symptoms connected with pelvic floor conditions as time passes? Currently none of the available studies gives answers to these questions.

Involuntary urinary incontinence

Involuntary urinary incontinence usually occurs when the urine leakage appears without patients' will or control. It is usually the result of not treated stress urinary incontinence or urinary urgency. It may also be a consequence of surgical procedures or very difficult labors. This type of the condition is very complicated as the elderly person not knowing when the leakage occurs may not react in an appropriate moment and expose oneself to laughter, and as a consequence, social isolation or occupational exclusion.

In the elderly people, vascular urinary incontinence can also be observed. Etiology is connected with the ischemic changes in the white matter of the brain. Research shows substantial correlation between the occurrence of leukoaraiosis in the area of frontal lobes and the urinary incontinence. In case of such

a condition, therapy should be based on administration of anticholinergic drugs [6].

Urge incontinence

Urge incontinence is classified by many specialists as one of the symptoms of urinary urgency. For the sake of the article presenting the point of view of a physiotherapist alternative systematization was applied.

We distinguish two types of this condition: leaking small amounts or leakage voiding the whole urinary bladder. It occurs when involuntary bladder contraction appears as a result of hyperactivity of its smooth muscles (detrusor muscle). Detrusor hyperactivity may accompany urinary bladder conditions (lithiasis, infections) or diseases of the central nervous system. In some cases, when it is difficult to differentiate, pathological muscle reflex may be taken into consideration and the muscle itself, or wrong information it obtains from the nerve may be recognized as the source of disorder [7].

Overflow incontinence

According to ICS, it is the involuntary urination that is connected with passive excessive stretching of the bladder caused by urethra blockage e.g. post-surgical hypertrophic changes, injuries, neurological diseases, pregnancies and labors, blood supply disorders, psychosomatic factors, and pharmacotherapy [8].

Mixed type

Mixed type urinary incontinence is a condition that involves several types of urinary incontinence. Among the elderly it belongs to a frequently complained of afflictions, especially stress urinary incontinence together with overactive bladder.

Risk factors connected with the occurrence of the mixed type urinary incontinence include factors causing stress and urgency urinary incontinence types, i.e.: age (mainly menopause), sex (women are 2-5 times more prone to develop the disorder), pregnancies, labors, surgeries of pelvis minor, obesity, urinary tract inflammation, hormonal disorders, constipation [9].

Disorders connected with urination

Disorders connected with urination are connected with the quality of bladder voiding. Urinary urgency without urinary incontinence, overactive bladder, nycturia and disorders connected with urine stream may be included here. Even though involuntary urine leakage does not occur, they are very often the cause of lowered quality of life and the feeling of shame and embarrassment.

Overactive bladder

Overactive bladder syndrome (OAB) is the increased, lingering, frequently sudden need to urinate incommensurate with the filling of the urinary bladder (urinary urgency), and frequent urination during the day.

Overactive bladder can be regarded to as urination more frequent by than every 2 hours or 8 times a day. Of course, it is not connected with exceptional situations when a lot of liquid has been drunk or there is an infection [10,11].

Very often people suffering from OAB organize their surroundings in a way that will always enable them to use a toilet. In the overactive bladder syndrome, the bladder contraction occurs in the early stage of its filling. Patient suffering from OAB voids the bladder very frequently and does not let the bladder fill. As a consequence of not stretching, bladder becomes smaller what leads to the effect of viscous circle.

In patients with overactive bladder detrusor muscle contraction is independent of bladder filling and escapes conscious control – the bladder becomes overactive. The causes of this occurrence lay in the smooth muscles of the urinary bladder abnormalities, in the functioning of nervous fibers and their endings, and in the central nervous system itself [12].

Overactive bladder may have its psychogenic basis when a person connects their nervousness with the number of urinations. Then, psychotherapy and behavioral training is helpful in treating the condition [13].

Urinary urgency

Urinary urgency occurs when during everyday life activities a person suddenly feels the need to urinate and has to go to the toilet in this exact moment. It is connected with the faster activation of detrusor muscle regardless of the amount of urine in the bladder. The difference between overactive bladder syndrome and the urinary urgency is that people suffering from OAB must urinate very frequently and those with urinary urgency in the very moment they feel the need to urinate [14].

Nocturia/nycturia

Nycturia is defined as the necessity to wake up to pass urine. It is worth mentioning, that it has not been defined well yet – some authors imply that two or more urinations are the evidence of the condition, whereas others claim that every time the patient must wake up proves the dysfunction. Exceptions are the situations when the person is woken up for some other reason [16].

In the classification part, it is qualified as nocturnal urinary urgency or the nocturnal overactive bladder.

It is important to emphasize that nycturia, contrary to what has been claimed until now, is not a typical urological disorder. Its etiology includes: polyuria, increased urine production at night, decrease in the urinary bladder volume and sleep disorders. Because of many pathomechanisms, detailed diagnostics is necessary to start efficient treatment. Nycturia is very often connected with urinary urgency or the overactive bladder and affects both men and women in the elderly age [17]

Urination disorders

With age, the stream of urine may also change. Passing of urine from the urethra may become slower, which is caused by the bacteria residing in the urethra to stay as they are not thoroughly removed what may lead to urethritis and recurrent infections.

Other dysfunctions connected with pelvic floor activity disorders include: voiding the urinary bladder using abdominal prelum, incomplete urinary bladder voiding, and urination in drops, repeated urination (feeling of incomplete urination), delayed urination. The above-mentioned conditions are connected with muscle disorders, nerve-muscle block, or neurological disorders [17].

Urinary incontinence in men

Urinary incontinence occurs in 1-39% of men depending on the age group and the type of urinary incontinence. Stress urinary incontinence is usually connected with prostatic hyperplasia what may also show symptoms of urinary urgency.

More common in literature are studies dealing with stress urinary incontinence after radical prostatectomy or after the excision of prostatic adenoma. Even though the number of these post-surgical complications is still decreasing, judging by the number of the procedures done it is anyway a big group of patients [18].

Other accompanying symptoms

Analyzing the topic of urination disorders, the fact that the reproductive system and excretory system are situated close to urinary system cannot be omitted. Substantial number of patients suffering from urinary incontinence complaints of afflictions connected with these two systems. On the side of excretory system these may be: constipation, excretory difficulties, gas incontinence, fecal incontinence. On the side of the reproductive system frequently observed are: organs prolapse, painful intercourse, anorgasmia in women.

Frequently, along with the urological symptoms, dysfunctions in the lumbar part of the spine or musculofascial disorders in the area of pelvic girdle are noted.

While treating the patient it is essential to diagnose thoroughly so that it is possible to decide whether the accompanying symptoms are the cause or the consequence of the urological disorders [19, 20].

Diagnostics

To diagnose urination disorders accurate interview with a patient is crucial. It is important to obtain detailed information about any urination disorders in childhood, comorbidities, medications taken, lifestyle, and obstetrics and gynecological history. It is also essential to gather information about accompanying symptoms as possible causes of the disorders.

From the point of view of a physiotherapist, fundamental questions will focus on faulty posture, orthopedic procedures, physical activity and any afflictions on the side of musculoligamentous system. Such a detailed interview is an example of the holistic attitude towards a patient.

After gathering information in a detailed interview clinical urological and gynecological examination is carried out. The examination assesses reflexes, the power of sphincters, and it is also possible to do the cough test.

Physiotherapeutic physical examination focuses on posture, functionality and the power of muscles, and the structure of ligaments. It may also at least partially coincide with the medical examination carried out by a doctor and verify the innervation and reflexes [21].

The next stage is the patient's self-assessment and filling in the daily urination form where the patient fills in the amount of liquids drunk, urinary frequency and other parameters important in assessing the disorder.

Additionally, urodynamic examination may be used. Depending on the symptoms, it may be

ambulatory or invasive. This method, which is valued because of its objectivity, high sensitivity and peculiarity gains more and more criticism from researchers. For the elderly patients this type of examination is inhibiting and hence not every geriatrics patient is likely to agree on it. Even according to the ICS recommendations, it is indicated only in certain cases: before surgical procedures, in a mixed type urinary incontinence, in the cases of lack of treatment effectiveness, and in organ statics disorders in women.

More frequently, the sanitary pad test is being used. The sanitary pad is weighed, patient places it in their underwear and during one hour does particular activities (e.g. walking up the stairs, gymnastics). After the test, the sanitary pad is weighed again. According to literature, the difference of 1 gram between the results is acceptable. Question that may be posed here is: If the patient's result is below 1 gram should the treatment be introduced or not? Answer seems obvious – yes. Not only should the objective parameters be taken into consideration but also, above all, the patient and discomfort they experience. Hence, the sanitary pad test may be used as a cheap and objective tool used in assessing treatment progress [22].

Methods of treatment

Because of the complex character of urological disorders, many methods of treatment are available. According to the latest ICS guidelines, first, noninvasive treatment should be used and when it fails, surgical procedures may be applied. It is essentially crucial in the case of geriatrics patients, where polymorbidity is a contraindication to any procedures connected with general anesthesia.

Individualization of the treatment must be taken into consideration as well as the real and achievable results for the patient.

Lifestyle changes

The first stage of treatment is patient's lifestyle analysis. Patient's attention is directed to the elements of their daily life which may cause urological disorders. Firstly, factors such as obesity and smoking are to be assessed. Drinking coffee and fizzy drinks may also have the influence on the disorder development [23].

Physiotherapy

Urological or even urogynecological physiotherapy is quite a new method of treatment. Physiotherapy as a branch of medicine uses movement in physical treatment.

One of the most popular methods is electrotherapy. Studies indicate that it is used to strengthen the pelvic floor muscles. Available research results do not entirely confirm its treatment effectiveness. The assumption that electrostimulation may be used in the case of every disorder connected with urinary incontinence may be wrong. In the case of overactive bladder where muscles are in „readiness", it would be a mistake to stimulate them to contract. Urological afflictions that occur together with painful intercourse disorders are also contraindication to electrostimulation as it may intensify the symptoms. In these situations pelvic floor muscle relaxation is indicated what can be obtained by a physiotherapist only by manual therapy of the pelvic floor.

Biofeedback, similar to electrostimulation, strengthens the muscles as it involves the work done by a patient. It is used in cases when the patient does not know where the Kegel muscles are located and how to move them. As far as the Kegel muscles training is concerned there are many studies showing effectiveness of their usage. However, as in the case of electrostimulation it should be used in an individual way in cases with particular afflictions not to cause additional symptoms of the reproductive or excretory system [24].

Quite a new form of physiotherapy in Poland is a pelvic floor therapy. That treatment includes detailed palpation diagnosis and manual therapy. It is connected with manual examination of the pelvic floor muscles, in men through rectum and in women through vagina, and in some particular cases through the rectum. Pelvic floor therapy is a standard treatment element in France and Germany. Therapist diagnoses the pelvic floor in detail, focusing on muscle tissue quality, tension, strength, and muscle contraction symmetry. The therapy is also helpful in counteracting postoperative adhesions – in the western countries it is a conventional treatment option. Worth emphasizing is the fact that pelvic floor therapy is a type of physiotherapy that fulfills interdisciplinary character of uro-gyneco-proctological rehabilitation [25, 26].

Pharmacological treatment

Pharmacological treatment of disorders connected with urination is very popular. After introducing lifestyle changes and physiotherapy, it is the next stage of treatment and in more complex cases its supplement.

Due to the character of the article, interdisciplinary team treating the urological patient where every therapeutic activity has its place in treatment planning, should be mentioned [27].

Surgical treatment

Surgical procedures should be used after using other treatment options. However, because of the character of urological disorders and the feeling of shame, patients very often start complaining when it is too late. Then, the only treatment option is the invasive procedure. Despite the development of medicine and greater knowledge of the specialists, ideal method of treating chosen urological disorders has not been discovered yet. Nonetheless, many studies discuss the usage of physiotherapeutic methods after surgical procedures to support the treatment. Pelvic floor therapy decreases the amount of postoperative adhesions, helps in achieving quicker convalescence and better treatment results [28].

CONCLUSIONS

Urination disorders are an interdisciplinary complex problem. The elderly people believing that these afflictions are connected with aging frequently underestimate first symptoms. Sometimes, due to inappropriate lifestyle they intensify the symptoms themselves.

Lack of patients' awareness and the resulting consequences show that education of the elderly people in the area of urological disorders is necessary as well as specialists' openness, which will help to stop addressing the topics connected with urinary incontinence as taboo issues.

In Poland, the need to educate medical staff is also crucial. The elderly person visiting a general practitioner or geriatrics specialist should always be referred to an interdisciplinary team treating the urinary continence disorders.

REFERENCES

1. Bump R.C. Discussion: Epidemiology of urinary incontinence. Urol 1997; 50: 15-6.
2. Abrams P., Cardozo L., Fall M., Griffiths D., Rosier P., Ulmsten U., van Kerrebroeck P., Victor A., Vein A.: Raport Komitetu ds. standaryzacji International Continence Society; Neurology & Urodynamics 21: 167-178.
3. Zajda J., Połujański M., Zbrzeźniak M.: Leczenie nietrzymania moczu u kobiet – problem społeczny, ekonomiczny i leczniczy, Nowa Medycyna 5/2000.
4. Rechberger T., Jakowicki J.A.: Nietrzymanie moczu u kobiet. Patologia, diagnostyka, leczenie, Wydanie II poszerzone, Wydawnictwo Bi Folium, Lublin 2005.
5. Wagg A.: Urinary incontinence – older people: where are we now? International Journal of Obstetrics and Gynecology 2004; 111: 15-19.
6. Sakakibara R., Panicker J., Fowler C.: Vascular incontinence: incontinence in the elderly due to ischemic white matter changes, Neurology International; 2012, Vol. 4 Issue 2, p52.
7. Jóźwik M., Adamkiewicz M., Jóźwik M.: Zachowawcze metody leczenia nietrzymania moczu u kobiet [w:] Nietrzymanie moczu u kobiet patologia – diagnostyka – leczenie, red. Rechberger T, Jakowicki J., Wydawnictwo Bi Folium, Lublin 2005.
8. Abrams P., Cardozo L., Fall M.: The standardization of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. Neurourol Urodyn. 2002, 21, 167-178.
9. Bergman A., Charles A.: Nietrzymanie moczu, rozpoznanie i leczenie, Ginekologia. Alfa Medical Press; 1996. 135.
10. Abrams P., Wein A.: The overactive bladder: from basic science to clinical management consensus conference. Proceedings. London, England, June 29,1997. Urology. 1997, 50, Suppl 6,1-3.
11. Stewart W., Van Rooyen J., Cundiff G.: Prevalence and burden of overactive bladder in the United States. World J Urol. 2003, 20, 327-336.
12. De Groat W.: A neurologic basis for the overactive bladder. Urology. 1997. 50. 36-52.
13. Nowara A., Witek A., Wilk K.: Diagnostic and treatment of overactive bladder. Ginekol Pol. 2007, 78, 549-553.
14. Wilson M.M.: Urinary incontinence: selected current concepts. Med Clin North Am. Sep 2006;90(5):825-36.
15. Weiss J.: Nocturia. J Urol 163: 5-12, 2000.
16. Stewart R., Moore M., May F., Marks R.: Nocturia: a risk factor for falls in the elderly. J Am Geriatrics Soc 40: 1217-1220, 1992.
17. Albert P., Heidenreich A.: Podstawowe operacje urologiczne. Red. K. Krajka. Lublin: Czelej, 2007.
18. Bauer R.M., Gozzi C., Hübner W.: Contemporary management of postprostatectomy incontinence. Eur Urol. 2011 Jun;59(6):985-96.
19. Veerecken R.: Psychological and sexual aspects in different types of bladder dysfuntion. Psychother. Psychosom., 1989, 51:128-134.
20. Rogers R.G., Kammerer-Doak D., Darrow A.: Does sexual function change after surgery for stress urinary incontinence and/or pelvic organ prolapse? A multicenter prospective study. Am J Obstet Gynecol. 2006, 195: e1-4.
21. Bo K.: Is there still a place for physiotherapy in the treatmentof female incontinence? EAU Update Series.2003;1:145-153.

22. Cardozo L., Staskin D.: Textbook of Female Urology and Urogynaecology. 2001.
23. Georgiew M.: Leczenie zachowawcze NTM – polskie realia, Kw. NTM 2006; 1: 6.
24. Bedós F., Prats J., Prera A.: Manual de urología. Barcelona: Masson; 1996.
25. Bosch donate E., Arbós Berenguer T.: Pelvic floor physiotherapy in the balearic islands, Spain, Medical News 2013, 82, 6, 452-457.
26. Bedós F., Prats J., Prera A.: Manual de urología. Barcelona: Masson; 1996.
27. Wlaźlak E., Surkont G.: Wybrane aspekty leczenia farmakologicznego nietrzymania moczu, Przewodnik Lekarza 2005; 2: 62.
28. Zbrzeźniak M.: Operacyjne leczenie nietrzymania moczu, Kwartalnik NTM 2005; 2: 4.

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