



# Women's Sexual Health Journal

## Editorial

Unless you have been living in a cave, you have probably noticed that every 10 seconds on television, you are bombarded with commercials about pills designed to help men with their most prevalent sexual problem, all ending with the suggestion that the viewer "talk to a doctor" about their sexual concerns.

Because no pill has yet been designed specifically to help women with their sexual concerns, women don't receive that same message about talking to their doctor. Though women taken as a whole have, on average, more sexual concerns than do men, the majority of them do not bring up their concerns with their physician.

In this issue, "Discussing FSD with Your Healthcare Provider," by Camille Stengel, B.A. and Lisa Martinez, R.N., B.S.N.M., J.D. and executive director of the Women's Sexual Health Foundation, share the results of a survey conducted on TWSHF website. The survey was designed to discover women's attitudes about discussing sexual dysfunction with their physician.

This important survey suggests that the responsibility to initiate discussion is with the physician. Moreover, if women are to be encouraged to comfortably talk about sex, then the physician needs to be comfortable with the topic. To me, the survey really speaks to the need for comfort with our sexuality and its expression at all levels. Somehow, the current sex education approach, which I call "the two P's: plumbing and prevention," doesn't seem to be serving adult women who may be in committed relationships and want real answers to real concerns, like, "Where did my libido go?" and "Why did sex start to hurt?"

This issue of the journal also includes the second part of "Management of Sexual Dysfunction in Postmenopausal Breast Cancer Patients Taking Adjuvant Aromatase Inhibitor Therapy." This excellent article provides practical approaches that lay readers

can discuss with their physicians, although of course the hope is that the physician is already aware of pharmacological and non-pharmacological treatment of women with female sexual dysfunction (FSD).

Lastly, if women are embarrassed to bring up FSD with their physicians, I would guess they are even more reluctant to bring it up to their psychotherapist. Recently I had a lovely woman in my office that had been married and divorced a few times. All her life, she had suffered from depression, as well as an aversion to sex. In all the years she was in and out of therapy, not one therapist ever asked her about her sex life. Now she is in an emotionally healthy relationship for the first time, and she is slowly working towards achieving sexual health as well.

Many psychotherapists have only a few hours of training in human sexuality. If you need a multidisciplinary approach to your sexual concerns, please seek help from a qualified sex therapist, who can collaborate with your physician and other healthcare providers. Sexual health is achievable, when you have the appropriate support.

*Editor—Stephanie Buehler, MPW, PsyD, CST*

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## Discussing FSD with Your Healthcare Provider

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Lisa Martinez RN, BSNM, JD*

Female sexual dysfunction, known as FSD, is a relatively common health issue for women. The Mayo Clinic states that as many as four in ten women may suffer from FSD.<sup>1</sup> Studies have shown that FSD and other sexual problems have been linked to a “diminished quality of life, low physical satisfaction, low emotional satisfaction, and low general happiness”<sup>2</sup>. Other health experts agree that “[f]emale sexual dysfunctions (FSDs) are very prevalent, multifaceted problems that continue to be under-recognized and undertreated”<sup>3</sup> The Women’s Sexual Health Foundation (TWSHF) believes that awareness, education, and communication need to be raised about FSD to both women suffering and to their medical practitioners.

Most healthcare providers do not address FSD with their female patients during regular medical visits. One study concluded that over half of their respondents were not queried about their sexual health during their visit with their practitioner.<sup>4</sup> In order to investigate this matter further, TWSHF designed a survey that inquired about perceptions, emotional responses, and possible discussion of FSD during visits with their medical practitioner. The 18 item survey was posted on TWSHF’s website. The survey contained demographic information and questions on women’s beliefs specific to communication with their provider and care relating to female sexual health problems. A total of 391 women responded to the survey. Women from ages 21 to 80 took the survey, and most of the women were well educated (college or above).

Throughout the questionnaire, 45% of respondents referred to their gynecologist when asked about how their “healthcare provider” communicated with them about their sexual health, with an additional 20% referencing their family doctor. Although 72% of women would be comfortable if their healthcare provider initiated a conversation about any sexual health problem(s), and 73% preferred that their healthcare provider initiated this discussion, less than 9% of the respondents stated their healthcare provider always initiated questions about sexual health difficulties during an annual office visit. Furthermore, 72% answered that they believed their healthcare provider would be comfortable with them initiating a discussion concerning their sexual health problem(s).

As well, 32% of respondents did not believe that their healthcare provider would be knowledgeable of the appropriate tests that would need to be administered in able to assess their sexual health problems. Another study inquiring about sexual health discussions in healthcare found that “clinicians avoid

discussing sexual concerns even when a problem is suspected, citing lack of knowledge and skills as a common reason”<sup>5</sup>. Female patients were hesitant to discuss sexual health because of fear of their practitioners’ lack of education on the subject, and practitioners affirmed this fear by being unknowledgeable.

Another possible reason for these participant conclusions is because of the lack of discussion of FSD. 51% of women stated that their healthcare provider had never initiated any sort of questions about sexual health problems with them during their visit. Similar responses are seen in other studies related to women discussing their sexual health with their healthcare professional.<sup>6</sup> One study concluded that during a patient visit, “the physician seemed embarrassed about the topic” and as a result the patient felt “inhibited in discussing their sexual concerns”<sup>7</sup>. Embarrassment, however, is not the only factor at play that inhibits a lack of in depth discussion about FSD. TWSHF survey found that 19% of participants answered that when they did discuss sexual health concerns with their medical practitioner they had been told that their sexual health problems were psychological. Such an answer is not only simplifying a complicated problem, it is also belittling the patients’ sexual concerns by telling her it is just “all in her head”.

Although FSD is common, and women would prefer that their healthcare provider discuss and assess sexual health difficulties with them, this is rarely done on a routine basis. Medical practitioners need to be aware of the commonality of FSD in women and learn techniques to stimulate discussion about such issues in a way that does not alienate the patient. One study found that “ubiquity-style questions may make patients more comfortable about answering a sexual problem question by noting the universality of various sexual experiences”<sup>8</sup>. As well, medical practitioners need to become better versed in different symptoms, ailments, and solutions for FSD.

Education of women is needed to empower them to navigate the healthcare system to effectively have their sexual healthcare concerns addressed, in particular when these concerns are related to medical conditions. Such education can be achieved through further research about FSD in the academic and medical communities, and presenting the findings in a way accessible to the public. Such knowledge on both women and on medical practitioner’s part is crucial, for not only “physicians are clearly a resource for women seeking sexual health information”<sup>9</sup> but “sexuality is an important part of one’s health [and] sexual activity and good health appear to be related”<sup>10</sup> Professionals in every practice pertaining to sexual well being, from physicians to counselors, can play a vital role in educating and supporting women navigating through the healthcare system.

*(continued on page 3)*

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### Part Two

## Management of sexual dysfunction in postmenopausal breast cancer patients taking adjuvant aromatase inhibitor therapy

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### 5. Pharmacologic Therapies For FSD

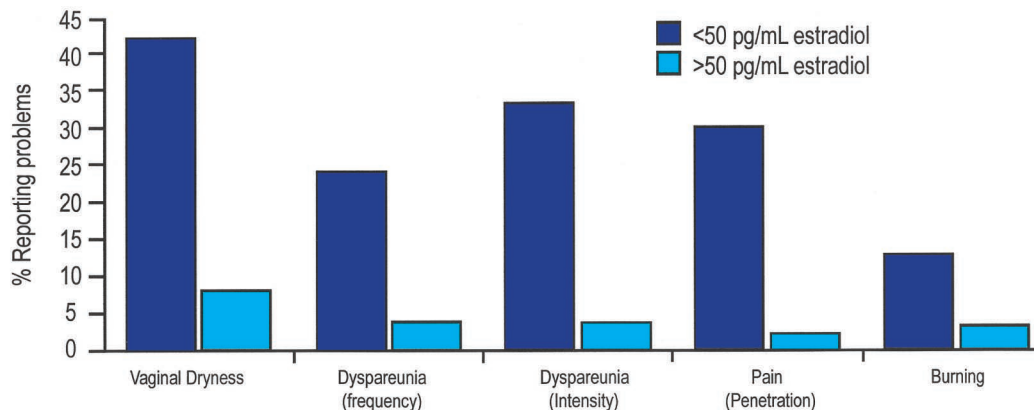
The principles for managing symptoms in women with breast cancer follow the strategies seen in the care of postmenopausal patients with sexual health problems<sup>66</sup>. Multidisciplinary interventions must be considered as needed, and modification of reversible causes includes sex therapy, lubricants, altering medications, modifications in lifestyle, and physical therapy for pelvic floor disorders. At that point, first-line therapies should be administered upon diagnosis, and after needs, expectations, risks, benefits, and costs have been clarified. More invasive second-line therapies are initiated only with failures or insufficient response<sup>66</sup>.

#### 5.1 HSDD

Data suggest that estrogen-deficient postmenopausal women experience an increased incidence of sexual dysfunction and that estrogen or

FIGURE 3

Association between lower estrogen levels and increased prevalence of sexual problems<sup>67,68</sup>.



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estrogen–progestin therapy (et/ept) may improve or correct the problem (Figure 3)<sup>67,68</sup>.

Although the benefits and risks of hormone therapy in 50- to 80-year-old “normal/healthy” women (that is, without breast cancer) continue to be debated, the Women’s Health Initiative<sup>69</sup> provided no information about the risks of et/ept use in menopausal women with breast cancer. However, two independent randomized controlled trials begun in 1997 studied the question of hormone replacement therapy (hrt) following a diagnosis of breast cancer, and they reached two diametrically opposed conclusions. The habits (Hormonal Replacement Therapy—Is It Safe?) trial was stopped after a median of just 2.1 years because of a statistically significantly higher recurrence of breast cancer in the treated group [relative risk (rr): 3.3; 95% confidence interval (ci): 1.5 to 7.4]<sup>70</sup>. However, the Stockholm Randomized Trial found no significant increase in breast cancer in the treated group at a median of 4.1 years (rr: 0.82; 95% ci: 0.35 to 1.9)<sup>71</sup>.

Low-dose, local vaginal estrogen therapy [Premarin cream (Wyeth Pharmaceuticals, Philadelphia, PA, U.S.A.), Vagifem tablets (Novo Nordisk, Princeton, NJ, U.S.A.), Estring (Pfizer Canada), or if available, the more poorly absorbed estriol vaginal cream] is not uncommonly prescribed and may be considered (with the permission of the oncologist) for highly symptomatic er-positive early breast cancer patients who are unresponsive to non-hormonal therapy. However, a decision to use systemic hormone therapy must be undertaken with considerable caution.

Given the uncertainty of the reason for the discordant conclusions of the habits and Stockholm trials, despite the efficacy and numerous benefits of et/ept demonstrated in the early, otherwise healthy, menopausal woman, a decision to use systemic menopausal hormone therapy in a woman with early breast cancer should be made only after careful consideration of the alternatives and consultation with the entire treatment team—including the patient.

In the absence of a biochemical measure that clearly identifies who can be treated, the Endocrine Aspects of Female Sexual Dysfunction Committee suggests that exogenous testosterone should be considered only after other causes of hsdd such as depression, relationship problems, and ill health have been excluded. The Committee recommends comprehensive risk–benefit analysis and informed consent of patients before therapeutic management of hsdd with hormonal therapies is contemplated (summary in Table III)<sup>45</sup>.

A 2005 position statement from the North American Menopause Society (nams) indicates that postmenopausal women may be candidates for testosterone therapy if they present with symptoms of decreased sexual desire associated with personal distress and if they have no other identifiable cause for their sexual concerns<sup>48</sup>. Testosterone therapy is not

recommended in the absence of concomitant estrogen therapy, because data on the safety and efficacy of testosterone therapy in women not using concomitant estrogen are lacking. Another nams recommendation is that postmenopausal women undergo laboratory testing for testosterone levels only to monitor for supraphysiologic levels before and during therapy<sup>48</sup>. As noted earlier, any hormonal therapy in the patient treated for breast cancer must be undertaken only with extreme caution.

### 5.2 Androgen Therapies and Breast Cancer

A net decline in testosterone levels occurs following natural menopause. In the premenopausal female, 50% of the circulatory levels of testosterone represent equal contributions from the ovaries and the adrenal glands, but with increasing age, the contributions of the adrenal glands, the peripheral tissue, and the ovaries to dehydroepiandrosterone (dhea) sulphate remain about the same, while the contribution of the ovaries to the testosterone pool increases significantly. Nevertheless, overall levels of androgen decrease because of the precipitous decline in production of

TABLE III

*Systemic hormonal therapies for management of hypoactive sexual desire disorder<sup>45</sup>*

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Vaginal estrogen preparations improve vaginal lubrication and reduce dyspareunia and urogenital atrophy.
Systemic estrogen or estrogen–progestogen therapy assists with vasomotor and other menopausal symptoms.
Use of estrogen with or without progestogen therapy after breast cancer is indicated only for women with moderate to severe symptoms under informed patient consent and with careful monitoring for cardiovascular, thrombotic, and breast cancer risks.
Transdermal delivery of testosterone and its derivatives for temporary increase in libido, arousal, and orgasm in postmenopausal women already treated with systemic estrogen.
Testosterone therapy exceeding 6 months is indicated only if sexual function improves.
Patients with a family history of diabetes or significant obesity should be monitored for lipid profile and fasting insulin and glucose levels while on hormonal therapies.
Tibolone may be an alternative to estrogen–androgen therapies for treating postmenopausal sexual dysfunction.

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testosterone pro-hormones from the adrenal gland—to the extent that the ovaries cannot correct the deficit<sup>72</sup>. The symptoms of low androgen in women are reported to be similar to those in men: a decrease in libido, energy, or sense of wellbeing, and decreased lubrication and arousability even in the presence of estrogens<sup>73</sup>. In the absence of estrogen, and after aromatase conversion, androgens elicit an er-mediated stimulation.

Few studies exist to confirm the benefit of intervention with androgens in breast cancer patients or in postmenopausal women at increased risk for the disease. In one study, during a mean follow-up of 5.8 years, no increase in breast cancer was seen in a group of postmenopausal women when testosterone was added to HRT<sup>74</sup>. A prospective, double-blind study investigated the use of a transdermal nicotine patch (300 µg daily) in postmenopausal women, together with continuous combined estradiol 2 mg and norethisterone acetate 1 mg and randomized additional treatment with either a testosterone or a placebo patch in equal numbers<sup>75</sup>. The findings indicated that the addition of testosterone to a common estrogen–progestogen regimen inhibits the stimulatory effects of hormones on breast cell proliferation<sup>76</sup>.

In a randomized placebo-controlled study investigating dhea 50 mg daily over a period of 12 months, a significant increase in sexual satisfaction and a possible increase in sexual interest and activity was demonstrated in older (ages 70–79 years), but not younger (ages 60–69 years) women<sup>77</sup>. In the absence of any long-term studies with dhea, a risk of ultimate aromatisation to estrogen may have gone undetected, especially in patients already receiving ais for breast cancer. However, one author suggests that “the fear that testosterone [will] be aromatised to estrogen is more paranoia than reality” considering the low levels of conversion to estrone and estradiol that make any risk of breast cancer extremely unlikely<sup>73</sup>. Furthermore, testosterone has been used off-label, without serious safety problems, in postmenopausal women for decades to the benefit of properly selected subjects. Nonetheless, inconclusive results and significant methodologic limitations pertaining to the use of testosterone leave the evidence with regard to breast cancer risk uncertain<sup>78</sup>, and therefore testosterone is not currently recommended for women with breast cancer. Discussion is required before treating this patient population with testosterone therapy.

A recent randomized placebo-controlled phase III crossover clinical trial randomly assigned 150 partnered postmenopausal women with a history of cancer who were reporting a decrease in sexual desire to a 10-mg equivalent testosterone dose in a cream base [Vanicream (PSI, Rochester, MN, U.S.A.), 2% testosterone] or placebo for 4 weeks each. It was demonstrated that women who were on active testosterone cream had higher serum levels of

bioavailable testosterone than did the women on placebo, but the average intra-patient libido change from baseline to weeks 4 and 8 was similar in both arms<sup>79</sup>. No adverse effects on estrogen levels or liver function were noted in this short-term study. The authors suggested that the increased testosterone level did not translate into improved libido possibly because women in the study were estrogen-depleted. In addition to the possible significance of the placebo effect in this study, the study’s null results highlight the complex relationship of biologic, emotional, and cognitive inputs to the perception of desire<sup>80</sup> and still provide no information about long-term safety of androgen use in women. The fda has already requested more long-term safety data on the testosterone patch Intrinsa (Procter & Gamble Pharmaceuticals, Egham, U.K.) for medical treatment of FSD in menopausal women.

Although naturally postmenopausal women with symptoms of testosterone deficiency despite conventional hormone therapy may benefit from androgen treatment, studies have yet to be done to see this benefit in cancer survivors. Any long-term testosterone therapy requires close monitoring for skin and hair problems, including seborrhea, acne, hirsutism, and androgenic alopecia, and for voice changes. Monitoring for biochemical changes and for free and bioavailable testosterone levels and sex-hormone binding globulin is desirable<sup>45</sup>.

### 5.3 Phosphodiesterase Inhibitors for FSAD

Phosphodiesterase V inhibitors (pde5is) work through the nitric oxide–cyclic guanosine monophosphate pathway to relax genital cavernosal smooth muscle in erectile tissues in both men and women following sexual arousal. The pde5is currently used for the treatment of erectile dysfunction in men include sildenafil (Viagra: Pfizer Canada), vardenafil (Levitra: Bayer, Toronto, ON), and tadalafil (Cialis: Eli Lilly and Company, Toronto, ON). For aroused women, pde5is induced tumescence of the smaller erectile structures, which may or may not make a difference to subjective sexual response. Sildenafil (50 mg, adjustable to 100 mg or 25 mg) has been shown to increase vaginal lubrication, genital sensation, ability to achieve orgasm, and overall satisfaction in a 12-week double-blind placebo-controlled study in 202 postmenopausal women with FSAD without concomitant hsdd or contributory emotional, relationship, or historical abuse issues<sup>81</sup>. In another study using a modelling and simulation framework based on telephone sexual activity diary data, a dose-dependent effect was observed with sildenafil cit-rate in patients with FSAD.<sup>82</sup> However, in a large, multicentre, placebo-controlled trial examining the efficacy and safety of sildenafil 10–100 mg taken 1 hour before sexual activity in two groups of women (estrogen-replete,  $n = 577$ ; estrogen-deficient,  $n = 204$ ) with FSAD, no

(Continued on page 6)

increase in sexual arousal was noted at any treatment dose. In addition, side effects included headache, flushing, rhinitis, nausea, visual disturbance, and dyspepsia<sup>83</sup>.

Large, long-term clinical trials to firmly establish the efficacy and safety of these drugs in women have not yet been carried out as they have been in men. But a randomized controlled trial using the technique of vaginal photoplethysmography to study genital vasocongestion demonstrated reduced latency to orgasm in a subgroup of postmenopausal women with acquired genital FSAD who were taking sildenafil.<sup>84</sup> There are also studies showing that sildenafil can reverse antidepressant-induced FSAD<sup>85</sup>. However, sildenafil is contraindicated for women with recent myocardial infarction or stroke, active coronary ischemia, or episodes of heart failure, and in those receiving nitrates<sup>86</sup>.

Topical prostaglandin E1 (alprostadil) works differently than PDE5IS do, directly relaxing erectile smooth muscle through the cyclic adenosine monophosphate system and therefore not requiring nitric oxide release from the nerve endings (that is, sexual arousal) to work. In men, prostaglandin E1 is highly effective in intracavernosal penile injection therapy, but less successful when used as an intraurethral suppository or as a penile topical application for erectile dysfunction. Preliminary studies in postmenopausal women with FSAD indicate that, as compared with placebo, topical application of alprostadil to the genitalia in doses of 400 µg produced reports of significantly greater physical and emotional arousal and sexual satisfaction<sup>87</sup>; however, these results have been inconsistent and not reproducible in other trials<sup>88</sup>. The results of ongoing clinical studies are needed to further define the role of topical alprostadil in the treatment of FSAD.

#### 5.4 Bupropion for Sexual Desire, Arousal, Orgasm, and Satisfaction

Sustained-release bupropion (Wellbutrin SR: GlaxoSmithKline, Mississauga, ON) 300 mg daily used for 4 weeks has been shown to increase sexual desire and frequency of sexual activity in patients with antidepressant-induced sexual dysfunction, as measured by the Changes in Sexual Functioning Questionnaire<sup>89</sup>. However, in non-depressed premenopausal women, bupropion significantly increased sexual arousal, orgasm completion, and sexual satisfaction, but not desire<sup>90</sup>. In depressed women, extra-long-release bupropion (Wellbutrin XL) 300 mg daily was found not to change sex functioning scores and had the same antidepressant effect as venlafaxine XR, but without the adverse effects on sexual function of the latter medication<sup>91</sup>. Bupropion can also be added to an antidepressant regimen to attempt to ameliorate some

induced side effects. Further studies are needed in view of the risk of seizures, especially in women with eating disorders.

#### 5.5 Alternative Therapies

A number of dietary supplements have been investigated for the treatment of FSD. Nutritional supplements containing ginseng, ginkgo, l-arginine, damiana, vitamins, and minerals have also been reported to improve sexual desire, vaginal dryness, clitoral sensation, and frequency of sexual activity in normal female volunteers<sup>92</sup>, but not in women with cancer or receiving AI therapy.

Meanwhile, researchers are exploring the efficacy and safety of the dopaminergic agonist apomorphine (sublingual, intranasal) and of melanocortin-stimulating hormone (intranasal) in the treatment of hsdd. For FSAD, studies are underway into selected vascular smooth muscle relaxants, including nitric oxide pathway agents such as arginine and the prostaglandin E1 topical cream described earlier<sup>93,94</sup>.

### 6. Gynecologic Management of Sexual Pain From Atrophic Vaginitis and Vaginal Atrophy

Approximately 40% of postmenopausal women have symptoms of atrophic vaginitis, and yet fewer than 25% of them seek medical help. Although the condition is attributable to estrogen deficiency, anti-estrogenic medications such as tamoxifen (and possibly AIs) or medical or surgical conditions that result in decreased levels of estrogen can exacerbate the signs of decreased vaginal lubrication, followed by other vaginal and urinary symptoms aside from concomitant infection (Table IV)<sup>95</sup>.

As the vaginal mucosa becomes thinner and drier because of declining estradiol levels (from 120 ng/L at perimenopause to about 18 ng/L after menopause), vaginal discomfort, dryness, burning, itching, and dyspareunia may occur and usually progress with time. Inflammation of the vaginal epithelium may contribute to urinary symptoms such as increased frequency, urgency, dysuria, incontinence, and recurrent infections in addition to pelvic laxity and stress incontinence. In addition, changes in vaginal pH and vaginal flora may predispose postmenopausal women to urinary tract infection and *Candida* outbreaks<sup>96</sup>.

#### 6.1 Evaluation for Infection in Vaginal Atrophy

Vulvar itching, dyspareunia, vulvar and cervical erythema, vaginal inflammation (with or

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without cervical inflammation), and often a thick (curdled), white, non-malodorous vaginal secretion are typical of candidiasis. Bacterial vaginosis is characterized by a creamy or yellow secretion and a fishy odour, especially when KOH is added to a hanging drop specimen. *Trichomonas vaginalis* is associated with cervical lesions, friability, microhemorrhagic zones, and frothy, greenish, foul-smelling vaginal secretions<sup>97</sup>.

A definitive diagnosis of vaginal infection (most commonly *Candida albicans*, bacterial vaginosis, or *T. vaginalis*) is made in only about one third of postmenopausal women who present with symptoms of vaginitis. In most of these patients, the symptoms are the result of estrogen deficiency or nonaerobic bacterial infections, local irritants, allergens, or dermatologic conditions<sup>98</sup>.

To increase the likelihood of diagnosing vaginal or urogenital atrophy, physicians should routinely inquire about symptoms such as vaginal irritation or dryness, decreased lubrication with coitus, or recurrent bladder infections. In addition, postmenopausal women should be encouraged to report these symptoms if they do occur, because all are readily correctable, but in the absence of treatment they have the potential to adversely affect quality of life.

In postmenopausal women, the underlying risk factors for chronic or recurrent vulvovaginal candidiasis include immunosuppression caused by medication or disease, hrt, and uncontrolled diabetes mellitus<sup>99</sup>. The physiologic effects of chronic stress (such as diagnosis and treatment of breast cancer) inhibit cellular immune responses that are relevant to cancer prognosis<sup>100</sup>. In fact, physical wellbeing, mood, and coping effort may affect, and in turn be affected by, markers of activation of the cellular immune system, as

**TABLE IV**

*Factors that elevate the risk of developing atrophic vaginitis*<sup>95</sup>

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1. **Hormonal:**  
Estrogen deficiency (menopausal or premenopausal); decreased ovarian functioning; postpartum loss of placental estrogen; increased prolactin level during lactation
  2. **Illness:**  
Immunologic abnormalities
  3. **Therapies:**  
Radiation, chemotherapy, oophorectomy  
**Anti-estrogen medications:**  
Tamoxifen, danazol, oxyprogesterone, leuprolide, nafarelin
  4. **Lifestyle:**  
Smoking; stopping sexual activity altogether
- 

observed at 3 and 6 months of adjuvant therapy in the International Breast Cancer Study Group adjuvant clinical trials<sup>101</sup>.

Postmenopausal patients at risk for recurrent candidiasis should be evaluated and treated the same way as younger women are<sup>99</sup>. In addition to being estrogen-deprived, postmenopausal women with recurrent vulvovaginal candidiasis harbour more aggressive and resistant fungi<sup>102</sup>.

In the diagnosis of vaginal candidiasis, the following symptoms are clinically helpful:

- Vaginal discharge (quantity, color, consistency)—A “cheesy” discharge is quite symptomatic of candidiasis, and a thick, curdy, or flocculent white discharge is strongly predictive of candidiasis; a watery discharge makes candidiasis less probable.
- Itching—Between 70% and 90% of patients complain of itching.
- Inflammation (redness, pain or burning, swelling)—Vulvar or vaginal edema, erythema, fissures, or excoriations are associated with candidiasis, although they can also occur in trichomoniasis.
- Absence of odour (fishy or foul)—A lack of odour indicates an increased likelihood of candidiasis; the presence of an odour perceived by the patient reduces the likelihood of candidiasis.
- Patient’s self-diagnosis—“Another yeast infection” is most probably candidiasis. However, if the condition fails to resolve with over-the-counter treatment, or if it recurs, the patient needs to be examined, and cultures taken.
- Urinary tract symptoms—Women with candidiasis may suffer from “external” dysuria<sup>103</sup>.

In brief, candidiasis is associated with vulvar pruritus, a cheesy discharge, and redness, and it is often identified through self-diagnosis. Bacterial vaginosis is associated with increased discharge and a complaint of odour. However, microscopic findings are not entirely diagnostic, and primary care clinicians need to be skilled at screening for vaginal candidiasis, bacterial vaginosis, and trichomoniasis in postmenopausal women presenting with vulvovaginal complaints<sup>103</sup>.

## 6.2 Clinical Examination for Vaginal Atrophy and Vaginitis

Gynecologic examination aided by an appropriately sized speculum should investigate vulvar skin close to the vagina for signs of dystrophy or other lesions, including premalignant and malignant disease<sup>96</sup>. The estrogen-sensitive labia majora and minora should also be examined. Urethral caruncle, prolapse (cystocele, rectocele, enterocele, and uterine prolapse), the cervix, and pelvic masses should be noted.

*(Continued on page 8)*

### 6.3 Diagnosis of Vaginal Atrophy and Vaginitis

To confirm urogenital estratophy vaginitis, pelvic examination of the vulva and vagina should show signs of dryness, pallor, redness (if inflamed), and thinning of tissue<sup>95,96</sup>. Pale, smooth, shiny, and dry vaginal epithelium suggests atrophy.

Urogenital status can be evaluated using the Vaginal Health Index, which assigns a score to a number of parameters that are used to assess the vaginal epithelium. These include colour, rugosity, moisture and secretion, elasticity, friability to touch, and pH (which ideally should be less than 5). A lower index is indicative of vaginal atrophy of greater severity<sup>96</sup>. Inflammatory signs include patch erythema, petechiae, increased vascularity, friability, and bleeding and discharge, which indicate vaginitis. Vaginal cytology (especially samples taken from the upper third of the vagina) for maturation index that shows increased parabasal and intermediate cells and decreased superficial cells is indicative of lowered estrogen status. The normal acidic vaginal pH of 3.5–4.5 in healthy mature females becomes alkaline after menopause (assessed with a pH indicator strip inserted into the vagina) and predisposes women to recurrent vaginitis and urinary tract infections. However, candidiasis can occur even at normal vaginal pH ( $\leq 4.5$  or  $\leq 4.9$ )<sup>103</sup>.

When post-coital bleeding occurs in menopausal women, an endometrial biopsy becomes necessary to rule out endometrial pathology, including cancer. A Pap smear can confirm cervical health. Cervical bleeding may be the result of estratophy. The finding of a friable cervix mandates exclusion of cervicitis, particularly Chlamydia, because cervicitis is a more likely cause of post-coital bleeding than is endometrial carcinoma. Furthermore, bleeding from coital “trauma” in an atrophic, stenotic introitus or vagina suggests that endometrial carcinoma is unlikely. Transvaginal ultrasound assessment of the uterus and particularly of the endometrium is very helpful, both in atrophic and in well estrogenized tissues. If endometrial ultrasound shows a thickened endometrium, biopsy is essential to rule out endometrial pathology, be it hyperplasia, carcinoma, or an endometrial polyp. A thin endometrium (usually defined as an endometrial stripe of 4 mm or less) measured on transvaginal ultrasonography suggests an atrophic or non-stimulated endometrium. Infection with *Trichomonas*, *Candida*, or bacterial vaginitis may be a cause of post-coital bleeding. Table V provides a differential diagnosis of atrophic vaginitis<sup>95</sup>.

### 6.4 Management Options

The guidelines approved by the SOGC recommend initiation of safe and proven therapies for clinical management as indicated by basic pelvic

examination, examination of the vulva, and laboratory tests (Table VI)<sup>60</sup>.

#### 6.4.1 Vaginal Atrophy

Options for the management of vaginal atrophy depend on the specific clinical symptoms. Treatment options range from lifestyle modifications to non-hormonal and hormonal interventions.

**Lifestyle:** The SOGC guidelines<sup>60</sup> encourage regular vaginal coital activity to increase blood circulation to the pelvic organs and avoidance of products that pose a risk of contact dermatitis of the vulva. Contact dermatitis of the vulva may be caused by irritants such as perfumed or dyed toilet tissue; tight-fitting garments, underwear, or bathing suits; soaps, detergents, or fabric softeners; talcum powder; hygiene sprays; deodorant pads; spermicidal foams, creams, or jellies; rubber products, including diaphragms or condoms; poison ivy or similar plants; and talcs<sup>104</sup>. The SOGC has emphasized the lack of evidence to support any beneficial effects of dietary estrogens or supplements such as dong quai. However, the SOGC does encourage consumption of pure cranberry and lingonberry juice concentrates to avoid urinary tract infections<sup>60,105</sup>. Smoking is associated with decreased estrogen levels and consequent vaginal estratophy—yet another reason to encourage smoking cessation<sup>60</sup>.

**Vaginal Moisturizer:** A non-hormonal moisturizing gel containing purified water, glycerine, mineral oil, polycarbophil, carbopol 974P, hydrogenated palm oil glyceride, and sorbic acid (Replens: Wellspring Pharmaceutical Corporation, Bradenton, FL, U.S.A.)—the only vaginal moisturizer available in Canada—used three times weekly has proven efficacy in increasing vaginal moisture and vaginal fluid and in decreasing vaginal itching, irritation, and dyspareunia<sup>60,106</sup>.

TABLE V

*Differential diagnosis of atrophic vaginitis*<sup>95</sup>

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Infection
Bacterial vaginosis
Trichomoniasis
Contact dermatitis or skin reaction to
Perfumes and deodorants
Powders
Panty liners
Perineal pads
Soaps
Spermicides
Lubricants
Tight-fitting or synthetic fabric

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**Lubricants for Coital Comfort:** Several lubricants that can be used to reduce immediate irritation during coital activity are available to women in Canada, but no evidence currently exists that these products have any long-term therapeutic effect<sup>60</sup>. Water-soluble vaginal lubricants that relieve vaginal dryness and moisten tissue can substitute for estrogen<sup>96</sup>, but most water-based lubricants contain glycerine, and patients prone to yeast infection should avoid them.

**Lubricants for Vaginal Dryness:** Orally administered or locally applied vitamin E in daily doses of 100–600 IU has been found to increase vaginal lubrication and to relieve the dryness and irritation that accompany atrophic and other forms of vaginitis. KY Jelly (KY) with vitamin E is another possibility. Vitamin D and analogs used in postmenopausal osteoporosis are also involved in growth and differentiation of stratified squamous epithelium of the vagina. Homeopathic and natural health supplements of bryonia, belladonna, lycopodium have been used,

although these remedies have failed in randomized trials of safety and efficacy.

**Hormonal Therapies for Urogenital Atrophy, Vaginitis, and Dyspareunia:** In general, non-hormonal treatments are the first-line recommendation in breast cancer patients<sup>107,108</sup>. However, expert recommendations reviewed and revised by the Breast Disease Committee of SOGC concluded that HRT after treatment for breast cancer has no adverse impact on recurrence and mortality, and therefore HRT is an option in postmenopausal women with previously treated breast cancer. Careful evaluation of the indication for hrt and limiting the duration of postmenopausal hrt to the shortest duration possible were recommended<sup>37</sup>. However, the findings from the HABITS and Stockholm trials raise additional questions and emphasize the need for careful consideration, review, and collaborative discussion of all the risks and benefits in each individual case. Some evidence also suggests that the small risk of ovarian cancer and endometrial cancer observed with HRT is evident only with therapies that use estrogen alone<sup>109</sup>.

Because minimal systemic absorption occurs with use of the recommended doses, the opinion of the SOGC is that women with a history of breast cancer may still use local intravaginal estrogen preparations in the recommended doses for the treatment of symptoms of urogenital atrophy<sup>110</sup>. Tested topical estrogen replacement therapies available in Canada include a conjugated equine estrogen (CEE) cream, vaginal estradiol tablets, and an estradiol-containing Silastic vaginal ring.

Available systemic estrogen therapies (oral and transdermal patches, and gels) reduce vasomotor symptoms (hot flashes) and sleep disturbance. They also estrogenize urogenital tissues, although, not uncommonly, additional local treatment (vaginal tablets, creams, rings) is needed. The Canadian Consensus Conference on Menopause and 2006 Updated SOGC guidelines and recommendations<sup>43</sup> indicate that local estrogen can ameliorate dyspareunia associated with vulvovaginal atrophy. Low doses may suffice. For example, half an applicator of cee cream (Premarin) intravaginally once or twice weekly, or one intravaginal estradiol tablet (Vagifem) twice weekly is usually adequate. On occasion, a small amount of CEE cream (less than dime size) applied to the peri-introital and peri-urethral area once weekly, or even less frequently, may provide symptomatic relief with minimal dosing.

An alternative treatment proposed in the SOGC guidelines is use of a sustained-release intravaginal ring that slowly and constantly releases 5–10 µg of estradiol daily from its estradiol-loaded core over a 3-month period. Use of the Estring (Pfizer Canada)

**TABLE VI**

*Society of Obstetricians and Gynaecologists of Canada clinical practice guidelines for the detection and management of vaginal atrophy<sup>60</sup>*

<b>Guideline</b>	<b>Level of evidence</b>
1. Routine clinical assessment of postmenopausal women for symptoms and signs of vaginal atrophy.	(III-C)
2. Regular sexual activity to maintain vaginal health.	(II-2B)
3. Consumption of pure cranberry or lingonberry juice (rather than cranberry drink) to reduce the risk of recurrent urinary tract infections.	(I-A)
4. For the treatment of local urogenital symptoms such as vaginal itching, irritation, and dyspareunia, regular application of vaginal moisturizers is an alternative to hormone replacement therapy.	(I-A)
5. Vaginal estrogen replacement therapies for vaginal atrophy:	
Conjugated equine estrogen cream	(I-A)
Sustained-release intravaginal estradiol ring	(I-A)
Low-dose estradiol tablet	(I-A)
6. Vaginal estrogen therapy for menopausal women experiencing recurrent urinary tract infections.	(I-A)

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effectively relieves symptoms of atrophic vaginitis and restores normal vaginal pH and cytology, maintains serum estradiol levels in the menopausal range, and does not induce endometrial proliferation<sup>111</sup>.

Despite the efficacy of vaginal estrogen preparations in treating vaginal atrophy, a small study of 7 postmenopausal women on ais who were using Vagifem vaginal estradiol tablets noted an increase in serum estradiol levels (>19 pmol/L over low baseline postmenopausal estradiol levels) that it was feared might reverse the activity of the ais being used (Table VII)<sup>112</sup>. Despite the very small size of this study, physicians are cautioned, in the absence of other reassuring data, to avoid this treatment combination and to recommend non-hormonal preparations instead.

Although good data from Sarrel<sup>68</sup> and others suggest that estrogen therapy (possibly including vaginal estrogen treatment) improves local genital sensitivity and sexual response, thereby potentially improving sexual interest and motivation<sup>44</sup>, others disagree. Safety is the overriding consideration. In the opinion of the SOGC, as reported in their clinical practice guidelines<sup>107</sup>, the presence of estrogens at concentrations considerably higher than those attained with current hrt preparations does not negatively influence the efficacy of breast cancer management, as has already been demonstrated by other studies<sup>113-115</sup>. Data from ongoing prospective randomized clinical trials should offer definitive conclusions.

In brief, if appropriate, replacement of missing hormones or enhancement of depleted levels in breast cancer patients can add to quality of life and should be considered in particular for the treatment of vaginal dryness.

## 7. Conclusions

The gynecologic signs and symptoms associated with diminished estrogen levels can affect, to varying degrees, the quality of life for postmenopausal women receiving adjuvant AI therapy. In addition to the direct sexual side effects related to diminished estrogen, initiation of treatment for breast cancer often results not only in early and more severe menopausal symptoms, but also in fear and anxiety, body image concerns, and sexual dysfunctions related to altered pelvic health. Because of the complexity of FSD, a biopsychosocial approach to assessment and management is necessary. A detailed sexual history addressing specific sexual concerns is a therapeutic intervention in itself. Besides genital functioning, issues affecting sexual health may encompass bladder and bowel difficulties, mobility limitations, pain, fatigue, and issues with self-image and self-esteem.

The AIS offer numerous advantages over

### TABLE VII

*Estradiol levels in women on Vagifem (Novo Nordisk, Princeton, NJ, U.S.A.) and aromatase inhibitor therapy<sup>112</sup>*

Patient	Concurrent AI	Estradiol level on Vagifem (pmol/L)		
		Baseline	2 Wks	4 Wks
1	Letrozole	<3.0	220	40
2	Letrozole	<3.0	232	31
3	Letrozole	=3.5	77	6
4	Anastrozole	<3.0	46	2.4 <sup>a</sup>

<sup>a</sup>Experienced a 10-day break from Vagifem before this measurement.

tamoxifen for the treatment of early breast cancer in post-menopausal women: fewer gynecologic adverse events, fewer hot flashes, fewer endometrial abnormalities (including fewer polyps, less hyperplasia, and a lower incidence of endometrial cancer), and overall, fewer diagnoses requiring a hysterectomy. For the woman with breast cancer, avoiding the invasive and uncomfortable diagnostic and therapeutic interventions associated with uterine abnormalities can have a tremendous impact on quality of life. Clinical evaluation of AI therapy-associated signs and symptoms of urogenital atrophy, vaginitis, dyspareunia, and loss of sexual interest demonstrates several similarities with natural age- and menopause-related gynecologic events associated with diminished estrogen levels. Management of these events through a combination of lifestyle modification, counselling, and hormonal and non-hormonal interventions can therefore improve quality of life significantly for patients.

Despite the lack of a pharmacologic “gold standard” for the treatment of female sexual concerns, therapeutic regimens can be tailored to effectively address each area of distress—psychologic, interpersonal, sociocultural, and physiologic—in the affected functional domains of desire, arousal, and orgasm.

Hormone replacement therapies such as the intravaginal ring with a sustained-release estradiol-loaded core (Estring) recommended by SOGC have proven effective in improving patient compliance for symptomatic relief of atrophic vaginitis and in restoring normal vaginal pH and cytology without side effects of endometrial proliferation or a significant rise in systemic estradiol levels. Recommended alternatives are estradiol tablets (Vagifem) and low doses of cee cream (Premarin). Preliminary data suggest that androgens alone or the addition of testosterone to a common estrogen-progestogen regimen may inhibit

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the stimulatory effects of estrogens and progestins on breast cell proliferation and may, in fact, lead to apoptosis of cancer cells. However, these results are preliminary; long-term safety data are lacking. Furthermore, few studies have looked at the relationship between testosterone therapy and breast cancer risk in postmenopausal women, and thus no definitive answers are available to guide patient management<sup>76</sup>.

In view of recent findings raising concerns over elevated circulating estradiol levels in breast cancer patients on AI therapy who are using transvaginal estrogenic preparations, non-hormonal therapies including regular application of vaginal moisturizers and lubricants are recommended and certainly should be first-line therapy. In addition, pelvic therapy for pelvic tone awareness and pelvic floor exercises (for example, Kegel exercises) and lifestyle modification are preferred and should be considered early.

The sexual context within which the patient exists is the key factor that needs to be assessed before any medical intervention is added. Concerns that interfere with sexuality (including bladder and bowel issues, motor and sensory changes, and management of menopausal symptoms in general), other chronic medical conditions, and sexual self-esteem and partner relationships are all important parts of the patient's sexual context, and any effective intervention must account for all of them. Psychological intervention and sex counselling are important adjuncts in the comprehensive management of these patients, and interventions should be considered and provided as needed.

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## Appendix A: Sexual History Questionnaire<sup>41,42,43</sup>

### A. Functional history

1. What functions are affected currently?
2. When did you start noticing a change in your interest in sex?
3. Do you have problems with arousal or getting sufficiently lubricated?
4. Are you able to reach orgasm?
5. How often do you experience discomfort or pain during sex?

### B. Assessment of chronic dyspareunia (SOGC guidelines)

1. Is vaginal entry possible at all (that is, with finger, penis, speculum, tampon)?
2. Do you get sexually aroused at the beginning of and during intercourse?
3. Exactly when does the pain arise?  
During entry of penile head?  
With partial penile entry?  
With deep penetration?  
With movement of the penis?  
During or following ejaculation?  
Following subsequent urination?  
Several minutes after attempted or successful intercourse or other vaginal stimulation attempts?
4. Is there less or greater degree of pain at times, and any idea why?

### C. Comprehensive questions related to:

1. Acuteness or severity of the problem (global vs local)
2. Chronicity of the problem (primary vs secondary)
3. Circumstances underlying the problem
4. Medical conditions and current medications
5. Low desire:  
Serious illness, depression, hypothyroidism, hyperprolactinemia, central nervous system depressants, dopamine receptor blockers, selective serotonin reuptake inhibitors (SSRIs), anti-androgens
6. Decreased arousal:  
Atherosclerosis, diabetes, pelvic trauma, pelvic surgery, pelvic irradiation, multiple sclerosis and other illness associated with neurogenic impairment, SSRIs, antiestrogens, anticholinergic medications
7. Difficulty attaining orgasm:  
Same as for decreased arousal
8. Medical conditions that might contraindicate potential therapeutic options:  
Thromboembolism, active liver disease, hormone-responsive cancers, severe acne (estrogen, testosterone)
9. Eating disorders, seizures (bupropion)
10. Patient's level of distress, reasons for seeking help, and response to previous interventions

### D. Evaluation of couple individually and together for:

1. Sexual communication
2. Technical skill
3. Sexual repertoire

### E. Sample questions for women with hypoactive sexual desire disorder (HSDD)

1. On a scale of 0–10, how would you rate your level of desire currently and when it was the highest?
2. When was the last time you found a change in your level of desire? Anything you think was responsible?

3. Do you have any inhibitions or thoughts that interfere with your level of desire?
4. Do you currently participate in sexual activities despite your altered level of desire? If so, what motivates you?
5. Any spontaneous sexual thoughts or fantasies?
6. Are you aroused by erotic descriptions in books or sex scenes in movies?
7. How often do you masturbate?
8. Do you find your partner attractive? Do you find other men or women attractive?

### F. Sample questions for women with decreased arousal:

1. When did you notice a change in your level of arousal? What do you think is responsible for the change?
2. Do sexual thoughts, fantasies, reading a sexy passage in a book, or seeing a sexy scene in a movie “turn you on”?
3. Does touching your different body parts (by yourself or your partner) arouse you? If so, do you feel stimulated or titillated? Does the sensation last long enough or quickly plateau?
4. Are there any distracting feelings or thoughts that seem to inhibit these sensations? Have you ever been abused sexually, and do still suffer from negative memories that affect your enjoyment now?
5. Does masturbation offer you real pleasure or just momentary thrill?
6. Are there any sexual activities that you and your partner(s) engage in for pleasure?
7. Did you try using a vibrator or other sex toys? If so, do you find them indispensable?
8. Are you comfortable talking with your partner(s) about the kinds of stimulation you enjoy?
9. Do you find your partner(s) responsive when you talk about sex?
10. Have you tried using lubricants for vaginal dryness? Which ones? Do you find them helpful?

### G. Sample questions for women with difficulty achieving orgasm

1. Have you ever had an orgasm or heard of female genital structures, such as the clitoris?
2. Did you know that most women require stimulation of the clitoris to become fully aroused?
3. Do you participate in sexual activities that involve stimulation of the clitoris?
4. Does sexual stimulation give you pleasure? If yes, can you identify inhibiting feelings or thoughts that interfere with arousal and prevent orgasm?
5. When was the last time you noticed a change in your ability to achieve orgasm? Can you identify anyone or anything that you feel might have been responsible for the change?
6. Can you describe exactly what you feel? But are you able to achieve orgasm at all? Or does it take longer? Did you find certain type of stimulation working better than others?
7. Do you really get distracted during an orgasm?
8. Do you always expect to have an orgasm when you have sex? Or are you satisfied even without achieving orgasm?

## Announcements

### Invitation to Attend TWSHF 4th Education Event

The Women's Sexual Health Foundation and Columbia University College of Physicians and Surgeons Department of Obstetrics and Gynecology invite all women to attend:

**Reclaiming Healthy Intimacy,  
Passion and Pleasure**  
Saturday, April 4, 2009  
New York City at the Club 100  
101 Park Avenue

Registration for this event is required and includes a continental breakfast.

The focus will be empowering women on how to address their sexual health concerns and to reclaim the intimacy that they deserve. This is an opportunity to discover solutions from the experts, to ask questions, and to understand why menopause, pregnancy, cancer, incontinence, diabetes, stress and other life changing events can impact healthy intimacy.

For more information on attending this event contact Christine Rein at or **201-346-7014** at [cmr2146@columbia.edu](mailto:cmr2146@columbia.edu).

### Becoming A Donor

#### Supporting the Foundation

Thank you for your interest in supporting the work of The Women's Sexual Health Foundation, an international non-profit organization. We seek to empower women with information about sexual health. It is only through your generous donation that the Foundation can achieve its mission: to provide educational resources with the latest research for women and healthcare providers, to support a multidisciplinary approach to sexual health issues, and to increase worldwide awareness on women's sexual health.

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The Editor welcomes articles, letters, meeting notices, pertinent internet websites, breaking news, information on support groups, and publications that may be of interest to the readers.

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