
Problems with Desire and Arousal in Surgically Menopausal Women: Advances in Assessment, Diagnosis and Treatment

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Introduction

With life expectancy extending well into the eighth decade, women are now living longer in the postmenopausal phase of their lives.^{1,2} This demographic trend is particularly meaningful for surgically menopausal women, who may abruptly enter their postmenopausal years long before their expected natural menopause and decades before the end of their lifespan. Epidemiologic data suggest that a substantial number of women still undergo hysterectomies, including bilateral oophorectomy, before they reach natural menopause.³ Oophorectomy may also be performed in premenopausal women with conditions such as ovarian tumors (including cancer), estrogen-sensitive breast cancer, large ovarian cysts, chronic pelvic inflammatory disease with or without abscess, or endometriosis. Prophylactic ovariectomy may also be a preferred therapeutic approach in some women at high risk for breast or ovarian cancers. However, since the 1970s, the trend has been to preserve the ovaries whenever reasonable in young women. Clinical decisions favoring ovarian preservation are supported by the low risk of ovarian cancer in conserved ovaries,⁴ the onset of menopausal symptoms and side effects of hormone therapy, the long-term risks of bilateral oophorectomy,^{5,7} and the availability of effective nonsurgical therapies for conditions such as estrogen-dependent cancers and endometriosis.

When medically necessary, removal of the uterus and ovaries may bring welcome relief from symptoms of or concerns about the disorders prompting surgery. Nonetheless, the sudden, dramatic declines in estrogen and androgen levels after bilateral oophorectomy are often accompanied by serious symptoms, including hot flashes and night sweats, sleep disruption, vaginal dryness, and loss of sexual desire; all of which can have detrimental long-term effects on health and quality of life. Most physicians routinely prepare women preoperatively for the intense physiologic

menopausal symptoms that may occur following bilateral oophorectomy. Unfortunately, less attention is typically paid to the sexual consequences of the surgery. Physicians and patients are often uncomfortable discussing sexual function, some physicians have minimal training in the management of the potential sexual effects of surgical menopause, and few treatments have been available (and no treatments have been FDA-approved to date) to address these effects. As a result, the sexual concerns of surgically menopausal women currently remain under-recognized and under-treated.

The objective of this article is to provide a brief overview of sexual problems in surgically menopausal women, with a particular focus on low sexual desire, the most prevalent type of female sexual dysfunction.⁸ It will further provide practical recommendations on how to discuss sexual function with patients before and after surgery, and appropriately address loss of desire that is distressing to patients.

Sexual Dysfunction in Surgically Menopausal Women

Women's sexual response cycle. Advances have been made in the understanding of female sexual response, improving the management of sexual disorders in women in all stages of life. The traditional model of female sexual response, first developed by Masters and Johnson,⁹ described a linear sequence of discreet stages—ie, excitement, followed by a plateau phase, orgasm, and resolution. A nonlinear model proposed by Basson¹⁰ more closely reflects the complexity of women's sexual response. In the latter model, emotional intimacy is a motivating factor for sexual activity, biological and nonbiological factors are determinants of response, and orgasm is not a prerequisite for satisfaction. Desire is frequently absent for women beginning a sexual experience, whether initiated by the woman or her partner. They have many reasons for this, including wanting to enhance their

emotional intimacy. Once aroused by deliberate attention to stimuli, desire is triggered. Readers are strongly advised to refer to the complete article on this concept by Basson, who was also the invited editor of that special issue of *Menopause* in November 2004.¹⁰

Definition and prevalence of hypoactive sexual desire disorder. Regardless of progress, female sexual disorders such as hypoactive sexual desire disorder (HSDD) remain difficult to define because of their largely subjective nature. Although minor differences exist in recently proposed definitions and classifications,¹¹⁻¹³ and refinements are ongoing,¹⁰ HSDD is uniformly characterized by a persistent or recurring lack of sexual fantasies, thoughts, and/or desire for or openness to sexual activity, resulting in personal distress.

The prevalence of sexual dysfunction such as HSDD has not been well studied in women after surgical menopause.⁸ Based on findings of studies from the United Kingdom, Zussman et al estimated that 30% to 50% of women experience reduced sexual desire after bilateral oophorectomy.¹⁴ In a study evaluating changes in psychosexual variables after hysterectomy, approximately 40% to 50% of women who were oophorectomized experienced reduction in libido, regardless of estrogen therapy.¹⁵ The prevalence of reduced sexual desire was significantly greater among women undergoing hysterectomy with oophorectomy than in women undergoing hysterectomy without oophorectomy ($P < 0.05$).

HSDD etiology in surgical menopause. Hysterectomy with bilateral oophorectomy can have a significant impact on women's sexual function. Some women experience a renewal of sexual interest and activity postoperatively,^{16,17} which may be related to resolution of the condition requiring surgery, or cessation of menstruation and elimination of the need for birth control and concerns about unwanted pregnancy. Rhodes et al reported postoperative improvement in low libido, orgasm problems and

dyspareunia, and increased engagement in sexual activity.¹⁶

However, sexual problems may develop in some women as a result of the physiologic and psychosocial changes induced by surgery. Surgical menopause is associated with dramatic decreases in both estrogen and androgen, which may play a role in reducing sexual desire. Testosterone levels are reduced by up to half after bilateral oophorectomy prior to natural menopause.¹⁸⁻²⁰ Some cross-sectional studies have demonstrated a positive correlation between endogenous testosterone levels and sexual function parameters in women, including sexual desire and frequency of sexual activity,²¹⁻²⁴ whereas other studies have not found such a relationship,²⁵⁻²⁸ and the inconsistency in these results has not yet been explained. Recent clinical trials of the testosterone patch provide strong indirect evidence that testosterone is associated with both sexual desire and increased response (arousability) in surgically menopausal women.²⁹⁻³³ With the loss of ovarian function, postoperative estrogen deficiency can cause vaginal atrophy and decreased vaginal mucus production, as well as decreased clitoral blood flow and sensory perception, often resulting in dyspareunia, and reduced responsiveness.^{34,35} The role of low estrogen levels in sexual desire or arousal is not clear.³⁶ Anatomic changes such as vaginal shortening and denervation may also affect sexual desire and other functional parameters after hysterectomy.³⁷⁻³⁹

In addition to these physiologic factors, psychogenic and relationship factors frequently contribute to sexual dysfunction after hysterectomy with bilateral oophorectomy. Changes in a woman's self-perception, self-confidence and self-worth following the loss of her reproductive organs can have a dramatic impact on sexual interest and responsiveness. These developments can cause tension in relationships, which may be compounded by partners' lack of support, empathy or sensitivity.

Consequences of HSDD. Research is

Table 1.
Recommendations for Discussing Sex with Patients⁴⁴⁻⁴⁶

- Request the patient's permission to discuss sexual issues
- Reassure patients about confidentiality
- Consider optimal timing of discussion during office visit (eg, before patient has disrobed)
- Convey concern about sexual wellness
- Be relaxed, confident and comfortable
- Be understanding and a sympathetic listener
- Offer encouragement and positive feedback
- Start discussion with "easy," less sensitive questions to build confidence and trust
- Use sexual and non-sexual terminology familiar to the patient; avoid technical language and medical jargon
- Avoid bias and refrain from being judgmental
- Consider the patient's individual ethnic, cultural, religious and personal background, and sexual orientation
- Speak to both partners whenever possible

needed to further assess the impact of sexual dysfunction on surgically menopausal women's lives, although studies conducted to date suggest that sexual problems such as HSDD may be detrimental to well-being and quality of life. Among women surveyed in the National Health and Social Life Survey, low sexual desire was strongly correlated with low feelings of physical and emotional satisfaction and low general happiness.⁸ In a cross-sectional population study conducted in the United Kingdom, associations were found between female sexual problems and psychosocial outcomes, including anxiety and depression, and marital difficulties.⁴⁰

In the Women's International Study of Health and Sexuality (WISHeS), which included 2,050 women in the United States, distress related to this symptom was reported by 66% of 20- to 49-year-old surgically menopausal women with low sexual desire, and 44% of such women aged 50 to 70 years.⁴¹ Women with low sexual desire also reported less frequent engagement in sexual activity and less sexual pleasure or enjoyment.⁴²

Establishing a Dialogue about Sexual Function

Identification of sexual problems should be routine in the care of women who plan to or have undergone hysterectomy with bilateral oophorectomy. Estab-

lishing open communication is essential to the prompt recognition and effective treatment of HSDD, but discussing sex is often challenging for both patients and physicians. According to a survey of 500 Americans aged 25 years and older, 68% of men and women were afraid that raising concerns about sexual problems would embarrass their physicians, and 71% suspected that their physicians might dismiss the concerns.⁴³ Common barriers to effective dialogue for physicians include minimal training in female sexual health, fear of embarrassing or offending patients, time limitations due to office schedules, and lack of FDA-approved treatment options. Physicians' training has generally been focused on biological influences and less on psychosocial-cultural factors.

Patients may be more likely to report sexual problems and feel comfortable talking about them if their physicians initiate and lead the discussions in a relaxed, non-threatening manner. The suggestions provided in Table 1 may help create an atmosphere that is more conducive to communication.⁴⁴⁻⁴⁶ However, the most critical step is initiating the dialogue about sexual activity and related concerns, which sends the message to patients that it is appropriate to talk about these topics with their physicians.

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Preoperative Consultation

Oophorectomy is increasingly recognized as an unnecessary procedure in women undergoing hysterectomy for reasons other than cancer, particularly in younger women, who are years removed from natural menopause and have a very low risk of ovarian cancer.⁴ Women with healthy ovaries scheduled for hysterectomy need to be well informed of the advantages and disadvantages of ovarian excision. Adequate information should be provided regarding the vital contributions of the ovaries to their future health, the short- and long-term risks associated with bilateral oophorectomy, and alternative treatment options.

If ovariectomy is medically necessary or preferred, patients will require a detailed description of the physiologic changes that occur postoperatively and their potential consequences, including reduced sexual desire. Preoperative education is needed on female anatomy and sexual function as well as surgical menopause and its potential impact on emotional, psychosocial and sexual well-being. In-office consultation prior to surgery provides an excellent opportunity to initiate discussion of sexual issues, and allows patients to gain a realistic perspective on the benefits and risks of the surgery, and the ability to make educated decisions about management of potential complications.

Physicians may suggest that a woman invite her partner to attend preoperative counseling sessions. Partner participation may provide additional insight into the patient's relationship experience, identify and address potential problems in partner attitudes, values or behaviors, and encourage a supportive environment for patients post-surgery. Physicians may also rely on other healthcare providers (eg, nurse practitioners, pharmacists, social workers, psychosocial counselors) to offer

support and assistance to patients before surgery.

In addition to talking about sexual health, physicians may recommend educational resources—such as brochures, books, or Web sites—that address surgical menopause and sexual disorders in women. This process may call for physicians to enhance their own knowledge of the fundamentals of sexual functioning through research or participation in professional educational seminars.

Postoperative Assessment

Initial questioning. To allow early recognition of sexual disorders, physicians should ask patients about their sexual function during all postoperative follow-up visits. Physicians may preface their initial questions with a statement about the sexual problems associated with surgical menopause, such as “Some women experience loss of sexual desire or the ability to become subjectively excited, or a loss of pleasure, and may become less sexually active after hysterectomy.” A sim-

ple checklist of questions may include:

- Before your surgery, did you enjoy a good, satisfying sex life?
- Are you currently sexually active?
- Since your surgery, have you experienced any reduction in your level of sexual desire?
- If you have experienced a loss of desire, is it distressing to you?
- Would you like to discuss this or any other sexual difficulties?

Initial questioning about sexual function is best accomplished during face-to-face interviews with the patient. Although patient-completed questionnaires, such as the Female Sexual Function Index,⁴⁷ should not replace direct interaction between physician and patient, they may be of value in providing further information. Additional diagnostic tools for HSDD are in development for use in clinical practice.

History taking. Thorough assessment of suspected HSDD requires a detailed sexual, medical, psychological and psychosocial history. Although hormonal depletion due to ovarian loss is a common

Table 2.
Medications that May Affect Sexual Desire⁴⁸

Cardiovascular medications	<ul style="list-style-type: none">• Antilipid agents• Beta-blockers• Clonidine• Digoxin• Spironolactone
Hormonal medications	<ul style="list-style-type: none">• Danazol• Estrogen therapy• GnRH agonists
Psychoactive medications	<ul style="list-style-type: none">• Antipsychotics• Barbiturates• Benzodiazepines• Lithium• Selective serotonin reuptake inhibitors• Tricyclic antidepressants
Other	<ul style="list-style-type: none">• Corticosteroids• Histamine H₂-receptor blockers and promotility medications• Indomethacin• Ketoconazole• Phenytoin sodium

cause of HSDD after oophorectomy, other contributing factors should also be carefully investigated. The etiology of low sexual desire is frequently multifactorial, such that the presence of organic factors does not preclude a role for psychogenic or relationship factors.

To establish the patient's sexual history, further questioning is needed on a wide range of sexual topics, including childhood/adolescent development, past experiences, nature and duration of problems, and current functioning and practices. It is important in women with symptoms of low sexual desire to determine if the problem is lifelong or acquired, and situational or generalized, to help distinguish between organic and psychological factors. Clarification of these sexual issues will help physicians confirm a diagnosis, select appropriate treatment, and determine the need for referral.

Comorbid illnesses and concurrent medications that can affect sexual desire and function should also be identified and addressed during the follow-up office visit. Common medical conditions, such as cardiovascular disease, hyperlipidemia, diabetes, thyroid disorders and anemia, may contribute to sexual problems. Hormonal causes for HSDD may be more likely in women who have chronic illnesses or receive treatments that suppress adrenal function. Medications that may influence sexual desire include cardiovascular and antihypertensive medications, hormonal agents and psychoactive medications (Table 2, page 15).⁴⁸

Psychological disorders such as depression and anxiety should be investigated as they can play a role in postoperative loss of sexual desire. In women with depression who are receiving antidepressants, the physician may have difficulty differentiating the adverse sexual effects related to the mood disorder from those related to antidepressant medication. Coping with severe menopausal symptoms after hysterectomy with bilateral oophorectomy may increase the risk of depressed

mood in untreated women.⁴⁹ Selective serotonin receptor inhibitors (SSRIs) and other antidepressants are increasingly used to treat mood disorders and menopausal symptoms in women not receiving hormone therapy. Studies have reported a reduction in hot flashes of 50% or more with paroxetine or fluoxetine treatment.^{50,51} However, antidepressant medications, including SSRIs, may be associated with a number of sexual side effects, including low sexual desire,^{52,53} which may compromise their benefits in menopausal patients.

A comprehensive psychosocial history is a critical aspect of the assessment of HSDD in surgically menopausal women. Questions may focus on current stresses, such as financial or family concerns; historical events, such as abuse or trauma; and intrapersonal conflicts, such as religious/moral beliefs and social limitations. The physician should also inquire about partner relationships (for example, "does the couple create a sexual scene that is private, erotic and unhurried?") and evaluate the role of relationship distress or conflict, differences between patient and partner in needs, function or practices, and problems with communication or technique. Finally, it is important to assess the impact of the patient's sexual dysfunction on her psychological and emotional well-being, interpersonal relationships and occupational performance. Information about personal distress related to symptoms of sexual dysfunction will help establish a diagnosis.^{11,12}

Physical examination. In most surgically menopausal women, findings from a physical examination are not likely to determine the specific cause of HSDD but may corroborate those of the sexual and medical history. However, a focused examination should be performed in all patients with suspected dysfunction, including screening for comorbid conditions that may contribute to HSDD. The physician should investigate any signs of abuse that are evident on

physical examination. A gynecologic examination is usually warranted, focusing on potential signs of vaginal atrophy or infection, vulvodynia, deep tenderness, or complications of surgery.

Laboratory testing. The basic biochemical tests conducted in surgically menopausal women presenting with a loss of sexual desire depend on the individual patient's history and the physician's clinical judgment. A work-up including cholesterol and lipids, fasting glucose and thyroid function is generally recommended.

In oophorectomized women, physicians can anticipate that testosterone levels are low relative to premenopausal levels, with reductions of 40% to 50% demonstrated postoperatively,¹⁸⁻²⁰ suggesting that measurement of testosterone for diagnostic purposes may not be necessary. Moreover, laboratory analysis of testosterone levels is controversial. Circulating testosterone levels have not been consistently correlated with sexual activity in women and may be of limited value as an indicator of tissue testosterone concentration or action.⁵⁴ Even highly sensitive assays for free testosterone do not provide a good measure of the amount or activity of this hormone at the tissue or cellular level. In the absence of more accurate assays for women, clinical signs and symptoms of testosterone deficiency should remain the basis of diagnosis.

When to Refer

Most sexual problems, including HSDD, in surgically menopausal women can be effectively managed in the primary care or Ob/Gyn setting. However, the primary care physician may consider referral for management, consultation, or follow-up care depending on a number of patient- and partner-related criteria (Table 3, page 17). Physician limitations, including a lack of comfort with sexual problems, personal bias, or insufficient expertise, are also indications for referral to a specialist or colleague. Finally, specialist availability and insurance cov-

Table 3.
Indications for Referral

- Patient request
- Complex sexual disorder or multiple sexual dysfunctions
- Complex comorbid or etiologic conditions (eg, endocrinopathies, vascular and neurological disorders)
- Indeterminate etiology
- Treatment failure
- Psychiatric disorder
- Partner sexual dysfunction
- Relationship problems

Management of HSDD in Surgical Menopause

A diagnosis of HSDD may be considered in surgically menopausal women who experience “absent or diminished feelings of sexual interest or desire, absent sexual thoughts or fantasies, and a lack of responsive desire” and are bothered by these symptoms.¹⁰ After diagnostic work-up, all suspected etiologic conditions and possible treatment options should be discussed in detail with patients (Figure). The decision to initiate treatment should be individualized, with patients being completely informed of associated risks and benefits. A treatment plan that fails to address all causes can compromise treatment success. Professional counseling may provide critical support for patients and their partners during and after this decision-making process.

Estrogen therapy is usually recommended, absent any contraindication, for women who have undergone hysterectomy plus oophorectomy while of reproductive age for symptom management or preventive indications. Estrogen therapy can help preserve sexual function by improving vaginal health.

Table 4.
Goals of Patient Follow-up⁴⁶

- Maintain communication between physician and patient
- Continue education and support for patients and partners
- Monitor changes in sexual function and overall health
- Assess psychosocial function
- Address problems or concerns about treatment (eg, dosing/administration, lack of efficacy, and adverse effects)
- Reassess need for referral

erage are factors that may impact the decision to refer.

A number of medical professionals may provide support for patients with HSDD or other sexual problems, including gynecologists, psychiatrists or psychologists, marriage/relationship counselors, and sex therapists. When physicians choose to refer, they need to reassure patients that their care will be a collaborative effort among professionals. It may be helpful to discuss the potentially multifactorial nature of HSDD, which provides a strong rationale for taking an integrated approach to care.

Depending upon the initial indication, alternative therapies may be suggested for women who do not wish to take estrogens, including dietary supplements, exercise regimens, and stress management strategies.

Testosterone therapy is sometimes considered in surgically menopausal women with HSDD. None of the currently available testosterone formulations has been investigated in controlled clinical studies for the treatment for HSDD in surgically menopausal women or has received approval from the FDA for this problem. Nonetheless, there is off-label use of methyl testosterone with estrogen (Estratest), although we are unable to measure the activity of methyl testosterone on the androgen receptor. Some male approved products are used in women in about one-eighth of the approved dose. A testosterone patch has been developed for use in women with HSDD as a result of surgical menopause, providing bioidentical testosterone at a gender-appropriate androgen dose level. This formulation is still undergoing clinical trials in surgically menopausal women with HSDD as well as in women with an intact uterus. Phase II and phase III trial data reported to date demonstrate significant improvements in sexual function outcomes, including sexual desire and activity, and decreases in personal distress with the testosterone patch in surgically menopausal women with HSDD who were

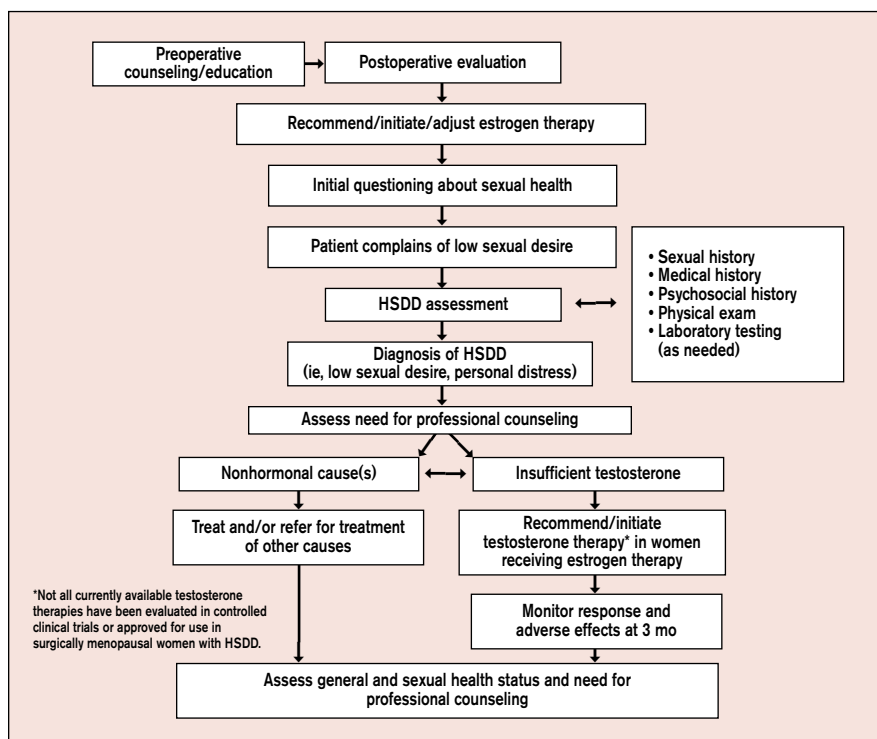


Figure. Assessment and management algorithm for HSDD in surgically menopausal women

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receiving estrogen therapy.²⁹⁻³³

Regardless of the treatment plan, good follow-up care will help ensure the best possible outcome (Table 4, page 17). The need for professional counseling, including psychosocial and/or sex therapy, should be routinely assessed throughout follow-up. Careful attention should be directed to treatment response and adverse effects that may require selection of substitute or adjunct therapies or modification of existing treatment. Emerging testosterone products are being developed and evaluated in women and may become the preferred treatment of low sexual desire in surgically menopausal women. Male testosterone products are not recommended because of the risk of supra-physiologic concentrations and virilization effects. Measuring testosterone levels to avoid adverse events may be problematic because of the limitations of currently available testosterone assays. If prescribing testosterone, physicians should monitor changes in skin and hair and other potential androgenic effects, which may occur gradually. Lipid and/or glucose testing in women treated with testosterone is discretionary. It is important to note that no long-term safety and efficacy data are currently available on the use of testosterone therapy in female sexual dysfunction. In women receiving estrogen therapy, ongoing discussions of the benefits and risks of ongoing hormone treatment are also needed.

Conclusions

Over the past two to three decades, clinical decision-making regarding ovarian conservation with hysterectomy has undergone a marked shift. Removal of the ovaries from premenopausal women is currently avoided unless medically indicated. When the ovaries are excised, education and counseling regarding postoperative sequelae and

their appropriate management are critical. In addition to the well-characterized somatic symptoms of menopause, sexual dysfunction such as low sexual desire may occur in oophorectomized women.^{14,15} Loss of sexual desire in surgically menopausal women can cause considerable concern and a diminished quality of life.^{41,42} Physicians are encouraged to take a proactive approach to the identification and management of sexual problems such as HSDD through discussion with their patients. A thorough sexual, medical, psychological, and psychosocial history is warranted when sexual dysfunction is suspected based on initial questioning.

The etiology of HSDD is often multifactorial, but depletion of testosterone levels may be a common contributor to loss of desire postoperatively. Testosterone patch therapy has been shown to significantly increase sexual desire and activity scores in controlled clinical trials in surgically menopausal women with HSDD receiving concomitant estrogen. Additional studies are needed to define the long-term safety and efficacy profiles of individual testosterone formulations in this population. With the impending availability of new therapies for HSDD in surgically menopausal women, physicians are encouraged to carefully review existing and emerging clinical trial data to help ensure the appropriate use of these therapies in the office practice setting. ■

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Dr. Utian serves as an advisor/consultant for the following companies: Eli Lilly, Pfizer, Novartis, J & J - Pharmaceutical Research and Development, Merck Theramex (Monaco), and Roche/GSK. He also receives research funding from the following companies: Amylin, 3m, Barr, Berlex, BMS, Eli Lilly,

Forest, Galen, Glaxo Smith Kline, Johnson & Johnson, Neurocrine Biosciences, Novartis, Novo Nordisk, Organon, Pharmacia, P & G, Pfizer, Roche, Sepracor, Solvay, Wyeth, and Yamanouchi.

Submitted: December 6, 2004. Accepted: December 9, 2004.

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Forum

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Do you have a clinical question or situation that you would like to pose to our panel of experts?

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