

SPECIAL FEATURE

Genitourinary syndrome of menopause: new terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and The North American Menopause Society

David J. Portman, MD,¹ Margery L.S. Gass, MD, NCMP,²
on behalf of the Vulvovaginal Atrophy Terminology Consensus Conference Panel

Abstract

Background: In 2012, the Board of Directors of the International Society for the Study of Women's Sexual Health (ISSWSH) and the Board of Trustees of The North American Menopause Society (NAMS) acknowledged the need to review current terminology associated with genitourinary tract symptoms related to menopause.

Methods: The 2 societies cosponsored a terminology consensus conference, which was held in May 2013.

Results and Conclusions: Members of the consensus conference agreed that the term *genitourinary syndrome of menopause* (GSM) is a medically more accurate, all-encompassing, and publicly acceptable term than *vulvovaginal atrophy*. GSM is defined as a collection of symptoms and signs associated with a decrease in estrogen and other sex steroids involving changes to the labia majora/minora, clitoris, vestibule/introitus, vagina, urethra and bladder. The syndrome may include but is not limited to genital symptoms of dryness, burning, and irritation; sexual symptoms of lack of lubrication, discomfort or pain, and impaired function; and urinary symptoms of urgency, dysuria and recurrent urinary tract infections. Women may present with some or all of the signs and symptoms, which must be bothersome and should not be better accounted for by another diagnosis. The term was presented and discussed at the annual meeting of each society. The respective Boards of NAMS and ISSWSH formally endorsed the new terminology—genitourinary syndrome of menopause (GSM)—in 2014.

Key Words: Atrophic vaginitis – Genitourinary syndrome of menopause – Menopause, urinary urgency – Vulvovaginal atrophy – Women's sexual health.

BACKGROUND

The terms *vulvovaginal atrophy* (VVA) and *atrophic vaginitis* have been considered by many to be inadequate and inexact for describing the range of menopausal symptoms associated with physical changes of the vulva, vagina, and lower urinary tract associated with estrogen deficiency. VVA describes the appearance of the postmenopausal vulva and vagina without specifying the presence of associated symptoms. Atrophic vaginitis connotes a state of inflammation or

infection, neither of which is a primary component of VVA. Furthermore, the word *atrophy*, as used in both terms, has negative connotations for midlife women, and the word *vagina* is not a generally accepted term for public discourse or for the media. Neither term includes reference to the lower urinary tract. A growing need for more accurate and inclusive terminology led to planning of the consensus conference.

Successful precedents for changing medical terminology are known. For example, the term *overactive bladder syndrome*,

Received July 9, 2014; revised and accepted July 9, 2014.

From the ¹Columbus Center for Women's Health Research, Columbus, OH; and ²The North American Menopause Society, Mayfield Heights, OH.

Vulvovaginal Atrophy Terminology Consensus Conference Panel:

David Portman, MD (Co-Chair); Margery Gass, MD, NCMP (Co-Chair); Sheryl Kingsberg, PhD (Conference Moderator); David Archer, MD, NCMP; Gloria Bachmann, MD; Lara Burrows, MD, MSc; Murray Freedman, MS, MD; Andrew Goldstein, MD; Irwin Goldstein, MD; Debra Heller, MD; Cheryl Iglesia, MD; Risa Kagan, MD, NCMP; Susan Kellogg Spadt, PhD, CRNP; Michael Krychman, MD; Lila Nachtigall, MD, NCMP; Rossella Nappi, MD, PhD; JoAnn Pinkerton, MD, NCMP; Jan Shifren, MD, NCMP; James Simon, MD, NCMP; Cynthia Stuenkel, MD, NCMP.

This article is being simultaneously published in the journals *Climacteric*, *The Journal of Sexual Medicine*, *Maturitas*, and *Menopause*, *The Journal of The North American Menopause Society*.

Funding/support: The Consensus Conference was sponsored by unrestricted educational grants from Apricus Biosciences; Bayer; Novo Nordisk; Shionogi; Tara Allmen, MD; Lil' Drug Store; Warner Chilcott; and Women's Initiative on Sexual Health (WISH).

Financial disclosure/conflicts of interest: M.L.S.G. reports no disclosures. D.P. reports research grants from Abbvie, Activas, Amneal, Bayer, Endoceutics, Noven, Palatin, Pfizer, QuatRx, Sun Pharmaceuticals, Teva, TherapeuticsMD; consultant for Activas, Noven, NovoNordisk, Palatin, Pfizer, Shionogi, Sprout, TherapeuticsMD; and has received payment for speaker's bureau for Noven, Pfizer and Shionogi.

Address correspondence to: David J. Portman, MD, Director, Columbus Center for Women's Health Research, 99 North Brice Road, Suite 120, Columbus, OH 43213. E-mail: dportman@ccwhr.com

now widely accepted and helpful to patients, healthcare professionals, and researchers, was introduced in 2002 by the Standardization Subcommittee of the International Continence Society to refer to various symptoms of lower urinary tract dysfunction.¹ A similar nomenclature update was made by changing the term *impotence* to *erectile dysfunction* (ED) more than 20 years ago—well before any pharmacologic treatments became available.² The word *impotence* was considered pejorative, and may have erroneously implied that the condition was psychogenic.^{2,3} When the stigma associated with the term *impotence* was removed, the definition of ED refined, and guidelines for assessment and therapy provided, communication between healthcare professionals and patients greatly improved, as did treatment and quality of life.² Erectile dysfunction and its acronym ED are now part of our discourse and are commonly used by the popular media and by members of the general public. Treatments have been widely studied, discussed, prescribed, and accepted.⁴ All of this was accomplished without using the word *penis*. A similar approach can be employed to explore new terminology for women's genital and vaginal changes that occur with menopause and aging; our growing interest and commitment led to the development of this consensus conference.

Objectives

The primary objectives of the consensus conference were 3-fold: (1) to review the basic and clinical science related to genitourinary physical changes and resultant symptoms associated with menopause, and to identify key elements relevant to the terminology; (2) to determine whether the term *vulvovaginal atrophy* should be revised and, if so, to develop a new term that more accurately and appropriately describes the condition for medical care, teaching, and research; (3) to generate a plan for disseminating recommendations and raising awareness of the new terminology among members of the broader healthcare community, including specialists, primary care providers, researchers, and patients, as well as the public.

Process

The 5-person selection committee identified acknowledged experts in the field of postmenopausal urogenital and sexual

health by performing a literature search and seeking recommendations from peers who were members of women's health societies. These individuals were invited to participate in a 2-day interdisciplinary consensus conference, where they would be charged with evaluating current terminology for symptomatic urogenital changes associated with menopause and preparing presentations on a specific component of this subject based on the latest scientific literature (Fig.). The selected experts received no compensation for their participation beyond reimbursement for travel expenses. The consensus conference was held May 18-19, 2013, in Chicago, Illinois.

After the relevant scientific literature was reviewed, the appropriateness of the term VVA was discussed. All participants agreed that a new term was needed that more accurately described the syndrome and would be more acceptable to women, educators, researchers, the public, and the media. The panelists then separated into 3 groups to explore and identify new terms that would be descriptive, comprehensive, and suitable for professionals, patients, and media. Each group proposed terms to the entire group for discussion and critical assessment. This process was continued until several potentially acceptable terms garnered majority support. Written ballots were used to determine the final 2 choices, at which point further discussion led to consensus with selection of the preferred term.

The process and the results of the consensus conference were presented for open discussion at 2 scientific meetings: the Annual Meeting of NAMS in October 2013, and the Annual Meeting of ISSWSH in February 2014. The Boards of both societies officially approved the new term *genitourinary syndrome of menopause* (GSM).

RELEVANT FINDINGS FROM SCIENTIFIC SESSIONS AND LITERATURE REVIEW

During menopause, women experience many physical changes caused by a decrease in estrogen and other hormones and the effects of aging.⁵ In addition to vasomotor symptoms, sleep disturbances, and mood alterations, menopausal women experience an increase in vulvovaginal symptoms.⁵ One of the earliest descriptions of VVA came from Columbat de l'Isere,

1. *The Fundamentals of VVA: Physiology, Embryology, Differential Diagnosis, and Microbiology*
2. *The Influencing Factors: Age, Menopause, Endocrine Factors, and Hormone Levels*
3. *Consequences of VVA: I. Sexual Dysfunction*
4. *Consequences of VVA: II. Urogynecologic Pelvic Support, Neurovascular, and Urinary Tract Issues*
5. *Treatment Options: Current and Future*
6. *The Patient's View: Patient Communication and Surveys*
7. *Vulvar and Vaginal Anatomical Changes in Menopause*

FIG. Scientific sessions that served to inform and direct the terminology discussion.

in 1845: “[*The postmenopausal women’s*] . . . features are stamped with the impress of age and their genital organs are sealed with the signet of sterility. . . . It is the dictate of prudence to avoid all such circumstances as might tend to awaken any erotic thoughts in the mind and re-animate a sentiment that ought rather become extinct.”⁶

Unfortunately, inexact or inaccurate terminology becomes part of the scientific and popular lexicon and can be slow to change. For example, *involutional melancholia*, penned by Kraepelin in 1907, referred to a “*psychosis . . . essentially a disease of the period of involution—(age) forty to fifty years in women.*” The term was not removed from the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* until 1980.⁷

The *Merriam-Webster Dictionary* defines *atrophy* as “a decrease in size or wasting away of a body part or tissue; wasting away or progressive decline, as from disuse.” However, vaginal atrophy is not directly related to disuse. Although ongoing sexual activity may help prevent some constriction and stenosis, changes in the vaginal epithelium accompanied by symptoms can still occur with associated discomfort.

It is important to note that most menopausal women remain sexually active after menopause. In one study of 94,000 postmenopausal women 50 to 79 years of age, 52% reported that they had been sexually active with a partner in the past year.⁸ A review of published literature revealed that 22% of married women 70-79 years of age report that they still have sexual intercourse.⁹ Clearly, current VVA terminology focused on atrophy reflects neither contemporary cultural norms nor the state of the science.

Urogenital Changes

Anatomic and physiologic changes in the vagina associated with menopause are directly related to reduced circulating estrogen levels and aging.¹⁰ The high concentration of estrogen receptors in the vagina, vestibule, and trigone of the bladder modulates cellular proliferation and maturation.¹¹⁻¹³ Low levels of circulating estrogen after menopause result in physiologic, biologic, and clinical changes in the urogenital tissues. Anatomic changes include reduced collagen content and hyalinization, decreased elastin, thinning of the epithelium, altered appearance and function of smooth muscle cells, increased density of connective tissue, and fewer blood vessels. The labia minora thin and regress, the introitus retracts, and the hymenal carunculae involute and lose elasticity, often leading to significant entry dyspareunia. The urethral meatus appears prominent relative to the introitus and becomes vulnerable to physical irritation and trauma.

Physiologic changes result in reduced vaginal blood flow, diminished lubrication, decreased flexibility and elasticity of the vaginal vault, and increased vaginal pH.¹¹⁻¹³ Furthermore, decreases in vaginal tissue strength and increased friability may predispose to epithelial damage with vaginal penetrative sexual activity, leading to vaginal pain, burning, fissuring, irritation, and bleeding after sex.^{13,14} Epithelial thinning with decreased glycogenated superficial cells leads to changes in vaginal flora and loss of lactobacilli, increased pH, and a change in the

microbiome.¹³ Changes in vaginal flora with menopause and their significance with regard to GSM are being examined in various vaginal microbiome research studies.^{15,16}

Genitourinary and Sexual Symptoms

Menopause-related genitourinary symptoms affect up to 50% of midlife and older women.^{13,17,18} They can be chronic and progressive and are unlikely to improve over time.^{17,19}

In a longitudinal, population-based study of 438 women in Australia, the prevalence of vaginal dryness increased with the menopausal stage. In early perimenopause, the prevalence was 4%, rising to 25% 1 year after menopause and 47% 3 years after menopause.²⁰ The severity of vulvovaginal symptoms ranges from mild to debilitating¹⁸; they are not limited to sexually active women.²¹

Although genitourinary symptoms may affect up to half of postmenopausal women,¹⁷ many are unaware that symptoms result directly from the decline in estrogen associated with menopause and that treatment is available. In the Vaginal Health: Insights, Views and Attitudes (VIVA) study, an estimated 45% of postmenopausal women reported that they experienced vaginal symptoms, but only 4% were able to identify these symptoms as VVA related to menopause.²²

VVA does not cause symptoms in all women, but many women report dryness and dyspareunia (the most bothersome symptoms reported in clinical trials),²³ bleeding or spotting with sexual activity, burning, discomfort, and irritation, and many others describe multiple symptoms.²⁴

The relationship between genitourinary symptoms and sexuality is complex, as physiologic and psychologic factors, interpersonal relationships, and sociocultural influences all play a role in sexual function. In the National Social Life, Health, and Aging Project, which interviewed 3000 men and women 57 to 85 years of age, most reported that they were in intimate relationships and regarded sexuality as an important part of life.²⁵

The Study of Women’s Health Across the Nation (SWAN) followed approximately 3000 ethnically diverse women 42 to 52 years of age at baseline. Results indicate that although menopausal factors were unrelated to most aspects of sexual functioning, age, social function, health, relationship, and psychological factors were all highly related to sexual function.²⁶ In the Menopause Epidemiology Study, women were at 4-fold greater risk of experiencing sexual dysfunction when VVA was present.²⁷ The effect of VVA in a survey of 1000 postmenopausal women was profound: 64% reported painful sex, 64% described loss of libido, and 58% revealed that they avoided intimacy.²⁸

It is important to recognize that the term *VVA* fails to encompass coexisting urinary problems, such as frequency, urgency, nocturia, dysuria, and recurrent urinary tract infections (UTIs), which can often be associated with VVA.^{12,13,17,29,30} Lower urinary tract symptoms and urinary incontinence have been associated with both systemic aging and menopause.^{30,31} The urethra and the bladder trigone are derived embryologically from the same estrogen receptor–dense primitive

TABLE 1. *Components used to develop new terminology*

Anatomy	Descriptors	Problem	Life Phase
Vagina	Vulvovaginal	Atrophy	Midlife
Vulva	Genital	Alterations	Aging
Labia	Gynecologic	Changes	Menopause
Vestibule	Reproductive	Condition	Perimenopause
Urethra	Sexual	Disease	Postmenopause
Bladder	Urogenital	Disorder	
	Genitourinary	Deficiency	
	Urinary	Dysfunction	
	Urologic	Syndrome	
		Vaginitis	

Terms in bold are the words selected by the panel to develop new nomenclature.

urogenital sinus tissue, as are the vulvar vestibule and the upper vagina.²⁹ Androgen receptors are also widely distributed in the vestibule and within its glands, making urogenital tissues responsive not only to estrogen but to androgens as well.³² Urinary frequency and urgency are common midlife complaints; incontinence occurs in 15% to 35% of women over 60 years of age.^{30,33,34} Women with lower urinary tract symptoms have a 7-fold greater risk of sexual pain disorders and a 4-fold greater risk of sexual arousal disorders than women without such symptoms.³⁵ The association between vaginal atrophy and other urogenital conditions has been confirmed in a claims database study of more than 9000 postmenopausal US women.³⁶

Recurrent UTIs can affect 5% to 17% of postmenopausal women; asymptomatic bacteriuria attributable in part to an increase in residual volume and reduced urine flow that impairs clearance of bacteria can be found in 20%.^{30,34,37,38} The decrease in diversity of the vaginal microbiome and in acid-generating bacteria and the increase in coliform species within the vagina in menopause may predispose to infection and urogenital symptoms. Lack of awareness of the association between recurrent UTIs and GSM may result in multiple courses of antibiotic therapy, antibiotic prophylaxis, and altered patterns of antimicrobial drug resistance. Recognizing and treating underlying GSM with local vaginal estrogen may help to avoid such problems.^{37,39,40} Terminology that creates awareness of the genitourinary symptom complex associated with menopause will help healthcare professionals and women to improve health and quality of life for women beyond menopause.

Public Perception

In the 2010 VIVA survey, conducted online in 6 countries, postmenopausal women were asked for the most suitable term to describe dryness, itching, burning, or soreness in the vagina or pain during intercourse. Only 2% chose *vaginal atrophy* as a suitable term.²² Many people are uncomfortable using the word *vagina* in public discourse. New terminology is clearly needed that captures the full spectrum of symptoms, is appropriately descriptive, resonates with healthcare professionals, and is acceptable to women, professionals, media, and the general public.

General lack of communication about female sexual health issues has been noted in the clinical setting. In the recent Real

Women’s Views of Treatment Options for Menopausal Vaginal Changes (REVIVE) survey, postmenopausal women reported that only 19% of healthcare professionals addressed their sexual lives, and only 13% specifically raised the issue of genitourinary symptoms, despite the fact that 40% of women expected their healthcare professional to initiate discussions related to menopausal symptoms.⁴¹

Evidence suggests that negative societal attitudes about women’s sexuality at older ages may limit discussion about sex by both the patient and the provider, particularly if the provider is younger or male.^{25,42} Furthermore, sexual problems attributed to aging may be perceived as normal and irreversible, and women may be unaware that symptoms are linked to menopause or that treatments are available.^{41,42} In the Clarifying Vaginal Atrophy’s Impact on Sex and Relationships (CLOSER) online survey, less than half of US respondents were aware of available treatments (nonhormonal or hormonal) to improve vaginal discomfort.²⁸ Collectively, these findings serve to highlight the lack of discussion, the underdiagnosis, and the undertreatment of vulvar, vaginal, sexual, and urinary symptoms associated with menopause.

New Terminology

After reviewing the clinical and basic science, diagnosis and therapy options, and public perceptions, the consensus panel unanimously concluded that the terms *vulvovaginal atrophy* and *atrophic vaginitis* are not adequate for referring to the constellation of signs and symptoms that affect the genitourinary system after menopause. Specifically, VVA mentions *vulva* and *vagina* only—words that are not used comfortably in general social discussion and in the media, and the term *atrophy* has negative connotations for many women. Furthermore, the term *VVA* does not include the lower urinary tract and describes the appearance of vaginal structures, rather than what is clinically most important—related genitourinary symptoms. *Atrophic vaginitis* carries similar limitations and implies that inflammation or infection is involved, neither of which is inherently part of the condition.

TABLE 2. *Genitourinary Syndrome of Menopause (GSM): symptoms and signs*

Symptoms	Signs
Genital dryness	Decreased moisture
Decreased lubrication with sexual activity	Decreased elasticity
Discomfort or pain with sexual activity	Labia minora resorption
Post-coital bleeding	Pallor/Erythema
Decreased arousal, orgasm, desire	Loss of vaginal rugae
Irritation/Burning/Itching of vulva or vagina	Tissue fragility/fissures/petechiae
Dysuria	Urethral eversion or prolapse
Urinary frequency/urgency	Loss of hymenal remnants
	Prominence of urethral meatus
	Introital retraction
	Recurrent urinary tract infections

Supportive findings: pH >5, increased parabasal cells on maturation index, and decreased superficial cells on wet mount or maturation index.

Elements considered by the consensus panel to be important to incorporate into the new term are shown in Table 1. Table 2 provides a means of displaying the anatomic sites, signs, and symptoms under discussion. The panel agreed that because the affected anatomy includes both genital and urinary elements, *urogenital* or *genitourinary* should be included in the new terminology. *Syndrome* was chosen to describe the problem because it implies a constellation of signs and symptoms. *Syndrome* can be defined as an aggregate of signs and symptoms associated with any morbid process, only some of which need to be present for the diagnosis to be made. While studies of vaginal atrophy focus on the most bothersome symptom (per current Food and Drug Administration [FDA] guidance), many patients have more than one symptom, supporting the concept of a syndrome or symptom complex.⁴³ *Menopause* was included in the term to link the condition to its principal cause and to help differentiate it from other genitourinary conditions that occur in women of all ages.

After extensive discussion and voting, the final options chosen by the panel were *genitourinary syndrome of menopause* (GSM) and *urogenital syndrome of menopause* (USM). GSM was the term selected by the panel. The panel agreed that *genito* should have the emphasis rather than *uro* because this would focus the attention of women, healthcare professionals, and the public on the primary genital concerns, including the important sexual component of the syndrome, while including associated urinary issues.

Genitourinary syndrome of menopause is defined as a collection of symptoms and signs associated with a decrease in estrogen and other sex steroids involving changes to the labia majora/minora, clitoris, vestibule/introitus, vagina, urethra and bladder. The syndrome may include but is not limited to genital symptoms of dryness, burning, and irritation; sexual symptoms of lack of lubrication, discomfort or pain, and impaired function; and urinary symptoms of urgency, dysuria and recurrent UTIs. Women may present with some or all of the signs and symptoms, which must be bothersome and should not be better accounted for by another diagnosis.

Genitourinary syndrome of menopause is a comprehensive term that includes symptomatic VVA as well as lower urinary tract symptoms related to low estrogen levels. Women may present with some or all of the symptoms (Table 2), and symptoms should not be better accounted for by another diagnosis.*

Thorough reviews of diagnostic and treatment recommendations for GSM recently published by NAMS and by the International Menopause Society (IMS)^{17,31} are beyond the scope of this paper.

*Possible differential diagnoses include infectious disease (eg, candidiasis, bacterial vaginosis, trichomoniasis, gonorrhea/chlamydia); irritant or allergic vaginitis/vulvitis (caused by soaps, perfumes, powders, deodorants, panty liners/pads, diapers, urine, spermicides, latex condoms, semen, warming gels, lubricants, vaginal moisturizers, topical antimycotics); vulvovaginal dermatoses (eg, lichen sclerosus, erosive lichen planus, mucous membrane pemphigoid, plasma cell vulvitis); hypertonic pelvic floor muscle dysfunction (levator ani spasm); desquamative inflammatory vaginitis; painful bladder syndrome/interstitial cystitis; vulvodynia/vestibulodynia; and pudendal neuralgia.

In addition to new terminology, the group agreed that an assessment tool to facilitate and standardize the physical examination would be useful. A draft tool developed by the group during the meeting focuses on anatomic and morphologic changes and tissue characteristics. It will be validated and made available in the near future. The panel also recognized the need for a comprehensive and validated patient-reported outcomes (PRO) instrument that accurately captures and can prospectively follow the constellation of symptoms of GSM. Independent initiatives are currently under way to create and validate such an instrument.

DISCUSSION AND DISSEMINATION OF NEW TERMINOLOGY

“Proceedings From the ISSWSH/NAMS Consensus Conference on Vaginal Atrophy Terminology” were presented on October 12, 2013, at the Annual Meeting of The North American Menopause Society in Dallas, Texas. An interactive session with meeting attendees and a panel consisting of select members of the Consensus Conference followed a brief presentation. Attendees agreed overall that new terminology is necessary. After open discussion, *genitourinary syndrome of menopause*, with the acronym GSM, resonated with most attendees as the most scientifically accurate, descriptive, inclusive, and socially acceptable medical term.

Presentation and discussion of the new term *genitourinary syndrome of menopause* (GSM) occurred at the ISSWSH Annual Meeting on February 14, 2014, in San Diego. Strong support was expressed for the new terminology and the acronym GSM.

In early 2014, the ISSWSH and NAMS Boards formally approved the term *genitourinary syndrome of menopause* (GSM).

SUMMARY

The term *genitourinary syndrome of menopause* (GSM) provides an accurate and comprehensive description of a common symptomatic postmenopausal condition. This term encompasses previous terms as individual components of the overall syndrome but should replace more restrictive terms when referring to the entire syndrome. It is anticipated that the term *GSM* will be acceptable for use by primary care providers, clinical specialists, researchers, educators, affected women, the media, and the public, and that it will serve to improve and increase communication, research, education, and treatment related to the genitourinary and sexual health of menopausal women.

Acknowledgments: Consensus Conference Panelists— Sheryl Kingsberg, PhD (conference moderator), MacDonald Women’s Hospital and Case Western Reserve University School of Medicine; Margery Gass, MD, NCMP (co-chair), The North American Menopause Society; David Portman, MD (co-chair), Columbus Center for Women’s Health Research; David Archer, MD, NCMP, Jones Institute for Reproductive Medicine; Gloria Bachmann, MD, Rutgers – Robert Wood Johnson Medical School; Lara Burrows, MD, MSc, Summa Health System; Murray Freedman, MS, MD, Medical College of Georgia; Andrew Goldstein, MD, Center for Vulvovaginal Disorders; Irwin Goldstein, MD, San Diego Sexual Medicine; Debra Heller, MD, Rutgers – New

Jersey Medical School; Cheryl B. Iglesia, MD, MedStar Washington Hospital Center and Georgetown University School of Medicine; Risa Kagan, MD, NCMP, University of California, San Francisco, Sutter East Bay Physicians Medical Group, Berkeley; Susan Kellogg Spadt, PhD, CRNP, Sexual Medicine, Pelvic and Sexual Health Institute of Philadelphia; Michael Krychman, MD, Southern California Center for Sexual Health; Lila Nachtigall, MD, NCMP, New York University School of Medicine; Rossella E. Nappi, MD, PhD, Department Ob/Gyn, IRCCS Policlinico San Matteo, University of Pavia, Italy; JoAnn V. Pinkerton, MD, NCMP, University of Virginia – Division Midlife Health; Jan Shifren, MD, NCMP, Massachusetts General Hospital, Harvard Medical School; James Simon, MD, NCMP, George Washington University, Women's Health & Research Consultants; Cynthia Stuenkel, MD, NCMP, University of California, San Diego School of Medicine.

Selection Committee: Sarah Berga, MD, Wake Forest University; Margery Gass, MD, NCMP, The North American Menopause Society; Andrew Goldstein, MD, ISSWSH President; Irwin Goldstein, MD, San Diego Sexual Medicine; David Portman, MD, ISSWSH Treasurer.

Editorial Support: The authors wish to acknowledge editorial support provided by Sally Mitchell, PhD; Lynn Brown, PhD; Maribeth Bogush, PhD; Norma Padilla, PhD; Penny Allen, and Kathy Method.

REFERENCES

- Abrams P, Cardozo L, Fall M, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Subcommittee of the International Continence Society. *Am J Obstet Gynecol* 2002;187:116-126.
- National Institutes of Health. Impotence. NIH Consensus Statement. 1992;10:1-37.
- Lizza EF, Rosen RC. Definition and classification of erectile dysfunction: report of the Nomenclature Committee of the International Society of Impotence Research. *Int J Impot Res* 1999;11:141-143.
- Castelo-Branco C, Huezos ML, Lagarda JL. Definition and diagnosis of sexuality in the XXI century. *Maturitas* 2008;60:50-58.
- The North American Menopause Society. *Menopause Practice: A Clinician's Guide*. 4th ed. Mayfield Heights, OH: NAMS; 2010.
- Bachmann G. Urogenital ageing: an old problem newly recognized. *Maturitas* 1995;22(Suppl):S1-S5.
- Hirshbein LD. Gender, age, and diagnosis: the rise and fall of involuntional melancholia in American psychiatry, 1900-1980. *Bull Hist Med* 2009;83:710-745.
- McCall-Hosenfeld JS, Jaramillo SA, Legault C, et al. Correlates of sexual satisfaction among sexually active postmenopausal women in the Women's Health Initiative Observational Study. *J Gen Intern Med* 2008;23:2000-2009.
- Schneidewind-Skibbe A, Hayes RD, Koochaki PE, et al. The frequency of sexual intercourse reported by women: a review of community-based studies and factors limiting their conclusions. *J Sex Med* 2008;5:301-335.
- Yen SSC, Jaffe RB, eds. *Reproductive Endocrinology*. 2nd ed. Philadelphia, PA: W.B. Saunders Co; 1986.
- Tan O, Bradshaw K, Carr BR. Management of vulvovaginal atrophy-related sexual dysfunction in postmenopausal women: an up-to-date review. *Menopause* 2012;19:109-117.
- Nappi RE, Palacios S. Impact of vulvovaginal atrophy on sexual health and quality of life at postmenopause. *Climacteric* 2014;17:3-9.
- MacBride MB, Rhodes DJ, Shuster LT. Vulvovaginal atrophy. *Mayo Clin Proc* 2010;85:87-94.
- Kingsberg S, Kellogg S, Krychman M. Treating dyspareunia caused by vaginal atrophy: a review of treatment options using vaginal estrogen therapy. *Int J Womens Health* 2010;1:105-111.
- Brotman RM, Shardell MD, Gajer P, et al. Association between the vaginal microbiota, menopause status, and signs of vulvovaginal atrophy. *Menopause* 2014;21:450-458.
- Hummelen R, Macklaim JM, Bisanz JE, et al. Vaginal microbiome and epithelial gene array in post-menopausal women with moderate to severe dryness. *PLoS ONE* 2011;6:e26602.
- Management of symptomatic vulvovaginal atrophy: 2013 position statement of The North American Menopause Society. *Menopause* 2013;20: 888-902.
- Parish SJ, Nappi RE, Krychman ML, et al. Impact of vulvovaginal health on postmenopausal women: a review of surveys on symptoms of vulvovaginal atrophy. *Int J Womens Health* 2013;5:437-447.
- Winneker RC, Harris HA. Progress and prospects in treating postmenopausal vaginal atrophy. *Clin Pharmacol Ther* 2011;89:129-132.
- Dennerstein L, Dudley EC, Hopper JL, Guthrie JR, Burger HG. A prospective population-based study of menopausal symptoms. *Obstet Gynecol* 2000;96:351-358.
- Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. *J Sex Med* 2009;6:2133-2142.
- Nappi RE, Kokot-Kierepa M. Vaginal Health: Insights, Views & Attitudes (VIVA): results from an international survey. *Climacteric* 2012;15:36-44.
- Ettlinger B, Hait H, Reape KZ, Shu H. Measuring symptom relief in studies of vaginal and vulvar atrophy: the most bothersome symptom approach. *Menopause* 2008;15:885-889.
- Oge T, Hassa H, Aydin Y, Yalcin OT, Colak E. The relationship between urogenital symptoms and climacteric complaints. *Climacteric* 2013;16: 646-652.
- Lindau ST, Schumm LP, Laumann EO, Levinson W, O'Muircheartaigh CA, Waite LJ. A study of sexuality and health among older adults in the United States. *N Engl J Med* 2007;357:762-774.
- Avis NE, Brockwell S, Randolph JF Jr, et al. Longitudinal changes in sexual functioning as women transition through menopause: results from the Study of Women's Health Across the Nation. *Menopause* 2009;16:442-452.
- 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.
- Simon JA, Nappi RE, Kingsberg SA, Maamari R, Brown V. Clarifying Vaginal Atrophy's Impact on Sex and Relationships (CLOSER) survey: emotional and physical impact of vaginal discomfort on North American postmenopausal women and their partners. *Menopause* 2014;21:137-142.
- Robinson D, Tooze-Hobson P, Cardozo L. The effect of hormones on the lower urinary tract. *Menopause Int* 2013;19:155-162.
- Robinson D, Cardozo L. The pathophysiology and management of postmenopausal urogenital oestrogen deficiency. *J Br Menopause Soc* 2001;7:67-73.
- Sturdee DW, Panay N. Recommendations for the management of postmenopausal vaginal atrophy. *Climacteric* 2010;13:509-522.
- Baldassarre M, Giannone FA, Foschini MP, et al. Effects of long-term high dose testosterone administration on vaginal epithelium structure and estrogen receptor-alpha and -beta expression of young women. *Int J Impot Res* 2013;25:172-177.
- Iosif CS, Bekassy Z. Prevalence of genito-urinary symptoms in the late menopause. *Acta Obstet Gynecol Scand* 1984;63:257-260.
- Molander U, Milsom I, Ekelund P, Mellstrom D. An epidemiological study of urinary incontinence and related urogenital symptoms in elderly women. *Maturitas* 1990;12:51-60.
- Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. *JAMA* 1999;281:537-544.
- Constantine GD, Bruyniks N, Prinic N, et al. Incidence of genitourinary conditions in women with a diagnosis of vulvar/vaginal atrophy. *Curr Med Res Opin* 2014;30:143-148.
- Perrotta C, Aznar M, Mejia R, Albert X, Ng CW. Oestrogens for preventing recurrent urinary tract infection in postmenopausal women. *Cochrane Database Syst Rev* 2008;CD005131.
- Pinkerton JV. Vaginal impact of menopause-related estrogen deficiency. *OBG Management* 2010;22(suppl):S2-S7.
- Luthje P, Hirschberg AL, Brauner A. Estrogenic action on innate defense mechanisms in the urinary tract. *Maturitas* 2014;77:32-36.
- Nazarko L. Recurrent urinary tract infection in older women: an evidence-based approach. *Br J Community Nurs* 2013;18:407-412.
- Kingsberg SA, Wysocki S, Magnus L, Krychman ML. Vulvar and vaginal atrophy in postmenopausal women: findings from the REVIVE (REal Women's Views of Treatment Options for Menopausal Vaginal Changes) survey. *J Sex Med* 2013;10:1790-1799.
- Gott M, Hinchliff S. Barriers to seeking treatment for sexual problems in primary care: a qualitative study with older people. *Fam Pract* 2003; 20:690-695.
- Simon JA, Reape KZ, Winger S, Hait H. Randomized, multicenter, double-blind, placebo-controlled trial to evaluate the efficacy and safety of synthetic conjugated estrogens B for the treatment of vulvovaginal atrophy in healthy postmenopausal women. *Fertil Steril* 2008; 90:1132-1138.