Vaginal Atrophy and Sexual Dysfunction in Current Users of Systemic Postmenopausal Hormone Therapy

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Objective: *To determine the prevalence of vaginal atrophy and sexual dysfunction in current users of systemic postmenopausal hormone therapy (pHT).*
Material and Method: *A cross-sectional study was conducted in 97 current users of pHT at Siriraj Menopause Clinic from 2005 to 2007. Subjective symptoms of vaginal atrophy and sexual dysfunction were assessed by interviewing. Objective signs of vaginal atrophy were assessed using pelvic examination, vaginal pH, and maturation value (MV).*
Results: *The prevalence of vaginal atrophy in current users of systemic pHT determining from patient's symptoms, pelvic examination, vaginal pH, and MV were 44.3%, 15.5%, 21.6% and 8.8%, respectively. The prevalence of sexual dysfunction varied from 48.7% to 71.6% depending on types of dysfunction. There was poor association between the subjective symptoms and signs, and the objective indicators of vaginal atrophy. Among various regimens of pHT, tibolone had the lowest prevalence of subjective atrophic symptoms; estrogen-only pHT had the lowest prevalence of objective atrophic signs; and raloxifene had the highest prevalence of atrophic symptoms and signs, and sexual dysfunction. There was statistically significant association between regimens of pHT and objective indicators for vaginal atrophy (p = 0.004 for pH, and 0.000 for MV).*
Conclusion: *Current users of systemic pHT still have vaginal atrophy and sexual dysfunction which relates to regimens of pHT. The prevalence of vaginal atrophy varies depending on the assessment methods. The subjective method gives higher prevalence than the objective one does. Since the subjective symptoms of vaginal atrophy would have more adverse effect on quality of life than the objective signs do, the authors suggest that patients' complaints be used to assess factors affecting vaginal atrophy in further research.*

Keywords: *Vaginal atrophy, Sexual dysfunction, Current users, Postmenopausal hormone therapy*

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Urogenital atrophy is a common problem after menopause[1-5]. The symptoms, which include genital prolapse, urinary incontinence and sexual problems, cause substantial problems such as debility, social seclusion, psychological stress and economic burden. Community- and hospital-based surveys of urogenital and sexual problems in Thai postmenopausal women have already been conducted[6]. The evidences confirm that this problem really exists in the Thai population but with fewer self reports than it should be. Moreover, from the authors' experience at Siriraj Menopause Clinic, this problem can be found even in the patients who are taking systemic postmenopausal hormone therapy (pHT), which is usually thought to be effective as a universal remedy for any menopausal problems.

The lower genital tract are shown to be estrogen sensitive as estrogen receptors are present in the vagina, urethra, and pelvic floor muscles[7-9]. During the reproductive period in young adults, estrogen affects the morphology of both epithelium and connective tissues, which in turn maintain the

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function of pelvic organs. The healthy vaginal epithelium has a role in sexual function and prevention of vaginal infection. The strong connective tissues have a role in pelvic support. Therefore, the functions of pelvic organs would deteriorate after vaginal atrophy following estrogen deficiency.

The treatment of urogenital symptoms can be started with pHT and pelvic floor exercise[10,11]. Surgery is kept for those with severe anatomical defect when conservative medical treatment is not effective[10]. However, the urogenital and sexual problems are not a common chief complaint for Thai postmenopausal women. Thai postmenopausal women usually visit doctors with problems other than urogenital complaints. Certain numbers of them may have concealed vaginal and sexual problems. Fortunately, a standard dose of pHT can, theoretically, attenuate the majority of vaginal problems. However, these hidden problems should be disclosed so that the treatment can be attuned to the patients' satisfaction.

For postmenopausal women who already use pHT for any reasons, their treatment should be effective in all aspects in order to have them gain the maximum benefit that is worth exposing the risk of pHT. Since the main objective of taking care of post-menopausal women is to have them achieve a good quality of life, the vaginal and sexual problems should not be ignored just because of without complaint. So far this issue has not been evaluated in the Thai population. The objectives of the present study were to determine the prevalence of vaginal atrophy and sexual dysfunction, and their relationship to regimens of pHT in current users of pHT.

Material and Method

The present cross-sectional study was carried out in Siriraj Menopause Clinic, Department of Obstetrics and Gynecology, Faculty of Medicine Siriraj Hospital, which is a tertiary-care university hospital. The present study was conducted in accordance with the ethical principles of the Declaration of Helsinki. The present study protocol was approved by the Ethic Committee of the faculty.

Participants

Participants were 97 Thai postmenopausal women who were the all currently using systemic pHT and attending Siriraj Menopause Clinic from year 2005 to year 2007. All participants were interviewed using a questionnaire. Demographic characteristics including age, gravidity, parity, route of delivery, body mass index (BMI), duration of menopause, types and duration of pHT, and vaginal atrophic symptoms were recorded.

The pelvic examination was performed by all except the fourth author (SL). All necessary information including anatomy of genital organs, appearance of vaginal mucosa and discharge were recorded using a structured record form. Vaginal pH was assessed immediately after a vaginal speculum was inserted without lubrication. The pH was measured using nitrazine paper contacting to vaginal mucosa at the lateral fornix for 5 seconds. The pH value was determined by comparing the color of the paper with a colorimetric scale on an enclosed card. After measuring vaginal pH, the vaginal epithelial cells were then collected from the junction of the upper and middle third of the lateral vaginal wall using the Ayre's spatula. The cells were smeared on a glass slide, fixed in 95% alcohol and stained according to Papanicolaou technique. All slides were examined and interpreted for vaginal maturation index (MI)[12] by the same cytopathologist, who was the fourth author (SL), without prior knowledge of the patients' data. The data of MI were then used to calculate maturation value (MV) using the formula: (1 x % superficial cells) + (0.5 x % intermediate cells) + (0 x % parabasal cells)[13,14].

Assessment of vaginal atrophy

The status of vaginal atrophy was assessed using both subjective and objective methods. The subjective method[15] was determined from the patients' symptoms including leukorrhea, vaginal itching and vaginal dryness. The objective method[14,16] was determined from the findings of pelvic examination, vaginal pH, and MV. The objective vaginal atrophy was considered when vaginal pH was > 4.5 (alkaline pH) or MV was < 50.

Assessment of sexual dysfunction

Sexual dysfunction was determined using a structured questionnaire by a trained research nurse who interviewed the patients about sexual problems during the past year. The questionnaire was according to some parts of the American Psychiatric Association's Diagnosis and Statistical Manual of Mental Disorders[17]. There were four items in the sexual dysfunction section of the questionnaire, including (i) dyspareunia (presence or absence), (ii) number of sexual activities in one week, (iii) change in sexual desire (increase, no change, or decrease), and (iv) arousal difficulty (increase, no change, or reduced).

Statistical analysis

Sample size was calculated using the formula for descriptive study. When the estimated prevalence of the vaginal atrophy (p) = 50% (from the present pilot study), precision error of estimation (d) = 0.1 (or 20% of p), and alpha = 0.05, the sample size became 96 cases. Statistical analysis was performed using SPSS 10.01 (SPSS Inc). Data were presented in mean ± SD, n (%), or odds ratio (OR) and 95% confidence interval (CI). The Student's t-test and Chi-square test (or Fisher's exact test, as appropriated) or Mc Nemar Chi-square test were used to analyse continuous and categorical data, respectively. Binary logistic regression was used to determine the significant factors associated with vaginal atrophy or sexual dysfunction. All tests were two-sided, and had a significant level at a p-value < 0.05.

Results

Table 1 shows characteristics of 97 post-menopausal women (natural menopause of 52.6% and surgical menopause of 47.4%) who were current users of systemic pHT and attended Siriraj Menopause Clinic from 2005 to 2007. The mean ± SD of age, duration of menopause, duration of pHT, and body mass index were 48.4 ± 7.63 years, 5.5 ± 3.70 years, 3.8 ± 2.60 years and 24.1 ± 3.94 kg/m^2, respectively. Of all participants, 29 (29.8%) cases had vaginal smear showing infection, therefore, only 68 (70.2%) cases could be evaluated for MV. The prevalence of vaginal atrophy varied from 8.8% to 44.3% depending on assessment methods. The prevalence of sexual dysfunction varied from 48.7% to 71.6% depending on types of dysfunction.

Table 2 demonstrates association among various methods for the assessment of vaginal atrophy in current users of systemic pHT. There was poor association between the subjective (patients' symptoms or pelvic examination) and objective (vaginal pH or MV) methods with Kappa varying from -0.056 to 0.270. Nevertheless, there was a moderate association between vaginal pH and MV (Kappa = 0.356, p = 0.000).

Binary logistic regression analysis with enter model was used to determine factors associating with vaginal atrophy or sexual dysfunction. Factors entering into the model were aged (≤ 55 vs. > 55 yr), duration since menopause (≤ 5 vs. > 5 yr), duration of systemic pHT (≤ 2 vs. > 2 yr), BMI (≤ 23.5 vs. > 23.5 kg/m^2) and regimens of pHT. It was found that only duration of systemic pHT of not more than 2 years was associated with vaginal atrophy assessed by vaginal pH, OR (95% CI) = 6.391 (1.157-35.313), p = 0.033, as demonstrated in Table 3. The authors could not find any significant factor associating with vaginal atrophy determined by other methods, or with sexual dysfunction (data not shown).

Table 4 demonstrates the prevalence of vaginal atrophy or sexual dysfunction when various regimens of systemic pHT (estrogen only, estrogen-progestogen, tibolone, and raloxifene) were considered. Regarding vaginal atrophy, the lowest vs. highest prevalence of subjective atrophic symptoms were found in users of tibolone (28.6%) vs. raloxifene (66.7%); those of atrophic mucosa were tibolone (0%) vs. raloxifene (66.7%); those of alkaline pH were estrogen-only (10.3%) vs raloxifene (100.0%); and those of low MV were estrogen only (3.4%) vs. raloxifene (100.0%). Regarding sexual dysfunction, the lowest vs. highest prevalence of dyspareunia were raloxifene (0%) vs.

Table 1. Characteristics of 97 current users of postmenopausal hormone therapy (pHT)

Characteristics	Mean ± SD or n (%)
Age (yr)	48.4 ± 7.63
> 55	11 (11.30)
Duration of menopause (yr)	5.5 ± 3.70
> 5	38 (39.20)
Duration of pHT (yr)	3.8 ± 2.60
> 2	62 (63.90)
Body mass index (kg/m^2)	24.1 ± 3.94
> 23.5	46 (47.40)
Types of menopause	
Natural	51 (52.6)
Surgical	46 (47.4)
Regimens of pHT	
Estrogen only	42 (43.3)
Estrogen-progestogen	45 (46.4)
Raloxifene	3 (3.1)
Tibolone	7 (7.2)
No sexual activity	23 (23.7)
Prevalence of Pap test showing vaginal infection	29 (29.8)
Prevalence of vaginal atrophy	
Assessed by symptoms	43 (44.3)
Assessed by pelvic examination	15 (15.5)
Assessed by vaginal pH	
Include infection (n = 97)	40 (41.2)
Exclude infection (n = 68)	21 (21.6)
Assessed by maturation value (n = 68)	6 (8.8)
Prevalence of sexual dysfunction (n = 74)*	
Dyspareunia	35 (47.3)
Decrease in sexual desire	53 (71.6)
Arousal difficulty	52 (70.3)
Sexual activity < 1 time/week	36 (48.7)

* Women without sexual partners were excluded

Table 2. The association among various methods for the assessment for vaginal atrophy in current users* of postmenopausal hormone therapy

Methods of vaginal atrophy assessment	Objective methods (n = 68)			
	Assessed by vaginal pH		Assessed by MV	
	Kappa	p-value+	Kappa	p-value+
Symptoms				
Leukorrhea	0.175	0.233	-0.056	0.017
Itching	0.203	0.108	-0.027	0.096
Dryness	0.106	0.432	0.153	0.000
Pelvic findings				
Pallor	0.127	0.366	0.150	0.013
Petechiae	-0.056	1.000	-0.046	0.289
Friability	0.033	0.009	-0.014	1.000
Dryness	0.075	0.520	0.222	0.079
Loss of crease	0.206	0.082	0.270	0.227
Vaginal pH	NA	NA	0.356	0.000
Maturation value	0.356	0.000	NA	NA

* Patients with Pap test showing infection (n = 29) were excluded
+ The data were analyzed using McNemar Chi-square test
NA = not applicable

Table 3. Factors associating with vaginal atrophy assessed by vaginal pH in current users* of postmenopausal hormone therapy (pHT)

Factors	Vaginal atrophy, n (%)		p-value+
	Yes (n = 21)	No (n = 47)	
Age > 55 years	3 (14.3)	2 (4.3)	0.866
Duration of menopause > 5 years	7 (33.3)	18 (38.3)	0.316
Duration of pHT ≤ 2 years	4 (19.0)	20 (42.6)	0.033
BMI > 23.5 kg/m^2	12 (57.1)	18 (28.3)	0.823
Regimens of pHT			0.116
Estrogen only	3 (14.3)	26 (55.3)	
Estrogen-progestogen	14 (66.6)	17 (36.2)	
Raloxifene	2 (9.5)	0 (0)	
Tibolone	2 (9.5)	4 (8.5)	

* Women with Pap test showing vaginal infection were excluded
+ Data were analyzed using binary logistic regression with enter model

estrogen-progestogen (58.8%); those of decrease in sexual desire were tibolone (66.7%) vs. raloxifene (100.0%); those of arousal difficulty were tibolone (66.7%) vs. raloxifene (100.0%); and those of sexual activity < 1 time/week were estrogen-progestogen (29.4%) vs. raloxifene (100.0%).

Table 5 demonstrates the association between sexual dysfunction and various types of vaginal atrophy in current users of systemic pHT. The highest prevalence of sexual dysfunction including decrease in sexual desire, arousal difficulty, and sexual activity < 1 time/week was found in women with vaginal atrophy evaluated by maturation value; whereas that of dyspareunia was found in women with vaginal atrophy evaluated by subjective symptoms. Sexual dysfunction including dyspareunia, decrease in

Table 4. Prevalence of vaginal atrophy and sexual dysfunction in current users of various regimens of postmenopausal hormone therapy (pHT)

Assessment methods	Regimens of pHT	n	Prevalence, n (%)	p-value*
Vaginal atrophy				
Symptoms	Estrogen only	42	16 (38.1)	0.422
	Estrogen-progestogen	45	23 (51.1)	
	Raloxifene	3	2 (66.7)	
	Tibolone	7	2 (28.6)	
Pelvic examination	Estrogen only	42	7 (16.7)	0.058
	Estrogen-progestogen	45	6 (13.3)	
	Raloxifene	3	2 (66.7)	
	Tibolone	7	0 (0)	
Vaginal pH[+]	Estrogen only	29	3 (10.3)	0.004
	Estrogen-progestogen	31	14 (45.2)	
	Raloxifene	2	2 (100.0)	
	Tibolone	6	2 (33.3)	
Maturation value[+]	Estrogen only	29	1 (3.4)	0.000
	Estrogen-progestogen	31	2 (6.5)	
	Raloxifene	2	2 (100.0)	
	Tibolone	6	1 (16.7)	
Sexual dysfunction[#]				
Dyspareunia	Estrogen only	32	13 (40.6)	0.199
	Estrogen-progestogen	34	20 (58.8)	
	Raloxifene	2	0 (0)	
	Tibolone	6	2 (33.3)	
Decrease in sexual desire	Estrogen only	32	24 (75.0)	0.727
	Estrogen-progestogen	34	23 (67.6)	
	Raloxifene	2	2 (100.0)	
	Tibolone	6	4 (66.7)	
Arousal difficulty	Estrogen only	32	23 (71.9)	0.793
	Estrogen-progestogen	34	23 (67.6)	
	Raloxifene	2	2 (100.0)	
	Tibolone	6	4 (66.7)	
Sexual activity < 1 time/wk	Estrogen only	32	16 (50.0)	0.271
	Estrogen-progestogen	34	10 (29.4)	
	Raloxifene	2	2 (100.0)	
	Tibolone	6	3 (50.0)	

* Data were analyzed using Chi-square test

[+] Women with Pap test showing vaginal infection were excluded

[#] Women without sexual partners were excluded

sexual desire, and arousal difficulty had statistically significant association with subjective atrophic symptoms (p = 0.000, 0.030, and 0.017, respectively). Only the sexual activity < 1 time/week had statistically significant association with objective atrophic sign (p = 0.019).

Discussion

Vaginal atrophy is a common problem after menopause and its severity increases with duration of missing period[8,16]. Consequently, women with atrophic vagina may have problems including sexual dysfunction, pain, bleeding, and loss of vaginal elasticity. The degree of estrogen deficient vaginal atrophy can be evaluated subjectively from the patients' symptoms and/or vaginal examination, and objectively from vaginal pH testing and/or vaginal cytology[12,14,18,19].

In the present study, the authors found that the prevalence of vaginal atrophy varied depending

Table 5. Sexual dysfunction and various types of vaginal atrophy in current users* of postmenopausal hormone therapy (pHT)

Sexual dysfunction	Types of vaginal atrophy	n	Prevalence, n (%)	p-value+
Dyspareunia	Symptoms	74	25 (73.5)	0.000
	Pelvic examination	74	6 (66.7)	0.387
	Vaginal pH#	68	9 (52.9)	0.992
	Maturation value#	68	3 (50.0)	0.887
Decrease in sexual desire	Symptoms	74	28 (82.4)	0.030
	Pelvic examination	74	7 (77.8)	0.527
	Vaginal pH#	68	11 (64.7)	0.768
	Maturation value#	68	5 (83.3)	0.478
Arousal difficulty	Symptoms	74	28 (82.4)	0.017
	Pelvic examination	74	17 (77.8)	0.469
	Vaginal pH#	68	9 (52.9)	0.282
	Maturation value#	68	5 (83.3)	0.374
Sexual activity < 1 time/wk	Symptoms	74	16 (47.1)	0.868
	Pelvic examination	74	6 (66.7)	0.348
	Vaginal pH#	68	9 (52.9)	0.446
	Maturation value#	68	5 (83.3)	0.019

* Women without sexual partners were excluded
+ Data were analyzed using Chi-square test
# Women with Pap test showing vaginal infection were excluded

on the assessment methods. In current users of systemic pHT, the prevalence of atrophic symptoms (*i.e.* vaginal dryness, itching, or leukorrhea) were higher than that of atrophic signs (*i.e.* atrophic mucosa, high vaginal pH, or low MV). Although low MV has been used as a surrogate marker for low systemic hormonal status[14], the authors found that it had poor correlation with the atrophic symptoms as it had very modest correlation with only the symptom of vaginal dryness but not with other atrophic symptoms. The present finding was in line with the previous report by Davida et al[20]; although the report by Capewell et al demonstrated an opposite result[21]. As expected, the authors found moderate correlation between vaginal pH and MV similar to previous report[22]. Nevertheless the authors found a high discrepancy between the prevalence of high vaginal pH (41.2%) and that of low MV (8.8%). Such discrepancy was partly due to the presence of vaginal infection (29.8%) in the present study population. Since vaginal pH is increased by infection or recent coitus, some authorities suggested the use of amine test to exclude these conditions before interpreting vaginal pH[19,23]. However, the exclusion of vaginal infection would affect the real prevalence of vaginal atrophy since atrophic vagina is predisposed to vaginal infection[21,23]. The authors used Pap test to exclude vaginal infection in the present study and such exclusion decreased the prevalence of atrophic pH from 41.2% to 21.6%.

It is known that duration of menopause, duration of pHT and BMI can interfere with the prevalence of vaginal atrophy in postmenopausal women because they affect estrogen level[22]. The authors found that duration of systemic pHT of not more than 2 years was the only significant factor associated with vaginal atrophy evaluated by vaginal pH. However, we did not find the association between the aforementioned factors and vaginal atrophy assessed by other methods. This might be due to small sample size causing inadequate power to detect the association, or the association really did not exist in the current users of systemic pHT.

Vaginal atrophy is one of the predisposing factors of sexual dysfunction[1,24,25]. The authors found that sexual dysfunction including dyspareunia, decrease in sexual desire, and arousal difficulty had statistically significant association with subjective atrophic symptoms but the prevalence of sexual dysfunction was the highest in women with vaginal atrophy evaluated by maturation value. After regression analysis, the authors did not find any factor significantly affecting sexual dysfunction in the current users of pHT. However sexual dysfunction

has multifactorial causes including physiological, psychological, emotional and social factors[1,6,11]. Management should include complete evaluation and appropriate treatment for all factors.

The main stay for the treatment of hypo-estrogenic related problems is pHT. The authors found that regimens of pHT affected prevalence of vaginal atrophy and sexual dysfunction. The most favorable pHT regimen on subjective atrophy was tibolone, and that on objective atrophy was estrogen-containing pHT, whereas the worst effect on both subjective and objective atrophy was raloxifene. The present findings were harmonious with the previous ones[12,16,26,27]. However, the present study had not enough power to demonstrate statistically significant association between regimens of pHT and subjective atrophy. During the reproductive period, estrogen affects morphology of vaginal epithelium, vascularity, connective tissues, and micro flora, therefore the pHT regimens containing estrogen can certainly improve objective vaginal atrophy[7,8]. Tibolone is a synthetic product acting on estrogen, progesterone, and androgen receptors so it can improve vaginal atrophic symptoms[28]. Since the estrogenic effect of tibolone was less than that of estrogen, its effect on objective atrophy was undoubtedly less pronounced. Unexpectedly, raloxifene had the highest prevalence of atrophic symptoms and signs because it is a selective estrogen receptor modulator (SERM) which has antiestrogenic effect on lower urogenital tract[28].

In conclusion, postmenopausal Thai women who are current users of systemic pHT still have vaginal atrophy and sexual dysfunction which relates to regimens of pHT. Since there was poor correlation between subjective and objective atrophy, and the subjective symptoms would have more adverse effect on quality of life than the objective signs do, the authors suggest that patients' complaints be used to assess factors affecting vaginal atrophy in further researches. In addition, more researches regarding optimal regimen, route, and dosage of pHT is needed for the management of these problems.

Conflict of interest

All of the authors are fulltime staff members of the Faculty of Medicine Siriraj Hospital, Mahidol University and declare no conflict of interest.

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References

1. Barlow DH, Cardozo LD, Francis RM, Griffin M, Hart DM, Stephens E, et al. Urogenital ageing and its effect on sexual health in older British women. Br J Obstet Gynaecol 1997; 104: 87-91.
2. Brown JS, Grady D, Ouslander JG, Herzog AR, Varner RE, Posner SF. Prevalence of urinary incontinence and associated risk factors in postmenopausal women. Heart & Estrogen/ Progestin Replacement Study (HERS) Research Group. Obstet Gynecol 1999; 94: 66-70.
3. Iosif CS, Bekassy Z. Prevalence of genito-urinary symptoms in the late menopause. Acta Obstet Gynecol Scand 1984; 63: 257-60.
4. Jackson S, Shepherd A, Brookes S, Abrams P. The effect of oestrogen supplementation on post-menopausal urinary stress incontinence: a double-blind placebo-controlled trial. Br J Obstet Gynaecol 1999; 106: 711-8.
5. Samuelsson E, Victor A, Svardsudd K. Determinants of urinary incontinence in a population of young and middle-aged women. Acta Obstet Gynecol Scand 2000; 79: 208-15.
6. Tungphaisal S, Chandeying V, Sutthijumroon S, Krisanapan O, Udomratn P. Postmenopausal sexuality in Thai women. Asia Oceania J Obstet Gynaecol 1991; 17: 143-6.
7. Heimer G, Samsioe G. Effects of vaginally delivered estrogens. Acta Obstet Gynecol Scand Suppl 1996; 163: 1-2.
8. Hextall A. Oestrogens and lower urinary tract function. Maturitas 2000; 36: 83-92.
9. Iosif CS, Batra S, Ek A, Astedt B. Estrogen receptors in the human female lower uninary tract. Am J Obstet Gynecol 1981; 141: 817-20.
10. Grady D, Brown JS, Vittinghoff E, Applegate W, Varner E, Snyder T. Postmenopausal hormones and incontinence: the Heart and Estrogen/ Progestin Replacement Study. Obstet Gynecol 2001; 97: 116-20.
11. Lindgren R, Berg G, Hammar M, Zuccon E. Hormonal replacement therapy and sexuality in a population of Swedish postmenopausal women. Acta Obstet Gynecol Scand 1993; 72: 292-7.
12. Gupta S, Kumar N, Singhal N, Manektala U, Jain S, Sodhani P. Cytohormonal and morphological alterations in cervicovaginal smears of post-menopausal women on hormone replacement therapy. Diagn Cytopathol 2006; 34: 676-81.
13. Hammond DO. Cytological assessment of climacteric patients. Clin Obstet Gynaecol 1977; 4:

49-70.
14. Meisels A. The maturation value. Acta Cytol 1967; 11: 249.
15. Greendale GA, Zibecchi L, Petersen L, Ouslander JG, Kahn B, Ganz PA. Development and validation of a physical examination scale to assess vaginal atrophy and inflammation. Climacteric 1999; 2: 197-204.
16. Galhardo CL, Soares JM Jr, Simoes RS, Haidar MA, Rodrigues de Lima G, Baracat EC. Estrogen effects on the vaginal pH, flora and cytology in late postmenopause after a long period without hormone therapy. Clin Exp Obstet Gynecol 2006; 33: 85-9.
17. American Psychaitric Association. Diagnostic and statistical manual of mental disorders DSM-IV. 4th ed. Washington, DC: American Psychaitric Association; 2000.
18. Kaufman SA. Limited relationship of maturation index to estrogen therapy for menopausal symptoms. An analysis of 200 patients. Obstet Gynecol 1967; 30: 399-407.
19. Nilsson K, Risberg B, Heimer G. The vaginal epithelium in the postmenopause - cytology, histology and pH as methods of assessment. Maturitas 1995; 21: 51-6.
20. Davila GW, Singh A, Karapanagiotou I, Woodhouse S, Huber K, Zimberg S, et al. Are women with urogenital atrophy symptomatic? Am J Obstet Gynecol 2003; 188: 382-8.
21. Capewell AE, McIntyre MA, Elton RA. Post-menopausal atrophy in elderly women: is a vaginal smear necessary for diagnosis? Age Ageing 1992; 21: 117-20.
22. Roy S, Caillouette JC, Roy T, Faden JS. Vaginal pH is similar to follicle-stimulating hormone for menopause diagnosis. Am J Obstet Gynecol 2004; 190: 1272-7.
23. Cauci S, Driussi S, De Santo D, Penacchioni P, Iannicelli T, Lanzafame P, et al. Prevalence of bacterial vaginosis and vaginal flora changes in peri- and postmenopausal women. J Clin Microbiol 2002; 40: 2147-52.
24. Gregersen N, Jensen PT, Giraldi AE. Sexual dysfunction in the peri- and postmenopause. Status of incidence, pharmacological treatment and possible risks. A secondary publication. Dan Med Bull 2006; 53: 349-53.
25. Omu AE, al Qattan N. Effects of hormone replacement therapy on sexuality in post-menopausal women in a mideast country. J Obstet Gynaecol Res 1997; 23: 157-64.
26. Anderson GL, Limacher M, Assaf AR, Bassford T, Beresford SA, Black H, et al. Effects of conjugated equine estrogen in postmenopausal women with hysterectomy: the Women's Health Initiative randomized controlled trial. JAMA 2004; 291: 1701-12.
27. Vardy MD, Lindsay R, Scotti RJ, Mikhail M, Richart RM, Nieves J, et al. Short-term urogenital effects of raloxifene, tamoxifen, and estrogen. Am J Obstet Gynecol 2003; 189: 81-8.
28. Rymer J, Chapman MG, Fogelman I, Wilson PO. A study of the effect of tibolone on the vagina in postmenopausal women. Maturitas 1994; 18: 127-33.

การศึกษาความชุกของภาวะเหี่ยวฝ่อในอวัยวะระบบสืบพันธุ์และปัญหาทางเพศสัมพันธ์ในสตรีวัยหมดระดูที่ได้รับฮอร์โมนทดแทนในคลินิกวัยทอง โรงพยาบาลศิริราช

สุชาดา อินทวิวัฒน์, พิชัย ลีระศิริ, มณี รัตนไชยานนท์, สมศักดิ์ ไหลเวชพิทยา, ประสงค์ ตันมหาสมุทร, กิติรัตน์ เตชะไตรศักดิ์, สุรศักดิ์ อังสุวัฒนา

จุดประสงค์: *เพื่อศึกษาถึงความชุกของภาวะเหี่ยวฝ่อของอวัยวะในระบบสืบพันธุ์ และปัญหาทางเพศสัมพันธ์ในสตรีที่หมดระดู และได้รับฮอร์โมนทดแทน*

วัสดุและวิธีการ: *การศึกษาในรูปแบบตัดขวาง ในสตรีวัยหมดระดูที่ได้รับฮอร์โมนทดแทน ที่คลินิกวัยทอง โรงพยาบาลศิริราช จำนวน 97 คน ระหว่างปี พ.ศ. 2548 ถึงปี พ.ศ. 2550 สตรีวัยหมดระดูจะได้รับสัมภาษณ์ตามแบบสอบถาม ซึ่งบอกถึงอาการของภาวะเหี่ยวฝ่อในอวัยวะระบบสืบพันธุ์ และปัญหาทางเพศสัมพันธ์ สำหรับการวัดอาการแสดงของภาวะเหี่ยวฝ่อใช้วิธีการตรวจภายใน การตรวจค่าความเป็นกรด-ด่างในช่องคลอด และการตรวจเซลล์เยื่อบุช่องคลอดโดยวิธี Papanicolaou เพื่อดู maturation index (MI) และคำนวณค่า maturation value (MV)*

ผลการศึกษา: *ความชุกของภาวะเหี่ยวฝ่อแบ่งตามอาการจากการซักถาม การตรวจภายใน ค่ากรด-ด่างในช่องคลอด และ MV เป็น 44.3%, 15.5%, 21.6% และ 8.8% ตามลำดับ ความชุกของปัญหาทางเพศสัมพันธ์พบได้ 48.7% ถึง 71.6% ขึ้นอยู่กับชนิดของปัญหา พบว่าอาการและอาการแสดงของภาวะเหี่ยวฝ่อมีความสัมพันธ์กันน้อย เมื่อวิเคราะห์ตามชนิดของฮอร์โมนพบว่า สตรีที่ใช้ tibolone มีอาการของภาวะเหี่ยวฝ่อ และปัญหาทางเพศสัมพันธ์ ในอัตราต่ำที่สุด สตรีที่ใช้เอสโตรเจนมีอาการแสดงของภาวะเหี่ยวฝ่อต่ำที่สุด และสตรีที่ใช้ raloxifene มีอาการ ของภาวะเหี่ยวฝ่อและปัญหาทางเพศสัมพันธ์สูงที่สุด การใช้ฮอร์โมนแต่ละชนิดมีผลต่ออาการแสดง ของภาวะเหี่ยวฝ่ออย่างมีนัยสำคัญทางสถิติ ($p = 0.004$ สำหรับค่าความเป็นกรด-ด่าง และ $p = 0.000$ สำหรับการตรวจ MV)*

สรุป: *สตรีวัยหมดระดู ที่ได้รับฮอร์โมนทดแทนยังคงมีภาวะเหี่ยวฝ่อในอวัยวะระบบสืบพันธุ์ และปัญหาทางเพศสัมพันธ์ซึ่งสัมพันธ์กับชนิดของฮอร์โมน สำหรับความชุกของภาวะเหี่ยวฝ่อที่พบขึ้นอยู่กับวิธีการประเมิน พบว่าการประเมินอาการจากการซักถามพบความชุกของภาวะเหี่ยวฝ่อมากกว่าการประเมินจากการตรวจ เนื่องจากอาการที่พบอาจส่งผลต่อการดำรงชีพในปัจจุบัน ดังนั้นควรมีการศึกษาเพิ่มเติมเพื่อหาปัจจัยอื่นที่มีผลต่อความรู้สึกของผู้ป่วยในเรื่องภาวะเหี่ยวฝ่อในอวัยวะระบบสืบพันธุ์*