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URINARY INCONTINENCE IN POST-MENOPAUSAL WOMEN AND ITS IMPACT ON LIFESTYLE AND AREAS OF LIFE

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Abstract

Introduction: Urinary incontinence is a global problem, as shown by statistics. This study assesses the impact of urinary incontinence on lifestyle and areas of life in pre- and post-menopausal patients in southern Poland.

Material and methods: The study used an original diagnostic questionnaire to survey a group of 492 women. The following tests and coefficients were used for analysis: the Spearman and Pearson rank correlation coefficient, Student's *t*-test, and non-parametric tests of the significance of differences.
Results: There were significant differences between the group of pre- and post-menopausal women in the occurrence of urinary urgency ($p = 0.001$), stress urinary incontinence grade III ($p = 0.018$), stress urinary incontinence grade II ($p > 0.001$) and in the amount of urination at night. There was also a correlation between the number of symptoms and lifestyle changes ($rs = 0.786$; $p < 0.001$) and the number of areas of life affected by the condition ($rs = 0.789$; $p < 0.001$).
Conclusions: Urge and stress urinary incontinence are more common after menopause. Pre-menopausal women experience fewer incontinence symptoms and make fewer lifestyle changes.
Key words: urinary incontinence, menopause, lifestyle, area of life

Introduction

Urinary incontinence (UI) is defined as involuntary urine loss and is one of the main health problems for post-menopausal women [1]. The importance of this problem has been demonstrated in numerous publications around the world.

When the term "UI" was entered into the US National Library of Medicine in November 2020 it gave 45,719 results.

In the western world, due to the aging population, the number of patients suffering from UI is increasing year by year [2]. It is estimated that in Poland this condition affects over five million people. According to recent data, UI affects women twice as often as men. This condition affects approximately 20–30% of young women, 30–40% of middle-aged women and up to 50% of elderly women [3].

The most common type of UI in the post-menopausal period is stress urinary incontinence (SUI). This is an involuntary leakage of urine caused by physical activity, which results in an increase in pressure in the intra-abdominal space and consequently also intravesical, with no adequate response from the urethra-closing apparatus. Depending on the severity of the condition, it may occur during sneezing, coughing, or laughing, causing a large increase in intra-abdominal pressure (in stage I of the condition), during physical exercise, running or dancing (in stage II) and at rest (in stage III).

With age, the incidence of an overactive bladder (OAB; characterized by urgency, which occurs either with or without UI) also increases, which is the second most frequent form of UI. It is caused by excessive activity of the bladder detrusor muscle, which is partly out of cortical control. In the early phases of the condition, dry OAB is the most common form of OAB, and if left untreated it often turns into so-called wet OAB. In approximately 10% of patients with UI, mixed forms of incontinence caused by the concomitant occurrence of SUI and OAB [4] can be observed. The symptoms of urinary urgency can also be observed in patients with reduced bladder volume and infections in the lower urinary tract.

The prevalence of these conditions is associated with reduced estrogen levels among post-menopausal women.

The risk factors for incontinence are increasing age, menopause, obesity, environmental diseases and low levels of physical activity [5]. Risk factors also include a history of hysterectomy, chronic diseases such as diabetes, diseases with chronic coughing or constipation and drug, tea, caffeine, and alcohol abuse [6].

UI is one of those problems that negatively influence the functioning of patients both physically and psychosocially [6,7].

The awareness that incontinence should be considered an important health problem is also increasing, which is connected to people's growing expectations regarding quality of life. Nevertheless, many patients still consider incontinence to be a natural sign of aging.

A study in the Netherlands was conducted to evaluate the quality of life of women with urge symptoms and SUI. This study revealed that the greatest impact on the quality of life was caused by UI due to urgency. It was also shown that the symptoms of SUI did not have such a negative effect on women's lives, which was correlated with the symptoms of bladder hyperactivity [8].

In the treatment of incontinence, attention should be paid to improving patients' health and overall quality of life, as well as promoting better functioning in social situations, which contributes to women's overall well-being [5].

The present study was conducted in order to assess the impact of incontinence on the lifestyle and areas of life in pre- and post-menopausal female patients in southern Poland.

Materials and methods

This research was conducted between April and September 2017. It was conducted on 492 women in southern Poland who had reported to their general practitioner.

The study used the method of diagnostic survey with the use of a research tool – a questionnaire of our own design. The women on whom the research was carried out were chosen at random from selected medical offices in southern Poland.

Participation in the study was voluntary and anonymous, and after collection the material underwent statistical analysis.

The questionnaire contained questions about the number of areas of life affected by incontinence, such as family, social, sexual, professional or other. The women were also asked about the impact of incontinence on their lifestyles: leaving home less frequently, reduced social and family contacts, a deterioration in their sexual relationship with their partners, more frequent use of the toilet, avoidance of lifting heavy objects or reduced fluid intake.

UI was assessed by means of a questionnaire concerning the sudden need to urinate with and without leaking, involuntary leaking without urgency, leaking while sneezing, coughing, running, dancing or physical exercise, and the number of times the toilet is used at night.

The following were used for detailed analysis: Spearman's rank correlation coefficient, Student's *t*-test, Pearson's correlation coefficient, and non-parametric significance tests (Mann-Whitney *U*, Kruskal-Wallis).

The basis for the conclusions regarding the qualitative variables associated with the symptoms of incontinence was the chi 2 test, and if the assumptions of the chi 2 test were not met in terms of numbers, then the basis for the conclusions was the Fisher test.

The statistical significance level was assumed to be 0.05.

In order to perform statistical calculations, the statistical program SPSS and Statistics was used.

Results

The highest percentage in the study group was made up of women with higher education, i.e., 35%, while 32% had secondary education. Women with vocational and primary education constituted 27% and 6% respectively.

The most numerous groups were women over 50 years of age who made up 59%. 28% were aged between 35 and 50 and 13% of the female respondents were under 35 years of age.

219 of the women had not yet gone through menopause and 273 were post-menopausal.

The table 1 presents an analysis of qualitative variables related to the symptoms of incontinence in women before and after menopause.

Calculated chi square coefficients indicate that there is a relationship between menopause and the occurrence of urgent incontinence ($\chi^2(1) = 11.08$, $p = 0.01$). The strength of the relationship between the variables analyzed using chi statistics showed a weak relationship: $\varphi = 0.15$, $p = 0.01$.

The relationship between menopause and uncontrolled urination ($\chi^2(1) = 5.64$, $p < 0.05$) was also clearly demonstrated. The strength of the relationship between the variables analyzed using chi statistics showed a weak relationship $\varphi = 0.11$, $p < 0.05$.

There are statistically significant differences between the group of women who had not yet gone through menopause and post-menopausal women in relation to the occurrence of urge incontinence ($p = 0.001$), the occurrence of SUI grade III ($p = 0.018$), the occurrence of SUI grade II ($p > 0.001$) and the amount of urination at night (nocturia); taking urination two and three times during the night into account ($p > 0.001$), the level of significance is less than 0.05.

Table 2 shows the number of symptoms of incontinence and areas of life and lifestyle for women before and after menopause.

For both groups of patients, those before and after menopause, the results of Mann Whitney's *U*-sign tests show statistically significant differences with regards to the number of symptoms and lifestyle changes due to incontinence.

For pre-menopausal women, the number of symptoms (M = 1.54) and the average number of lifestyle changes due to symptoms (M = 0.81) are lower than for post-menopausal women (M = 2.24 and M = 0.75 respectively).

Table 3 shows the number of symptoms of UI and changes in lifestyle and areas of life for women before and after menopause. There is a strong positive relationship between the number of symptoms and lifestyle changes ($rs = 0.786$; $p < 0.001$) and the number of areas of life affected by the experience of this condition, which negatively affects quality of life. ($rs = 0.789$; $p < 0.001$).

Table 1. Analysis of qualitative variables associated with symptoms of urinary incontinence for pre- and post-menopausal women

Variable	Pre-menopausal women [N = 219]	Post-menopausal women [N = 273]	Value of p (accurate, two-sided)
Urinary urgency dry [N = 200]	71 (32.4%)	129 (47.3%)	df = 1 p* = 0.001
Urinary urgency wet [N = 98]	36 (16.4%)	62 (22.7%)	df = 1 p* = 0.083
Incontinence while resting, Stress urinary incontinence grade III [N = 122]	43 (19.6%)	79 (28.9%)	df = 1 p* = 0.018
Incontinence while sneezing, coughing, Stress urinary incontinence grade I [N = 159]	61 (27.9%)	98 (35.9%)	df = 1 p* = 0.058
Incontinence while jogging, dancing, physical exercises, Stress urinary incontinence grade II [N = 133]	38 (17.4%)	95 (34.8%)	df = 1 p < 0.001
Amount of urination at night			
4×	4 (1.8%)	1 (0.4%)	
3×	12 (5.5%)	51 (18.7%)	
2×	22 (10%)	47 (17.2%)	p** < 0.001
1×	50 (22.8%)	50 (18.3%)	
0× [N = 255]	131 (59.8%)	124 (45.4%)	

*Chi test^2; **Fisher's test

Table 2. Number of symptoms of urinary incontinence and areas of life and lifestyle for pre- and post-menopausal women

	Pre-menopausal (N = 219)		Post-menopausal (N = 273)			
Characteristic	M	SD	M	SD		
Number of symptoms	1.54	2.11	2.24	2.35		
Life style	0.81	1.67	0.75	1.14		
Number of areas of life	0.60	1.04	0.56	0.71		
	Pre-menopausal (N = 219)		Post-menopausal (N = 273)			
Characteristic	Average range	Total range	Average range	Total range	U	p
Number of symptoms	225.7	49 437.0	263.1	71 841.0	25 347.0	< 0.01
Life style	232.9	51 011.0	257.4	70 267.0	26 921.0	< 0.05
Number of areas of life	235.2	51 515.0	255.5	69 763.0	27 425.0	> 0.05

Table 3. Number of symptoms of urinary incontinence and changes in lifestyle and areas of life

Correlation coefficients rho Spearman (N = 492)	Life style	Number of areas of life
Number of symptoms	0.786*	0.789*

*p < 0.001

Discussion

The International Continence Society (ICS) defines incontinence as involuntary uncontrolled leakage of urine due to dysfunction of the bladder closure apparatus. The latest ICS report indicates the need to expand the definition, to include information about additional symptoms, incidence rates, risk factors, and health and quality of life implications [3].

According to WHO and ICS, UI is an abnormality that includes any episode of involuntary urine leakage from the bladder. Urinary incontinence is considered to be one of the most important health problems of the 21st century and thus it has been classified as a social disease [9].

Central Statistical Office data collected in 2016 in Poland reveals that UI is the ninth most frequent health problem for women, reported for 15.4% of women over 60. According to WHO, a condition that affects at least 5% of the population acquires the status of a social disease. The above data clearly show that the search for optimal methods of treating incontinence and objective methods for assessing the effectiveness of UI therapy is quite a challenge for an interdisciplinary team of specialists [10].

In our own research, the most numerous groups of female patients with UI were over 50 years of age and constituted 59% of all respondents.

In a study by Jerez-Roigi et al., BMI was an important factor for all forms of UI, contributing to significant health problems associated with UI [11].

Aging is a risk factor for SUI, and the incidence of symptoms increases along with age [2]. For older people SUI may affect their daily routine, quality of life, economic condition, mental health, and can also lead to mental disorders, depression and anxiety [5].

The analysis of our own results suggests that the more symptoms of incontinence in older post-menopausal women, the greater the changes in their lifestyle and the more areas of life are affected by the condition, which impacts their quality of life.

Ajith et al. carried out an incontinence analysis for post-menopausal women. The frequency of UI was 26.47%, including SUI in 13.9% of the respondents, mixed UI in 7.2% and urgent UI was relevant for approx. 5.4%. Chronic coughing, repeated urinary tract infections, long working hours and prolonged duration of childbirth were risk factors related to UI for post-menopausal women. In our study, BMI showed no association with UI [6].

Furthermore, high BMI (above 25), which was associated with more frequent symptoms of UI in this study group, was most common among post-menopausal women, The higher the BMI value, the more areas of life were affected by UI.

The analysis of our own results showed that among post-menopausal women urge incontinence and leaking while running, dancing and exercising (SUI grade II) are more frequent than for women who have not yet gone through menopause.

Urine incontinence is an interdisciplinary problem because, apart from being directly related to medicine, it also concerns the economic and social sphere. Recent data has shown that UI in post-menopausal women is more common than other civilization diseases, such as diabetes, hypertension or depression. Statistical data show that only a third of patients have attempted any treatment. Unfortunately, people affected by this problem often believe that the only form of treatment is surgery and for obvious reasons are afraid to undergo it. Therefore, it seems necessary to develop physiotherapeutic treatment standards for the treatment of incontinence, and thus to seek the most effective and least invasive therapeutic methods [3]. Patient education seems to be even more important.

Surgical treatment should be used only when conservative treatment does not lead to any positive results or when it is recommended as first-line therapy. According to the guidelines, conservative treatment should include pharmacotherapy, physiotherapy and behavioral therapy. Numerous scientific reports indicate the effectiveness of physiotherapy in treating UI. The most recent guidelines show that physiotherapy has a positive outcome for up to 80% of patients with grade I and mixed form SUI and for 50% of patients with grade II SUI [3].

In Waetjen et al.'s study, women who visited their physician on a regular basis received more prophylactic medical appointments and had a better chance

of undertaking proper incontinence treatment. Race or ethnicity, socioeconomic differences and education were not significantly related to treatment undertaken. The occurrence of the symptoms of urge and urine leaking after sneezing and coughing is not dependent on the occurrence of menopause [12].

Symptoms such as OAB, frequent urination, and nocturia are also worth mentioning. These symptoms occur either together or individually, with different intensities. If UI occurs as well, we call it 'wet' OAB, and in its absence we call it 'dry' OAB.

The amount of urine leakage may be much higher than in the case of SUI. This problem can also occur at night. SUI has two main causes: the instability of the bladder detrusor or its being excessively excitable. This is related to dysfunction of the bladder's smooth muscle. Problems connected to UI very often affect people with neurological disorders. The most common causes leading to this condition are damage to the central nervous system (e.g., as a result of stroke, dementia, or Parkinson's disease) manifested in excessive activity of the bladder detrusor, as well as decreased capacity of the bladder, damage to the sacral section of the spinal cord of the S2–S4 vertebrae (where the center responsible for urination is located), and damage to the spinal cord above the micturition center [13].

The study showed that for middle-aged women the characteristics of long-term UI were most strongly associated with the type of treatment undertaken [13].

The analysis of the results showed that among post-menopausal women the more symptoms of incontinence that are present, the greater the lifestyle changes and the more areas of life are affected by the disease, which directly influences the quality of life. On average, pre-menopausal women experience fewer symptoms and need to make smaller lifestyle changes due to their ailments than post-menopausal women.

The data show that women with UI are more likely to postpone medical consultations for more than a decade and, consequently, the treatment of this condition is delayed. This may be related to the specificity of the condition and to the lack of social acceptance of this problem. It may also be an indication for medical service providers to implement appropriate programs, so as to inform the public about the problems connected with UI, in a similar way as for e.g., obesity, diabetes or other chronic conditions. The research carried out indicates that UI is more severe for women who have been suffering from it for a longer time. It has been shown that patients do not pay enough attention to the quality of their life before they first seek medical advice [14].

Women's knowledge of the risk factors of UI can considerably help to reduce the prevalence of this problem, which will allow the implementation of early treatment and thus improve the quality of their lives.

Conclusions

1. In post-menopausal women there is a higher incidence of urinary urgency and incontinence during physical activity.
2. After menopause there is higher incidence of nocturia.
3. In pre-menopausal women fewer symptoms and lifestyle changes are observed.
4. The more symptoms of UI, the more lifestyle changes are made and the more areas of life are affected, which influences the quality of life.

References

1. Murukesu RR, Singh DKA, Shahar S. *Urinary incontinence among urban and rural community dwelling older women: prevalence, risk factors and quality of life.* BMC Public Health. 2019; 19(Suppl 4): 529. doi: 10.1186/s12889-019-6870-6.
2. Ege S. *Management der Harninkontinenz in einer geriatrischen Rehabilitationsklinik: Globales Harninkontinenz-Assessment unter Einbeziehung des International Consultation on Incontinence Questionnaire – Urinary Incontinence Short Form (ICIQ-UI SF)* [*Management of urinary incontinence in a geriatric rehabilitation department: Global urinary incontinence assessment incorporating the International Consultation on Incontinence Questionnare - Urinary Incontinence Short Form (ICIQ-UI SF)*]. Z Gerontol Geriatr. 2018; 51(3): 301–313. doi: 10.1007/s00391-016-1173-3.
3. Kołodyńska G, Zalewski M, Rożek-Piechura K. *Urinary incontinence in postmenopausal women – causes, symptoms, treatment*. Menopause Rev / Prz Menopauzalny. 2019; 18(1): 46–50. doi: 10.5114/pm.2019.84157.
4. Ninomiya S, Naito K, Nakanishi K, Okayama H. *Prevalence and Risk Factors of Urinary Incontinence and Overactive Bladder in Japanese Women*. Low Urin Tract Symptoms. 2018; 10(3): 308–314. doi: 10.1111/luts.12185.
5. Weber-Rajek M, Radzimińska A, Strączyńska A, Strojek K, Piekorz Z, Kozakiewicz M, Styczyńska H. *A Randomized-Controlled Trial Pilot Study Examining the Effect of Pelvic Floor Muscle Training on the Irisin Concentration in Overweight or Obese Elderly Women with Stress Urinary Incontinence.* Biomed Res Int. 2019; 2019: 7356187. doi: 10.1155/2019/7356187.
6. Ajith AK, Rekha A, Duttagupta S, Murali V, Ramakrishnan D, Krishnapillai V. *Prevalence and Factors of Urinary Incontinence among Postmenopausal Women Attending the Obstetrics and Gynecology Outpatient Service in a Tertiary Health Care Center in Kochi, Kerala*. Indian J Community Med. 2019; 44(Suppl 1): S30–S33. doi: 10.4103/ijcm.IJCM_29_19.
7. Javanbakht M, Moloney E, Brazzelli M, Wallace S, Omar MI, Monga A, Saraswat L, Mackie P, Imamura M, Hudson J, Shimonovich M, MacLennan G, Vale L, Craig D. *Surgical treatments for women with stress urinary incontinence: a systematic review of economic evidence*. Syst Rev. 2020; 9(1): 85. doi: 10.1186/s13643-020-01352-3.
8. Kozłowska K, Rzymski P, Wilczak M. *Jakość życia kobiet z zaburzeniami uroginekologicznymi – przegląd piśmiennictwa.* Polski Przegląd Nauk o Zdrowiu. 2019; 1(58): 7–11. doi: 10.20883/ppnoz.2019.1.

9. Abrams P, Cardozo L, Wagg A, Wein A (eds.). *Incontinence*. 6th edition. ICI–ICS, Bristol UK, 2017.
10. Klimaszewska K. *Społeczny aspekt nietrzymania moczu u kobiet.* Pielęgniarstwo XXI wieku. 2017; 16(3): 57–61. doi: 10.1515/pielxxiw-2017-0028.
11. Jerez-Roig J, Booth J, Skelton DA, Giné-Garriga M, Chastin SFM, Hagen S. *Is urinary incontinence associated with sedentary behaviour in older women? Analysis of data from the National Health and Nutrition Examination Survey*. PLoS One. 2020; 15(2): e0227195. doi: 10.1371/journal.pone.0227195.
12. Waetjen LE, Xing G, Johnson WO, Melnikow J, Gold EB; Study of Women's Health Across the Nation (SWAN). *Factors associated with seeking treatment for urinary incontinence during the menopausal transition*. Obstet Gynecol. 2015; 125(5): 1071–1079. doi: 10.1097/AOG.0000000000000808.
13. Maziarska MA, Sobolewska A, Mościan W, Twardak I. *Nietrzymanie moczu jako narastający problem społeczny.* Piel Zdr Publ. 2020; 10(4): 1–7. doi:10.17219/pzp/125435.
14. Grzybowska ME, Wydra D, Smutek J. *Analysis of the usage of continence pads and help-seeking behavior of women with stress urinary incontinence in Poland.* BMC Women's Health. 2015; 15: 80. doi: 10.1186/s12905-015-0238-6.

Nietrzymanie moczu u kobiet po menopauzie i jego wpływ na styl i sfery życia

Streszczenie

Wprowadzenie: Nietrzymanie moczu jest globalnym problemem, co pokazują statystyki. Badanie oceniało wpływ nietrzymania moczu na styl i sfery życia u pacjentek przed - i pomenopauzalnych w południowej Polsce.
Materiał i metody: W badaniu zastosowano sondaż diagnostyczny w grupie 492 kobiet z wykorzystaniem autorskiej ankiety. Do analizy użyto: współczynniki korelacji rangowej Spearmana i Pearsona, test *t*-Studenta oraz nieparametryczne testy istotności różnic.
Wyniki: Stwierdzono istotne różnice między grupą kobiet przed i po menopauzie w kwestii występowania: parć naglących ($p = 0{,}001$), wysiłkowego nietrzymania moczu w stopniu III ($p = 0{,}018$), wysiłkowego nietrzymania moczu w stopniu II ($p > 0{,}001$) oraz w ilości oddawania moczu w nocy. Stwierdzono także zależność między liczbą objawów a zmianami stylu życia ($rs = 0{,}786$; $p < 0{,}001$) oraz liczbą sfer życia, na które wpływa choroba ($rs = 0{,}789$; $p < 0{,}001$).
Wnioski: Parcia naglące i wysiłkowe nietrzymanie moczu występują częściej po menopauzie. Kobiety przed menopauzą doświadczają mniejszej liczby objawów nietrzymania moczu i dokonują mniejszych zmian w stylu życia.
Słowa kluczowe: nietrzymanie moczu, menopauza, styl życia, sfera życia