International Journal of Women's Health

Dovepress
open access to scientific and medical research

Open Access Full Text Article

REVIEW

Treating dyspareunia caused by vaginal atrophy: a review of treatment options using vaginal estrogen therapy

This article was published in the following Dove Press journal:
International Journal of Women's Health
20 August 2009
Number of times this article has been viewed

SA Kingsberg[1]
S Kellogg[2]
M Krychman[3]

[1]University Hospitals Case Medical Center, Case Western Reserve University Cleveland OH, USA; [2]The Pelvic and Sexual Health Institute of Philadelphia, Drexel University College of Medicine, Philadelphia, USA; [3]Southern California Center for Sexual Health and Survivorship Medicine, Newport Beach, CA, USA

Abstract: Vulvovaginal atrophy (VVA) and dryness are common symptoms of the decline in endogenous production of estrogen at menopause and often result in dyspareunia. Yet while 10% to 40% of women experience discomfort due to VVA, it is estimated that only 25% seek medical help. The main goals of treatment for vaginal atrophy are to improve symptoms and to restore vaginal and vulvar anatomic changes. Treatment choices for postmenopausal dyspareunia resulting from vulvovaginal atrophy will depend on the underlying etiology and might include individualized treatment. A number of forms of vaginal estrogen and manner of delivery are currently available to treat moderate to severe dyspareunia caused by VVA. They all have been shown to be effective and are often the preferred treatment due to the targeted efficacy for urogenital tissues while resulting in only minimal systemic absorption. Both healthcare professionals and patients often find it difficult to broach the subject of sexual problems associated with VVA. However, with minimal effort to initiate a conversation about these problems, healthcare providers can provide useful information to their postmenopausal patients in order to help them each choose the optimal treatment for their needs and symptoms.

Keywords: dyspareunia, postmenopausal vulvovaginal atrophy, vaginal estrogen therapy

Introduction

In 2009, most women will live more than one third of their lives after menopause. Many of these women, who expect to maintain their health and good quality of life over their postmenopausal decades, consider sexual health to be of paramount importance. Although hot flashes are the most commonly identified hallmark of menopause and aging, many women also suffer with a constellation of vulvovaginal symptoms as a result of lowered estrogen. Further, while hot flashes will likely subside over time, regardless of whether estrogen therapy (ET) is used, vulvovaginal symptoms are characteristically progressive and unlikely to resolve without treatment.[1] It is estimated that 10% to 40% of postmenopausal women experience discomfort due to vulvovaginal atrophy that requires treatment, but only 25% of these women seek treatment.[1]

Vulvar and vaginal atrophic changes along with dryness burning and irritation of the vaginal and vulvar lining can be severe and debilitating enough to affect not only a woman's personal comfort in her daily activities but also her ability to have pleasurable pain-free sexual intercourse. Approximately 40% of women with vaginal atrophy report dyspareunia.[1] Dyspareunia is defined as persistent, recurrent urogenital pain occurring before, during, or after sexual intercourse (or penetration). As a result, these symptomatic women, who consider sexuality to be an important component to perceived quality of life,[2,3] are not achieving the quality of life they hope for and expect.

Correspondence: Sheryl A Kingsberg
Mailstop 5034, 11100 Euclid Avenue, Cleveland OH 44106, USA
Tel +1 216 844-5078
Fax +1 216 844-3718
Email sheryl.kingsberg@uhhospitals.org

Maintaining sexual health falls under the purview of healthcare providers, particularly those who specialize in reproductive medicine. In 2000, an international meeting organized by the World Health Organization (WHO) and the Pan American Health Organization (PAHO) resulted in the publication of a document entitled "Promotion of Sexual Health".[4] According to this document, health professionals are required to obtain adequate training in human sexuality: "Health professionals specializing in reproductive health should have a more in-depth training in human sexuality issues than the general health practitioner".[4] Despite this mandate, many healthcare providers have failed to recognize and address the importance of these medical health issues and are not assessing these vulvovaginal symptoms in postmenopausal women. Personal embarrassment and time constraints are often cited as the common reasons for not addressing sexual concerns. Their patients are continuing to suffer painful ramifications of vulvar and vaginal atrophy and experiencing painful intercourse. Further, they are unaware of restorative treatments available, and often feel as if they must endure in distressing silence.

The purpose of this article is to discuss considerations in the diagnosis and management of VVA that results in dyspareunia, focusing on the use of local ET. While local ET is one of the most effective and widely available treatment options for postmenopausal vulvovaginal atrophy (VVA), it is requested by and/or offered to a relatively small number of postmenopausal women.[1]

Vulvovaginal symptoms resulting from declining endogenous estrogen

With the decrease in endogenous production of estrogen as a result of menopause, either natural or surgically induced, tissues can become atrophic. Estradiol, the primary form of estrogen produced by a woman's ovary during her reproductive years, plays an essential role in maintaining the elasticity and health of her genital tissues. Declining levels increase tissue fragility and the risk for vaginal and urinary infections, irritation, dryness, urogenital pain, and the probability of vaginal tissue trauma.[5,6] Atrophic vulvovaginitis is characterized by genital mucosa that has compromised elasticity, decreased moisture, and compromised integrity as well as tissue erythema and inflammation.[7,8]

It does not take long for the effects of estrogen insufficiency to surface, symptoms often occurring within 12 months of the cessation of menstruation, either as a result of natural or surgical menopause. These symptoms also re-occur within 12 months of discontinuation of postmenopausal hormone therapy.[9] Atrophy associated dyspareunia is often associated with the sexual distress and other complaints of sexual dysfunction.[10,11] Reactive lowered desire is common as well as direct impact on the marital relationship.

Table 1 lists the estrogen-deficient atrophic changes that results from tissue that cannot remain lubricated. This tissue is at risk for damage during sexual penetration or intercourse and therefore may lead to dyspareunia.[5,6,8,12,13]

Physical examination

In addition to obtaining a thorough history including general medical, surgical, family, lifestyle, gynecologic and sexual history, a comprehensive pelvic examination of the vulva and vagina should be completed. This exam may reveal signs of vulvovaginal atrophy such as:

- Appearance of hypopigmented, smooth, non-elastic, thin and/or shiny epithelium;
- Thinning or sparse pubic hair;
- Patchy erythema;
- Introital contractures/involution;
- Labial fusion or decreased size and integrity;
- Plaques;
- Clitoral shrinkage; retracted prepuce which can expose the clitoris to trauma;
- Petechiae and/or microfissures may also be present if atrophy has progresses for months or years and has not been treated.[9,12,15]

Laboratory testing may also provide evidence of atrophy. Vaginal pH testing exceeding pH 5.0 can be an indication of estrogen deprivation. Further, microscopy, which may show bacterial and/or fungal growth; and/or a vaginal maturation index (VMI) which shows increased ratios of intermediate and parabasal cells compared to superficial cells can provide confirmation of physical examination findings.[6,15] These diagnostic tests may also act to exclude

Table 1 Atrophic changes associated with estrogen loss

- Vaginal canal shortens and narrows
- Decline in the quantity and quality of vaginal secretions
- Decline in collagen, adipose and water-retaining ability of vulva
- Vaginal walls become thinner, less elastic, and pale with loss of rugation
- Vaginal surface becomes friable with petechiae, ulcerations, and bleeding often occurring after minimal trauma (as this cycle is repeated, adhesions may develop between touching surfaces)
- Prepuce of the clitoris atrophies, and the clitoris loses its protective covering and is more easily irritated

Reprinted with permission from Mehta A, Bachmann G. Vulvovaginal complaints. *Clin Obstet Gynecol*. 2008;51(3):549–555.[14] Copyright © 2008 Wolters Kluwer Health.

other possible causes of vulvovaginal atrophy that is not menopause related such as infection, other hypoestrogenic states, allergic reaction, trauma, benign and malignant tumors or other medical conditions.[1] Some sexual medicine experts advocate the addition of vulvoscopy to the diagnositic work up of a woman suffering from painful intercourse. The importance to rule out underlying vulvar pathology including but not limited to lichen sclerosus, lichen planus and potential malignant morphological changes is important as the vuvlar symptomology can mimic many dermatological conditions.

Treatment

The main goals of treatment for vaginal atrophy are to improve symptoms and to restore vaginal and vulvar anatomic changes.[1] Treatment choices for postmenopausal dyspareunia resulting from vulvovaginal atrophy will depend on the underlying etiology and might include individualized treatment of inflammatory conditions, improving vulvar hygiene, educational guidance and lifestyle modification.[14] The NAMS position statement on the role of local vaginal estrogen asserts that non-hormonal lubricants and moisturizers in combination of regular sexual activity should be considered first-line therapies. Many times women find these products inadequate. Moisturizers and lubricants can contain additives including colors, flavors, bactericides and spermacides, which may affect epithelial integrity. If symptomatology is unresolved, then prescription minimally absorbed local vaginal ET may be considered.[1] For VVA that is the result of a hypoestrogenic state (ie, postmenopause), treatment is likely to be supplementation of estrogen using either exogenous systemic or local estrogen. It is also important to note that in the new era of minimal dose for shortest time for systemic hormone therapy, the newer lower doses do not preclude atrophic vaginal symptomatology. It is estimated that up to 10% of women on new lower dose systemic hormones suffer from atrophic vaginal symptoms and may benefit from local therapy. However, exogenous systemic estrogen may be medically contraindicated (or simply unwanted) in some women leaving local vaginal estrogen treatment as the most suitable option. A Cochrane Review of local estrogens for vaginal atrophy shows that vaginally administered ET significantly improves vaginal cytomorphology and atrophic vaginal symptoms.[16] Local hormone therapy (Table 2) has been approved by the US Food and Drug Administration for use in moderate to severe vulvovaginal atrophy, dyspareunia, vasomotor symptoms and osteoporosis prevention.[17] Current practice recommendations from professional organizations including the North American Menopause Society (NAMS) and The American College of Obstetrics and Gynecology (ACOG) advise that treatment choices should be individualized and that moderate to severe symptoms of VVA be treated with the lowest effective dose of ET for the shortest amount of time to achieve and maintain satisfactory results.[1,18,19]

Selecting a treatment option

In a health care environment, patient choices are often affected by the influences of other individuals. This occurs when information is given to patients by health care professionals, associates or other family members who all have their own treatment experiences and opinions. Decision making is further complicated by patient characteristics and their perception of control over the treatment plan and how important this control is to her. Others maybe influenced by the media, public opinion or concern over potential malignancy. Satisfaction with a decision is maximized when there is congruence between the ultimate preference of the patient and the actual treatment chosen. Therefore, it is important to provide not only the best treatments available, but also to assist a patient in making the best possible choices for her own unique circumstances.[20] In recent studies, postmenopausal women report the greatest satisfaction

Table 2 Vaginal estrogen therapy for postmenopausal use in the United States[1]

Composition	Product name	Dosing
Vaginal creams 17β-estradiol conjugated estrogens (formerly conjugated equine estrogens)	Estrace® Vaginal Cream Premarin® Vaginal Cream	Initial: 2–4 g/d for 1–2 wk Maintenance: 1 g/d (0.1 mg active ingredient/g) 0.5–2 g/d (0.625 mg active ingredient/g
Vaginal rings 17β-estradiol	Estring®	Device containing 2 mg releases 7.5 μg/d for 90 d
Vaginal tablet estradiol hemihydrate	Vagifem®	Initial: 1 tablet/d for 2 wk Maintenance: 1 tablet twice/wk (tablet containing 25.8 μg estradiol hemihydrate equivalent to 25 μg of estradiol)

Modified from the role of local vaginal estrogen for treatment of vaginal atrophy in postmenopausal women: 2007 position statement of The North American Menopause Society. *Menopause*. 2007;14(3):357–369.[1]

with VVA treatment when they were actively involved in decision making and when they perceived that their health care professionals were well informed, unbiased and well educated about treatment options.[21–24] As noted above, first-line management for VVA should include non-hormonal vaginal lubricants and moisturizers (Table 3) and if ineffective then options include several forms of local therapy. After being fully educated about the available choices (Tables 2 and 3), a woman and her healthcare provider can develop a treatment plan which reflects her goals for and comfort level with varying therapeutic options.

Lubricants and moisturizers

Vaginal lubricants can be a treatment option for women who require additional lubrication (ie, water-soluble jelly or water-based gel) in order to avoid discomfort specifically during sexual activity. These lubricants can be used externally on the labia or clitoris, at the vaginal opening or on a penis or other object intended for insertion in order to facilitate intromission (Table 3). The effectiveness of these types of products can be supplemented by the addition of intravaginal moisturizers (ie, polycarbophil; oil-based capsules) which are inserted into the vagina 1 to 2 times weekly to keep the vagina moist and pH balanced on a daily basis. While these vaginal lubricants and moisturizers are reasonable first-line therapies for VVA, their effectiveness in resolving vulvovaginal irritation is adequate only while they are on the tissue and may not be adequate to resolve VVA symptoms.[1,7,15] Some women complain of increased symptomatology with these products as they can be irritants. Others find them messy, inconvenient and expensive. Additives should be used with caution and the postmenopausal woman should exercise caution when considering a moisturizer or lubricant that contains bactericides, spermicides, warming or other enhancers; these maybe problematic for the sensitive epithelium.

Minimally absorbed vaginal estrogen therapies

A number of forms of vaginal estrogen and manner of delivery are currently available to treat moderate to severe dyspareunia caused by VVA. They all have been shown to be effective and are often the preferred treatment because of the targeted efficacy for urogenital tissues while resulting in only minimal systemic absorption, and thus potentially reducing exposure of estrogen to breast and endometrium tissue compared to systemic ET. Vaginal estrogen is currently available in several modalities:

- A 25.8 μg micronized estradiol hemihydrate vaginal tablet (Vagifem®; Novo Nordisk Inc). Newer lowered dose of 10 μg have also been shown effective in treating vaginal atrophy
- 3 month sustained-release silastic ring which contains 2 mg micronized estradiol and 75 μg of estradiol every 24 hours (Estring®; Pfizer)
- Creams: Estradiol Cream (Estrace®; Warner Chilcott Laboratories), a conjugated estrogen cream (Premarin® Vaginal Cream, 0.625 mg CE/g; Wyeth Pharmaceuticals Inc.,) with a newly approved low-dose formulations of 0.5 g biweekly conjugated estrogen cream (biweekly) for the specific indication of moderate to severe dyspareunia.

All three forms of local estrogen have been shown to be equally effective in reducing the subjective symptoms of vaginal atrophy (dryness, irritation and dyspareunia).[1]

Minimally absorbed local vaginal ETs have been associated with lower risks of adverse events compared with systemically acting oral formulations of ET. Local ET may also provide

Table 3 Types of lubricants

Base	Ingredients	Safe with latex?	Staining?	Comments
Water	Deionized water, glycerin, propylene glycol	Yes	No	Rarely causes irritation but dries out with extended activity
Petroleum	Mineral oil, petroleum jelly, baby oil	No; do not use with condoms, diaphragms, or cervical caps	Yes	Irritating to vagina
Natural oil	Avacado, olive, peanut, corn	Yes	Yes	Safe (unless peanut allergy) and nonirritating to vagina
Silicone	Silicone polymers	Yes	No	Nonirritating to vagina, long-lasting and waterproof

Reproduced with permission from Hutcherson HY, Kingsberg SA, Krychman ML, et al. A positive approach to female sexual health: A summary report. *Female Patient*. 2009;(Suppl April):1–6.[25] Copyright © 2009 Quadrant Health Com Inc.

some relief of menopause-associated symptoms such as hot flushes, night sweats and sleep disturbances.[16,24,27–29]

Most women, including both naturally menopausal and women with surgically induced menopause, will experience relief of vaginal atrophy symptoms within the first few weeks of starting therapy, although complete restoration of genital tissue integrity and comfort may take up to 4 to 6 weeks. Since the use of restorative therapy for VVA and resulting dyspareunia may be necessary for several years, use of local minimally absorbed estrogen over time may be preferable to systemic therapy (which has also been approved for the treatment of VVA).[1]

Safety

A Cochrane review of local estrogen options reported no significant differences among them in terms of endometrial thickness, hyperplasia or percentage of adverse events.[16] The most frequent reported adverse effects associated with vaginal ET are vaginal bleeding and breast pain. However, research suggests that the incidences of these adverse events, endometrial proliferation or hyperplasia (assessed by direct sampling) are very low over 12 months.[23–31] Since there is lack of very long term safety data for vaginal ET, in cases where a woman is having symptoms such as spotting or breakthrough bleeding, a complete evaluation including endometrial sampling and transvaginal ultrasound should be done. Undiagnosed vaginal bleeding should be completely assessed and evaluated. The addition of progesterone to a woman with a uterus solely on minimally applied local estrogen products remains controversial.

Invariably the question arises as to whether it is safe to use local estrogen treatment in cancer survivors. This is a particularly difficult but hugely important question to address because many cancer survivors, regardless of the type of cancer, suffer from VVA either caused by chemotherapy, the chemically induced menopause caused by the chemotherapy, surgically induced menopause due to removal of the ovaries, radiation side-effects or other treatment effects. The use of minimally absorbed local estrogen products has not been sufficiently studied for long-term safety in women with hormonally sensitive tumors. However, their use can be implemented in women without hormone sensitive tumors. Since women and healthcare professionals alike are extremely sensitized to the topic of estrogen and cancer, the option is often dismissed without any discussion. Individualized assessment and a detailed discussion of the potential risks and benefits should always occur between a postmenopausal cancer survivor and her healthcare provider.

Strategies for evaluating complaints of dyspareunia

Regardless of how brief or how detailed the initial assessment, a number of communication strategies and skills will enhance the efficiency and accuracy of diagnosis and treatment suggestions.

Many healthcare professionals find that the most difficult part of assessing sexual concerns is to know how, when and where to address the topic. Establishing rapport and putting patients at ease are critical first steps and, in general help to improve overall patient satisfaction. The healthcare professional sets the tone for the conversation. Therefore if he/she is comfortable and at ease with sexual terminology and content then patients are more likely to also feel comfortable reporting their sexual concerns.

In a realistic attempt to encourage all practitioners to address sexual function in their patients, even the most basic assessment can be useful and can be limited to a minimal number of specific questions with minimal time involvement. Opening the topic by mentioning the importance of assessing sexual function as part of your usual history and physical with *all* patients may put patients at ease. Then simply asking 1 or 2 questions about her genital and sexual health will be sufficient to begin a dialogue. For example, one can ask a general question such as "what concerns to you have about your genital or sexual health would you like to talk about?" – or a more targeted question such as "are you experiencing any pain, burning or itching associated with sexual activity?"[7,8]

Elements to include when evaluating dyspareunia

Table 4 lists questions that will help identify the essential components of a sexual complaint. These questions

Table 4 Questions to include in a sexual assessment[32–34]

How does the patient describe the problem?
How long has the problem been present?
Was the onset sudden or gradual?
Is the problem specific to a situation/partner or is it generalized?
Were there likely precipitating events (biologic or situational)?
Are there problems in the woman's primary sexual relationship (or any relationship in which the sexual problem is occurring)?
Are there current life stressors that might be contributing to sexual problems?
Are there problems in desire, arousal or orgasm?
Does the partner have any sexual problems?

help draw out the patient's perceptions of the problem, the timeline, and current health problems that might be affecting sexual function. These questions also help identify which components of the sexual response or other areas of function are compromised by pain. This information can help determine etiology and provide the basis for treatment considerations (eg, education, psychotherapy, medication).

Conclusion

Healthcare professionals can no longer claim lack of available approved treatments as an excuse for avoiding the discussion of vulvovaginal atrophy and dyspareunia with their patients. Those clinicians who are well informed about the causes and treatment options are in the best position to comfortably and efficiently initiate a conversation about these problems. They can then provide useful information to their postmenopausal patients in order to help them each choose the optimal treatment for their needs and symptoms which take into account a patient's medical history, perceived quality of life and other relevant individualized information.

Disclosures

Dr Kingsberg: consultant for Wyeth and Boehringer Ingelheim and honorarium from Johnson and Johnson; Dr Krychman: consultant for Wyeth, Boehringer Ingelheim, JNC and Hologic, speaker for Wyeth and Warner Chilcott; Dr Kellog: consultant for Wyeth, Boehringer Ingelheim and Semprae Laboratories, speaker for Wyeth and Warner Chilcott.

References

1. The role of local vaginal estrogen for treatment of vaginal atrophy in postmenopausal women: 2007 position statement of The North American Menopause Society. *Menopause*. 2007;14(3): 357–336.
2. Kingsberg SA. Maintaining and evaluating quality of life after menopause. *The Female Patient*. 1996; May Suppl.
3. Utian WH, Janata JW, Kingsberg SA and Patrick LD. Determinants and Quantification of Quality of Life after Menopause: The Utian Menopause Quality of Life Score. In Aso T, Yamahara T, Fujimoto S, editors. *Menopause at the Millenium*. Parthenon Publishing, New York; 2000. p. 00–00.
4. World Health Organization. Education and treatment in human sexuality: the training of health professionals. Report of a WHO meeting. Q Corporation, 49 Sheridan Avenue, Albany, NY 12210, 2000.
5. Nyirjesy P. Postmenopausal vaginitis. *Curr Infect Dis Rep*. 2007;9:480–484.
6. Bachmann G, Eberg GA Burd ID. Vulvovaginal complaints. In: Lobo RA, editor. *Treatment of the Postmenopausal Woman: Basic and Clinical Aspects*. Philadelphia PA: Lippincott Williams & Wilkins; 1999. p. 195–201.
7. Society of Obstetricians and Gynaecologists of Canada. SOGC clinical practice guidelines. The detection and management of vaginal atrophy. Number 145, May 2004. *Int J Gynaecol Obstet*. 2005;88(2): 222–228.
8. Katz A. When sex hurts: menopause-related dyspareunia. Vaginal dryness and atrophy can be treated. *Am J Nurs*. 2007;107(7): 34–6, 39.
9. Freedman M. Vaginal pH, estrogen and genital atrophy. *Menopause Management*. 2008;17(4):9–13.
10. Utian WH. Psychosocial and socioeconomic burden of vasomotor symptoms in menopause: a comprehensive review. *Health Qual Life Outcomes*. 2005;3:47.
11. Levine KB, Williams RE, Hartmann KE. Vulvovaginal atrophy is strongly associated with female sexual dysfunction among sexually active postmenopausal women. *Menopause*. 2008;15(4 Pt 1): 661–666.
12. Kelley C. Estrogen and its effect on vaginal atrophy in post-menopausal women. *Urol Nurs*. 2007;27(1):40–45.
13. Carcio H. Urogenital atrophy. A new approach to vaginitis diagnosis. *Adv Nurse Pract*. 2002;10(10):40–8, 51.
14. Mehta A, Bachmann G. Vulvovaginal complaints. *Clin Obstet Gynecol*. 2008;51(3):549–555.
15. Bachman GA, Nevadunsky NS. Diagnosis and treatment of atrophic vaginitis. *Am Fam Physician*. 2000;61(10):3090–3096.
16. Suckling J, Lethaby A, Kennedy R. Local oestrogen for vaginal atrophy in postmenopausal women. *Cochrane Database Syst Rev*. 2003/ 2005;(4):CD001500.
17. Woodcock J. Bridging what is known and what is not known: FDA perspective and response. US FDA CDER [serial online] 2002; http:// www.fda.gov.drugs. Accessed January 25, 2009.
18. Grady D, Sawaya GF. Discontinuation of postmenopausal hormone therapy. *Am J Med*. 2005;118(suppl 12B):163–165.
19. American College of Obstetricians and Gynecologists Task Force on Hormone Therapy. Genitourinary tract changes. *Obstet Gynecol*. 2004;104(4 Suppl):56S–61S.
20. Coulton CJ. Decision making in support: patient perceptions and preferences. *J Clin Epidemiol*. 1990:43(Suppl):51S–54S.
21. Pace DT. Menopause: studying the research. *Nurse Pract*. 2006;31(8): 17–23.
22. Smith PE. Menopause assessment, treatment, and patient education. *Nurse Pract*. 2005;30(2):32–43.
23. Theroux R, Taylor K. Women's decision making about the use of hormonal and nonhormonal remedies for the menopausal transition. *J Obstet Gynecol Neonatal Nurs*. 2003;32(6):712–723.
24. Aber CS, Arathuzik D, Righter AR. Women's perceptions and concerns about menopause. *Clin Excell Nurse Pract*. 1998;2(4):232–238.
25. Hutcherson HY, Kingsberg SA, Krychman ML, et al. A positive approach to female sexual health: A summary report. *Female Patient*. 2009;(Suppl April):1–6.
26. Estrogen and estrogen with progestin therapies for postmenopausal women. US FDA CDER [serial online] 2008; http://www.fda.gov. drugs. Accessed January 25, 2009.
27. Robb-Nicholson C. By the way, doctor. My doctor prescribed a low-dose vaginal estrogen cream, applied twice a week, for atrophic vaginitis. I've heard this dose is so low that it carries no health risk. Do you agree? *Harv Womens Health Watch*. 2007;15(3):7.
28. Martin KA, Manson JE. Approach to the patient with menopausal symptoms. *J Clin Endocrinol Metab*. 2008;93(12):4567–4575.
29. Bachman G, Bouchard C, Hoppe D, et al. Efficacy and safety of low-dose regimens of conjugated estrogens cream administered vaginally. *Menopause*. 2009; In Press.
30. Weisberg E, Ayton R, Darling G, et al. Endometrial and vaginal effects of low-dose estradiol delivered by vaginal ring or vaginal tablet. *Climacteric*. 2005;8(1):83–92.
31. Simon J, Nachtigall L, Gut R, Lang E, Archer DF, Utian W. Effective treatment of vaginal atrophy with an ultra-low-dose estradiol vaginal tablet. *Obstet Gynecol*. 2008;112(5):1053–1060.

32. Basson R. Taking the sexual history, part 1: Eliciting the sexual concerns of your patient in primary care. *Med Aspects Hum Sex*. 2000;1(1):13–18.
33. Plaut SM, Graziottin A, Heaton JPW. FastFacts: Sexual Dysfunction. Health Press, 2004.
34. Kingsberg SA, Janata JW. Female sexual disorders: Assessment, diagnosis and treatment. *Urol Clin N Am*. 2007;34(4):497–506.