Self-Management, Amitriptyline, and Amitriptyline plus Triamcinolone in the Management of Vulvodynia

Candace S. Brown, M.S.N., Pharm.D.,¹ Jim Wan, Ph.D.,² Gloria Bachmann, M.D.,³ and Ray Rosen, Ph.D.⁴

Abstract

Objective: To conduct a prospective study to determine the efficacy of self-management interventions, amitriptyline, and amitriptyline plus topical triamcinolone in reducing vulvar pain in women with vulvodynia.

Methods: This was a randomized, prospective study of 53 women between the ages of 18 and 72 with vulvodynia. Participants undertook one of three treatment interventions for a period of 12 weeks: self-management, oral amitriptyline (10–20 mg/day), or topical triamcinolone plus oral amitriptyline (10–20 mg/day). The McGill Pain Questionnaire (MPQ) was used to measure changes in qualitative pain using the pain rating index (PRI) and in quantitative pain using the present pain intensity (PPI) scale.

Results: Of the 53 randomized subjects, 43 completed the trial. There were no statistically significant differences in PRI or PPI scores among the three treatment groups. Significant within-group differences were observed in the self-management group on the PRI and in the amitriptyline group on the PPI.

Conclusions: This first randomized, prospective trial suggests that self-management has a modest effect and that low-dose amitriptyline (with and without topical triamcinolone) is not effective in reducing pain in women with vulvodynia.

Introduction

VULVODYNIA IS A CHRONIC vulvar disorder characterized by pain from friction with clothing, intercourse, sitting for an hour or more, urination, and speculum insertion.¹ Although its precise prevalence is unknown, up to 16% of women in the general population have been reported to have this condition.² Because the etiology of vulvodynia is unknown, treatment has largely been empirical, and guidelines are just emerging based on available literature and expert opinion.^{1,3}

Among the most commonly used modalities are tricyclic antidepressants (TCAs), topical steroids, and cognitive-behavioral interventions. Because data have shown TCAs to be effective in chronic pain conditions,⁴ they are generally considered first-line pharmacological therapy. Three retrospective trials^{5–7} and one prospective trial⁸ have reported from 50% improvement to complete resolution of symptoms in women with vulvodynia. However, none of these studies were randomized, all allowed concomitant therapy, many

did not use standardized rating scales, and the low doses typically used in clinical practice were not evaluated systematically.^{5,6,8}

As it has been speculated that vulvodynia may be related to inflammatory conditions, corticosteroids have been employed. A survey showed that 34% of clinicians use topical steroids to treat vulvodynia and 22% used them as first-line therapy.⁹ Submucous infiltration of betamethasone and lidocaine¹⁰ and methylprednisolone and lidocaine¹¹ has shown benefit in patients with localized vulvodynia, but topical steroids have not been evaluated separately.

Because pain is multidimensional and adversely affects the well-being and quality of life in women with vulvodynia,¹² nonpharmacological techniques have been investigated. Retrospective studies of women with localized vulvodynia have shown success rates of up to 68% with cognitive-behavioral sex therapy^{13,14} and up to 51% with physical therapy.¹⁵ Controlled trials have found that cognitive-behavioral therapy, biofeedback, and vestibulectomy were significantly superior to baseline at 12 weeks¹⁶ and at

¹Departments of Pharmacy, Obstetrics and Gynecology, and Psychiatry, and ²Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, Tennessee.

³Women's Health Institute, Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey, New Brunswick, New Jersey.

⁴Department of Psychiatry, New England Research Institutes, Watertown, Massachusetts.

a 2¹/₂ year follow-up¹⁷ in this population. Whereas combined approaches have been used successfully in other chronic pain conditions,¹⁸ it is not clear if multimodal approaches cause significantly higher success rates in women with vulvodynia.

Treatments using combined pharmacotherapy have also not been systematically examined, even though it is apparent that monotherapy is often ineffective. Consequently, we conducted a randomized trial comparing a comprehensive self-management approach with both low-dose amitriptyline and low-dose amitriptyline plus a topical steroid intervention. The goal of this pilot study was to examine the plausibility of these three therapies as potential arms in a larger-scale, more rigorous trial and to provide the data necessary to design such a trial.

Our primary outcome measure was change from baseline in McGill Pain Questionnaire (MPQ) scores in the self-management, amitriptyline, and amitriptyline plus topical triamcinolone treatment groups. Our primary objective was to compare differences in pain scores among the three treatment groups, and our secondary objective was to compare differences within treatment groups.

Materials and Methods

This trial was conducted at a single academic medical center from January 2003 to August 2005. Institutional review board approval was obtained for the study, and all participants gave informed consent.

Participants between the ages of 18 and 80 were included in the study if they reported pain, itching, burning, or tenderness of the vulva that was subjectively distressing for at least 6 months. Women with generalized pain, localized or mixed and with or without provocation, were included in the study, as these comprise the spectrum of symptoms women will report to their physicians. Subjects were excluded from this study if they had major medical or psychiatric illness, active vulvovaginal infection, or abnormal Pap smear; were unwilling to discontinue current treatment for vulvar symptoms; were pregnant or refused to use contraception if at risk for pregnancy; and if there were any evidence of drug or alcohol abuse.

All subjects had a detailed history taken and had a complete pelvic and vulvar examination, including cotton swab test, vaginal pH, wet preparation for *Candida*, *Trichomonas*, and bacterial vaginosis, Pap smear (if not done in the past year), and a complete blood count and comprehensive metabolic profile.

Nonresponders were selected from a pool of 76 women who had completed a 2-week washout from a previous trial comparing dietary therapy (low-oxalate vs. low-fat diet). We chose this population in an attempt to limit potential placebo responders, as a placebo effect from pain interventions is thought to be high.¹⁹ Subjects were randomly assigned in a 2:1:1 ratio to one of three treatment groups: self-management vs. oral amitriptyline vs. oral amitriptyline plus topical triamcinolone. Self-management classes were conducted after a group of 6 subjects had been randomized to this treatment arm. The method used to implement the random allocation consisted of concealed envelopes, which were opened by study staff at the time of randomization. The allocation sequence was generated using a computer program contain-

ing randomized numbers. Neither the study staff nor the subjects were blinded to treatment assignment after randomization. All subjects on amitriptyline were started at 10 mg daily and continued for 6 weeks. At the 6-week visit, efficacy, tolerability, and compliance were assessed, and more medication was dispensed. If there was no or minimal relief at 6 weeks and the medication was well tolerated, the dose was increased to 20 mg daily at bedtime. If the subject had relief from the 10-mg dose, she was continued on that dose to the end of the study.

Those subjects receiving 0.1% topical triamcinolone acetate were instructed to apply the cream to the affected vulvar area one time daily at bedtime. The subject identified the pain location, which could include the labia majora, labia minor, or vestibule. At the 6-week visit, subjects were discontinued from the topical cream, which is a typical duration of treatment. A measuring device was given to subjects to insure the same amount of cream was used for all subjects throughout the study (approximately 5 mg each dose). At each visit, adverse effects, concomitant medication, and medication containers were returned to assess compliance. Compliance was measured by assessing whether the amitriptyline tablet count and amount of cream in the measuring devices were consistent with reported use of these interventions. A nurse practitioner, under the supervision of the gynecologist author (C.S.B.), was responsible for the pharmacological arms of the study.

The self-management intervention was modified after the group cognitive-behavioral therapy developed by Bergeron et al.¹⁶ and included components of education and cognitive-behavioral, physical, and sex therapy. Six women participated in 2-hour weekly sessions over a 12-week period. Weeks 1–4 included education and cognitive-behavioral therapy (to identify negative feelings, thoughts, and attitudes regarding vulvar pain and to replace them with more positive ones) and behavioral therapy (to learn relaxation, breathing, and imagery exercises). Weeks 5–8 included physical therapy techniques, where subjects were taught how to stretch and massage tight muscle groups to decrease painful sensations. Sections 9–12 included sex therapy, where subjects learned sexual communication skills and methods to enhance confidence in sexual activity. The therapy was delivered by a nurse practitioner, a psychologist trained in sex therapy, and a physical therapist who treats vulvodynia patients as part of her practice. All individuals were trained and supervised via a treatment manual designed specifically for this purpose by Dr. Y.M.B. Binik and the authors. Compliance for the self-management arm was evaluated by attendance at the meetings and the subjects' self-reports of compliance.

The primary outcome measures were changes from baseline between treatment groups in pain ratings on the qualitative and quantitative components of the MPQ, a validated, self-administered questionnaire.^{20,21} The MPQ was selected because it is the most widely used, validated pain rating scale. The Pain Rating Index (PRI), the qualitative component of the MPQ, contains 20 categories of pain, each with three to six adjectives, totaling 78 words. The total PRI score (PRI-T) is divided into four major subscale scores: sensory (PRI-S), affective (PRI-A), evaluative (PRI-E), and miscellaneous (PRI-M). The Present Pain Index (PPI), the quantitative component of the MPQ, is a 6-point scale ranging from 0 (no pain) to 5 (excruciating pain). In both the PRI and PPI,

a higher score denotes a higher level of pain. Within-treatment group changes from baseline pain ratings on the PRI and PPI constituted the secondary outcome measures.

We used the MPQ (1975) version²¹ and presented it in a written rather than verbal format, as described by Klepac et al.²² We analyzed only the word with the greatest PRI value in each category because some participants failed to follow directions to select only one adjective per category. If a subject did not select any item from a particular PRI category, she was given a score of 0 for that domain. Similarly, those who were not experiencing vulvar pain at the time of completion of the PPI were given a score of 0. Subjects were given the MPQ at the time of implementation of the trial (pretreatment) and at trial completion (posttreatment).

Analysis of treatment effect on the MPQ was conducted using the SAS version 9.1.3 (Statistical Analysis System Institute, Cary, NC). Nonparametric tests were used because of the small sample size. The primary end point, change from baseline scores between treatment groups on the PRI and PPI was determined using the Kruskal-Wallis test. Changes from baseline within treatment groups on the PRI and PPI, our secondary end points, were determined using the Wilcoxon

signed rank test. Baseline differences between groups in pain ratings or demographic variables were performed using the Kruskal-Wallis test and the Fisher exact test, respectively. Significance levels were not adjusted for multiple comparisons. A p value of $<5\%$ was regarded as significant. Results were analyzed by treatment actually received. An *a posteriori* intent-to-treat analysis was done to confirm the comparability of groups allowed by randomization.

Results

Of the 76 subjects randomized, 53 elected to participate, and 43 completed the study (Fig. 1). There were no significant differences among groups in refusal rate to undergo the treatment they had been assigned (self-management, 12 of 38, vs. amitriptyline, 5 of 19, vs. amitriptyline plus triamcinolone, 6 of 19) (Fisher's exact test, $p = 0.95$) or in the dropout rate (self-management, 5 of 26, amitriptyline, 2 of 13, amitriptyline plus triamcinolone, 3 of 14) (Fisher's exact test, $p = 1.0$). The women who declined participation were not different from the women who completed treatment on any of the demographic or pretreatment outcome measures.

FIG. 1. Flow of participants throughout the trial.

The average participant was approximately 47.4 years of age ($SD = 17.7$), Caucasian, married, and highly educated, with an above average income. There were no statistical differences among the three treatment groups in any of the demographic variables, including concomitant antidepressant use (Table 1). Concomitant medications, including selective serotonergic reuptake inhibitors (SSRIs) and serotonergic noradrenergic reuptake inhibitors (SNRIs), were monitored, and doses were consistent throughout the trial. The overall baseline PRI-T score for the entire group was $20.3 (\pm 14.1)$, the subscales were PRI-S (12.2 ± 7.3), PRI-A (1.8 ± 3.2), PRI-E (2.3 ± 1.8), and PRI-M (4.0 ± 4.4), and the PPI score was (2.3 ± 1.5).

There were no significant differences among groups in baseline scores on the PRI or PPI scores when analyzed by treatment received. An *a posteriori* intent-to-treat analysis was conducted for all 53 participants who were randomized by using missing values (carrying pretreatment values forward). The intent-to-treat analysis confirmed the general pattern of results found with the analysis by treatment received, but significant between-group differences in PRI-A scores ($p = 0.009$) and a trend toward PRI-T between-group differences ($p = 0.066$) were observed, with the amitriptyline plus triamcinolone group having higher baseline scores than the self-management group.

There were no significant changes from baseline between treatment groups on the PRI-T (self-management group: 18.0 ± 14.8 vs. 14.0 ± 10.9 ; amitriptyline: 22.1 ± 13.4 vs. 23.1 ± 18.3 ; amitriptyline plus triamcinolone: 23.0 ± 13.9 vs. 13.9 ± 9.2) when analyzed by treatment received or intent-to-treat analysis (Fig. 2). Similarly, there were no changes

from baseline on any of the PRI-T subscales or on the PPI (Table 2).

Significant within-group changes were observed in the self-management group, both in decrease in the mean PRI-T score (from 18.0 to 14.0, $p = 0.017$) and in the PRI-S score (from 11.3 to 9.0, $p = 0.033$). Mean PRI-T difference scores were not significant in either the amitriptyline group (from 22.1 to 23.1) or in the amitriptyline plus triamcinolone group (from 23.0 to 13.9). The amitriptyline group showed significant changes from baseline on the PPI (from 1.9 to 0.5, $p = 0.031$), and a trend was observed in the self-management group (from 2.3 to 1.6, $p = 0.094$). Analyses by treatment received and intent-to-treat were similar.

The overall incidence of adverse events was low, and none led to treatment discontinuation. Adverse events were reported in 8 patients, 3 in the amitriptyline group, 5 in the amitriptyline plus triamcinolone group, and none in the self-management group. The most common side effects were sedation (17.4%), constipation (8.9%), dry mouth (8.9%), sexual dysfunction (8.9%), dizziness (4.3%), dysgeusia (4.3%), impaired cognitive function (4.3%), and rectal pain (4.3%).

Eighty-one percent of the self-management participants attended all the visits and reported compliance with the homework, and all subjects in the pharmacological groups who completed the study were compliant with the treatment. There was no significant difference in adherence among treatment conditions (Fishers exact test, $p = 0.17$).

Discussion

The average age of our participants was 47.4 years (range 20–75), within the mean range reported by others (27–66

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS OF SAMPLE ACCORDING TO TREATMENT GROUP IN STUDY COMPLETERS

Variable	Self-management n (%)	Amitriptyline only n (%)	Amitriptyline + triamcinolone n (%)
Age (years $\pm$ SD ^a)	51.1 $\pm$ 19.2	52.2 $\pm$ 19.0	41.7 $\pm$ 11.7
Race/ethnicity			
African American	1 (4.8)	0 (0.0)	0 (0.0)
Caucasian	19 (90.4)	11 (100.0)	11 (100.0)
Hispanic	1 (4.8)	0 (0.0)	0 (0.0)
Other		0 (0.0)	0 (0.0)
Marital status			
No partner	3 (14.3)	1 (9.1)	1 (9.1)
Dating	5 (23.8)	1 (9.1)	1 (9.1)
Living with partner	3 (14.3)	2 (18.2)	2 (18.2)
Married	10 (47.6)	7 (63.6)	7 (63.6)
Education			
High school	2 (9.5)	3 (27.3)	2 (18.2)
Some college	4 (19.0)	2 (18.2)	5 (45.4)
College	7 (33.3)	2 (18.2)	1 (9.1)
Graduate school	8 (38.2)	4 (36.4)	3 (27.3)
Annual income			
\$0–19,999	1 (4.8)	0 (0.0)	1 (9.1)
\$20,000–39,000	2 (9.5)	1 (9.1)	1 (9.1)
\$40,000–59,999	3 (14.3)	4 (36.4)	2 (18.2)
>\$60,000	15 (71.4)	6 (54.5)	7 (63.6)
Concomitant antidepressant use (yes) ^b	2 (9.5)	1 (9.1)	1 (9.1)

^aSD, standard deviation.

^bEither selective serotonergic reuptake inhibitor (SSRIs) or selective noradrenergic reuptake inhibitor (SNRIs).

FIG. 2. Mean $\pm$ SD pretest and posttest scores on PRI-T according to treatment group in study completers. SM, self-management; AMI, amitriptyline; AMI/TMC, amitriptyline + triamcinolone. * $p < 0.05$, Wilcoxin signed rank test within-group comparison; $p > 0.10$ Kruskal Wallis test between-group difference scores.

years).^{5-8,16,17} Our study included women with both generalized and localized vulvar pain, similar to the studies of Munday⁶ and Reed et al.⁷ but in contrast to McKay,⁵ who evaluated generalized vulvodynia, and Pagano⁸ and Bergeron et al.,^{16,17} who evaluated localized vulvodynia. There is some debate as to whether there is a clear distinction be-

tween the subtypes of vulvodynia. Reed et al.⁷ found no relationship between diagnosis (localized vs. generalized vulvar pain) and treatment response with TCAs. Nevertheless, the nonhomogeneous sample may have diluted a treatment effect because different subtypes of vulvodynia may require different treatment options.

TABLE 2. CHANGE FROM BASELINE ON MCGILL PAIN QUESTIONNAIRE (MPQ) SCORES ACCORDING TO TREATMENT GROUP IN STUDY COMPLETERS

Pain category	Self-management ^a (n = 21)	Amitriptyline only (n = 11)	Amitriptyline + triamcinolone (n = 11)
PRI-S	-2.3 $\pm$ 4.4 ^{*,b} (-14 to 6) ^c	+2.4 $\pm$ 6.7 (-6 to 17)	-3.1 $\pm$ 7.7 (-19 to 9)
PRI-A	-0.3 $\pm$ 1.6 (-7 to 2)	-0.6 $\pm$ 3.1 (-5 to 6)	-1.5 $\pm$ 2.9 (-3 to 1)
PRI-E	-0.6 $\pm$ 1.8 (-5 to 4)	-0.7 $\pm$ 1.3 (-3 to 1)	-1.1 $\pm$ 2.0 (-4 to 2)
PRI-M	-0.9 $\pm$ 3.4 (-9 to 9)	0.0 $\pm$ 3.6 (-6 to 7)	-3.5 $\pm$ 5.5 (-12 to 7)
PRI-T	-4.0 $\pm$ 9.4 (-29 to 21)	1.0 $\pm$ 13.9 (-20 to 30)	-9.1 $\pm$ 17.3 (-45 to 14)
PPI	-0.7 $\pm$ 1.6 ^{**} (-5 to 1)	-1.4 $\pm$ 1.6 [*] (-3 to 0)	-0.8 $\pm$ 1.9 (-3 to 2)

^aThere were no significant changes from baseline between treatment groups on the PRI-T subscales or on the PPI.

* $p < 0.05$ Wilcoxin signed ranks test within-groups comparison.

^b(-) value denotes mean improvement in pain from baseline; (+) denotes mean worsening in pain from baseline.

^cPossible PRI score ranges: PRI-A, 0-42; PRI-A, 0-14; PRI-E, 0-5; PRI-M, 0-17; PRI-T, 0-78; PPI, 0-5.

** $p < 0.10$ Wilcoxin signed ranks test within-groups comparison.

The PRI-T baseline score of 20.3 was within the range of normative data reported from other painful conditions (17.8–27.9)²³ but was somewhat lower than that reported by Bergeron et al. (27.4).^{16,17}

There were no statistically significant differences in our primary end point, the differences in pain scores among the three treatment groups. A *post hoc* power analysis revealed that there was inadequate power to detect the differences we observed in three groups. From our results, the within-group mean difference score on PRI-T, SD, and sample size are (1, 13.9, 11), (−9.1, 17.3, 11), and (−4, 9.4, 21) for amitriptyline only, amitriptyline plus triamcinolone, and self-management groups, respectively. At $\alpha = 0.05$, the power to detect these differences is only 41%.

The power to see statistically significant PRI-T difference in scores within the pharmacological treatment groups was compromised by the 2:1:1 ratio of randomization. If the sample size was 21 for each of the groups, the power would have remained at 0.06 for the amitriptyline group but would have increased from 0.35 to 0.63 in the amitriptyline plus triamcinolone group. Thus, the inability to see a significant change within the amitriptyline plus triamcinolone group, in particular, may have been a power issue.

Only the self-management group showed significant within-group differences on qualitative pain (PRI-T), our secondary end point. Although the improvement in pain was modest (average 2.4 point reduction on the PRI-S score and 4-point reduction on the PRI-T score), our findings mirror the improvement reported by Bergeron et al. at their 12-week¹⁶ and 2½-year¹⁷ assessments. Our more modest findings compared with those of Bergeron et al. may be due to lower baseline ratings, use of a less homogeneous sample, or failure to evaluate improvement over a longer period of time.

The efficacy of self-management may have been a result of using a multimodal approach to pain management. Cognitive-behavioral therapy, sex therapy, and physical therapy combine behavioral and physical techniques to address both the emotional and physiological aspects of pain. It is also possible that group treatment may have had the effect of normalizing dyspareunia. Alternatively, as higher pretreatment pain intensity has been shown to predict poor treatment outcomes,¹⁷ it is possible that the higher baseline PRI-T scores observed in the two pharmacological treatment groups compared with the self-management group (22.1 vs. 23.0 vs. 18.0) contributed to a lower response rate with these approaches, as the intent-to-treat analysis depicted a trend ($p = 0.07$).

Our results on the PRI-T with amitriptyline plus triamcinolone are not consistent with the efficacy of amitriptyline reported by others.^{5–8} This may have been due to the low baseline pain ratings as previously mentioned, the lower doses used in our study (10–20 mg) compared with those used in these studies (10–225 mg), the larger sample size used in the prospective study ($n = 230$),⁸ or the prolonged or variable assessment periods in the other studies (6 months to 5 years), leading to possible spontaneous remission.²⁴ In addition, only one of the previous clinical trials used a validated pain scale,⁷ none were randomized or controlled for such coexisting treatments as antidepressants,⁷ lidocaine,^{5,8} or education and counseling,⁶ and only one study was prospective,⁸ leading to potential recall and sampling biases.

Although significant within-group differences were noted

on the PPI in the amitriptyline group and a trend in the self-management group, these findings may not have been clinically meaningful. As subjects were instructed to complete the PPI only if they were currently experiencing vulvar pain (and were given a score of 0 if they reported no pain), women with pain with provocation may have reported low baseline scores, leading to an inability to interpret these findings. Baseline PPI scores were, in fact, mild in all treatment groups, limiting interpretation of these findings. The PRI-T and the PRI subscales may have more accurately reflected pain scores for all vulvodynia subtypes. It is unknown, however, if there is a correlation between the PRI scales and either pain with intercourse or spontaneous pain.

Eligible participants in our study were those who had completed a 12-week dietary protocol. It is possible that their pain became less severe over time or that there were some spontaneous remissions. Moreover, our participants may have represented a population of convenience and, thus, did not truly represent women with vulvodynia.

Although our findings are limited by the previously mentioned methodological weaknesses, they may have implications for vulvodynia treatment algorithms. They suggest that a comprehensive self-management approach should be considered part of initial treatment, particularly because it does not involve physical risks. Our data also suggest that very low doses of amitriptyline (10–20 mg/day) with or without a topical steroid should not be incorporated into an algorithm.

Acknowledgments

This study was funded by the National Institute of Child Health and Human Development (National Institutes of Health grant R01-HD040119).

Disclosure Statement

The authors have no conflicts of interest.

References

1. Haefner HK, Collins ME, David GC, et al. The vulvodynia guidelines. *J Lower Gen Tract Dis* 2005;9:40–51.
2. Harlow BL, Stewart EG. A population-based assessment of chronic unexplained vulvar pain: Have we underestimated the prevalence of vulvodynia? *J Am Med Womens Assoc* 2003;58:82–88.
3. Bachmann GA, Rosen R, Pinn VW, et al. Vulvodynia: A state-of-the-art consensus on definitions, diagnosis and management. *J Reprod Med* 2006;51:447–456.
4. Onghena P, Van Houdenhove BV. Antidepressant-induced analgesia in chronic nonmalignant pain: A meta-analysis of 39 placebo controlled studies. *Pain* 1992;49:205–219.
5. McKay M. Dysesthetic (“essential”) vulvodynia: Treatment with amitriptyline. *J Reprod Med* 1993;38:9–13.
6. Munday PE. Response to treatment in dysaesthetic vulvodynia. *J Obstet Gynecol* 2001;6:610–613.
7. Reed BD, Caron AM, Gorenflo DW, et al. Treatment of vulvodynia with tricyclic antidepressants: Efficacy and associated factors. *J Lower Genital Tract Dis* 2006;10:245–251.
8. Pagano R. Vulvar vestibulitis syndrome: An often-unrecognized cause of dyspareunia. *Aust NZ J Obstet Gynaecol* 1999;39:79–83.
9. Updike GM, Wiesenfeld HC. Insight into the treatment of vulvar pain: A survey of clinicians. *Am J Obstet Gynecol* 2005;193:1404–1409.

10. Segal D, Tifheret H, Lazer S. Submucous infiltration of betamethasone and lidocaine in the treatment of vulvar vestibulitis. *Eur J Obstet Gynecol Reprod Biol* 2003;107:105–106.
11. Murina P, Tassan P, Roberts P, et al. Treatment of vulvar vestibulitis with submucous infiltrations of methylprednisolone and lidocaine: An alternative approach. *J Reprod Med* 2001;46:713–716.
12. Arnold LD, Bachmann GA, Rosen R, et al. Vulvodynia: Characteristics and associations with comorbidity and quality of life. *Obstet Gynecol* 2006;107:617–624.
13. Abramov L, Wolfman I, David MP. Vaginismus: An important factor in the evaluation and management of vulvar vestibulitis syndrome. *Gynecol Obstet Invest* 1994;38:194–197.
14. Weijmar Schultz WCM, Gianotten WL, Van der Meijden WI, et al. Behavioral approach with or without surgical intervention for the vulvar vestibulitis syndrome: A prospective randomized and nonrandomized study. *J Psychosom Obstet Gynecol* 1996;17:143–148.
15. Bergeron S, Brown C, Lord MJ, et al. Physical therapy for vulvar vestibulitis syndrome: A retrospective study. *J Sex Mar Ther* 2002;28:183–192.
16. Bergeron S, Binik YM, Khalife S, et al. A randomized comparison of group cognitive-behavioral therapy, surface electromyographic biofeedback, and vestibulectomy in the treatment of dyspareunia resulting from vulvar vestibulitis. *Pain* 2001;91:297–306.
17. Bergeron S, Khalife S, Glazer HI, et al. Surgical and behavioral treatments for vestibulodynia: Two-and-one-half-year follow-up and predictors of outcome. *Obstet Gynecol* 2008;111:159–166.
18. Flor H, Fydrich T, Turk DC. Efficacy of multidisciplinary pain treatment centers: A meta-analytic review. *Pain* 1992;49:221–230.
19. Vas L, Riley JL III, Price DD. A comparison of placebo effects in clinical analgesia trials versus studies of placebo analgesia. *Pain* 2002;99:443–452.
20. Melzack R, Katz J. The McGill Pain Questionnaire: Appraisal and current status. In: Turk DC, Melzack R, eds. *Handbook of pain assessment*. New York: The Guilford Press, 1992:152–168.
21. Melzack R. The McGill Pain Questionnaire: Major properties and scoring methods. *Pain* 1975:277–299.
22. Klepac RW, Dowling J, Rocke P, et al. Interview vs. paper and-pencil administration of the McGill Pain Questionnaire. *Pain* 1981;11:241–246.
23. Wilke DJ, Savedra MC, Holzemer WL, et al. Use of the McGill Pain Questionnaire to measure pain: A meta-analysis. *Nurs Res* 1990;39:36–41.
24. Peckman BM, Maki DG, Patterson JJ, et al. Focal vulvitis: A characteristic syndrome and cause of dyspareunia: Features, natural history, and management. *Am J Obstet Gynecol* 1986;154:855–864.

Address reprint requests to:
Candance Brown, M.S.N., Pharm.D.
9685 U.S. Highway 70
Lakeland, TN 38002

E-mail: csbrown@utmem.edu