National Vulvodynia Association

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Vulvodynia: Research and Treatment

Summary of a Lecture Given by Ursula Wesselmann, M.D.

Dr. Wesselmann is a clinical neurologist in the Blaustein Pain Treatment Center at Johns Hopkins Hospital in Baltimore, MD, and Assistant Professor of Neurology at the Johns Hopkins School of Medicine. She specializes in the treatment of visceral pain, particularly pain syndromes of the sexual organs.

Over the past year, there has been a proliferation of medical literature on vulvodynia and vulvar vestibulitis (Wesselmann, 1996). This article will review the recent literature and compare vulvodynia to other neuropathic pain syndromes.

A Neuropathic Pain Syndrome

In order to better understand vulvodynia, it is important to review the anatomy of the female genital tract. The nerves that supply the genital organs are autonomic nerves which contain sympathetic fibers, parasympathetic fibers, and visceral sensory fibers. Sympathetic and parasympathetic fibers carry information from the spinal cord to the vulvar area; the sensory fibers relay sensations, including painful sensations, to the spinal cord and brain.

One can learn a lot about vulvodynia by studying other neuropathic pain syndromes and their treatments. Neuropathic pain syndromes are characterized by continued pain in the absence of detectable ongoing tissue injury or apparent noxious stimulation. In patients with vulvodynia, doctors usually do not find any visible symptoms which might account for the pain that patients describe; there is no current tissue injury, infection, or stimulus to trigger pain--something has gone on autopilot.

Vulvodynia patients report sensory abnormalities that are typical of neuropathic pain. Some vulvodynia patients have dysesthesia, an unpleasant abnormal sensation. Allodynia, a painful response to a stimulus that normally does not provoke pain, is also common in vulvodynia. Hyperalgesia, an exaggerated pain reaction to a stimulus which is normally painful, is another characteristic of neuropathic pain; in this case, a stimulus that

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Managing Vulvar Pain with Physical Therapy

by Dee Hartmann, P.T.

Dee Hartmann specializes in women's health at her private physical therapy practice in Naperville, IL. She serves on the NVA's medical advisory board and is the programming chairperson for the American Physical Therapy Association's section on women's health.

Although physical therapists have long been involved with chronic pain management, it has only been within the last decade that some therapists have turned their attention to the treatment of chronic vulvar pain. As with other chronic pain syndromes, patients who suffer from vulvar pain often develop pain in other parts of the body. By taking a detailed patient history, the physical therapist can begin to discover what is causing the pain; be it tight muscles, poor posture, or inefficient muscle control.

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INSIDE

Letter from the Executive Director

Dear Friends:

As we all know, vulvodynia causes a great deal of physical pain, but we don't often talk about the feelings of depression and anxiety that result from this condition. For many of us, the fear begins with making rounds from doctor to doctor and slowly coming to the realization that we are not going to find a quick and easy solution to our pain. Reflecting on the early days of my own experience with vulvodynia, I was in a constant state of panic. I was overcome by the physical pain and overwhelmed by my fears. Will the pain ever go away? Will I be able to handle it? Even when a treatment produced relief, there was always the fear of another flare-up.

Since the formation of the NVA, I have received hundreds of letters filled with fear. Many women with vulvodynia fear the loss of themselves as healthy individuals and the loss of their sexual functioning. Some fear losing the ability to work. Other women fear losing the love and support of their spouses or partners. The common thread of these fears is the notion that we are forever changed from a complete human being into one who is permanently damaged. And perhaps worst of all is the fear that the pain might be all in our heads, an imaginary illness of a damaged psyche.

Not only do these fears cause emotional distress and reduce the quality of our lives, they also cause physical stress on our bodies at a time when they are desperately in need of care and nurturing. A recent conference by the Public Health Service highlighted the connection between emotions and physical health. "Today, in the last decade of the 20th century, advances in our understanding of the brain, behavior and biology have begun to yield a growing body of evidence that our emotional state is inextricably intertwined with our overall health," said Dr. Susan Blumenthal, assistant secretary for women's health at the Department of Health and Human Services.

It is unrealistic to expect that we can conquer our fears simply by being aware of them. Nevertheless, it is important to realize that fear can have a negative impact on our recovery and that we need to find ways to reduce it. We can start by living in the present, tackling each day and each problem one at a time, instead of worrying about all of the negative things that might happen in the future. Try to enjoy the relief that a treatment option is affording, rather than worrying about whether or not you will need that treatment forever. Take comfort and strength from your partner's love, instead of being afraid that he may not always be there for you.

It helps to find positive role models who have learned to manage their vulvodynia and live rewarding lives. Educating ourselves about the illness and various treatment options is a good way to reduce fear; participating in treatment decisions helps eliminate feelings that the illness is beyond our control. Lastly, speaking with a mental health professional can validate that vulvodynia is an emotionally traumatic illness deserving of attention.

Jacqueline J. Smith
Executive Director

Wesselmann (From P. I)

produces a minor reaction in the average person, can cause excruciating pain. Many patients also experience aftersensation--an area that has only been touched briefly, can hurt for a few minutes or even hours afterward.

In some cases of neuropathic pain, the pain spreads from the initial site to the surrounding tissue. This could explain why patients who have had painful vulvar tissue surgically removed continue to feel pain in the adjacent area. Neuropathic pain syndromes are not simply localized in the periphery, but can produce changes in the spinal cord and the brain. Once these changes in the central nervous system have occurred, simply treating the periphery will not be successful.

An Overview of Research

A good review article on vulvodynia was recently published in Finland (Paavonen, 1995). This article summarized the different subsets of vulvodynia: cyclic pain at menstruation or ovulation; dyesthetic vulvodynia; vulvar papillomatosis; vulvar dermatosis; and vulvar vestibulitis. There is not one ideal treatment for vulvodynia, probably because there are different etiologies (causes) of vulvar pain. In order to develop improved treatment strategies, future research must focus on a better understanding of the etiologies of vulvar pain (Fischer,1995).

In a 1995 Australian study, a group of dermatologists and gynecologists evaluated 144 patients with vulvar pain. In 64% of cases, the diagnosis was dermatitis, a non-infectious inflammatory process of the skin. The findings of this study suggest that it is important that a dermatologist, as well as a gynecologist, examine vulvar pain patients during the initial work-up. According to this study, vulvar pain resulting from dermatitis can be successfully treated with topical corticosteroids.

Patients with vulvar vestibulitis have been the most extensively studied, probably because they are the most easily diagnosed. One can usually see redness around the vaginal opening and the patient reports pain when a cotton-tipped applicator touches the vestibule. Vulvar vestibulitis can be accompanied by other urogenital abnormalities. Foster (1993) found an increased urethral pressure variability in the muscular tone of the urethra in these patients. Abnormalities in the sensation of urination, e.g., increased urge to urinate or urinary hesitance, are often reported. This is not surprising since the pelvic area is innervated by branches of the same nerves -- some branches go to the urethra, others to the genitals or rectum.

Drs. Maria Turner and Stanley Marinoff carried out the initial studies on vulvodynia and concluded that it is not the result of an

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In 1996-97 Dr. Wesselmann is on sabbatical leave from her clinical practice at Johns Hopkins Hospital to concentrate on research in her basic science laboratory at Johns Hopkins University. Funding for this laboratory resulted from Dr. Wesselmann's selection as the recipient of the 1996 Passano Physician Scientist Award, and a contribution by the Blaustein Foundation. The aim of Dr. Wesselmann's research is to obtain detailed information about the neuronal pathways that process painful information from the female genital tract; hopefully, this will lead to the development of successful treatment strategies for vulvodynia and other pain syndromes of the genital tract.

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active infection. In one study (Marinoff and Turner,1986) they looked for correlations between vulvodynia and candida, gonorrhea, gardnerella, trichomonas, and herpes simplex. They found that patients who presented with vulvodynia had no active infection in the genital area. At one point it appeared that vulvodynia might be correlated with the human papillomavirus (Turner and Marinoff, 1988). The problem with this early investigation into the human papillomavirus (HPV) was that the results were based on a very small sample of patients. The proposed connection between vulvodynia and HPV has recently been extensively studied using molecular techniques (Wilkinson, 1993), and it appears unlikely that HPV infection causes vulvodynia. Most HPV patients never get vulvodynia.

Another interesting study on vulvar vestibulitis (Bazin,1994) confirmed that infection is not the initial triggering event. This study of 57 patients did find a significant correlation between early oral contraceptive use and the development of vulvodynia, suggesting that hormonal factors might play a role.

The use of calcium citrate as a treatment for vulvodynia was demonstrated in a case report by Solomons (1991). In one patient with vulvar vestibulitis, Solomons found an excess of oxalate in the urine, so he treated her with calcium citrate to reduce the excretion of oxalate. The symptoms declined significantly after three months and the patient was pain-free after one year. This report led to the widespread use of low-oxalate diets and calcium citrate for vulvodynia, but it is important to remember that this finding occurred in one patient. In order to draw conclusions about causes and treatments, we first need to study large groups of patients with the disorder.

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Another treatment, introduced by Dr. Marinoff (1993), is to inject alpha-interferon into the vulvar vestibule. In his study of 55 patients who received alpha-interferon injections, 49 percent had partial or substantial reduction in pain. This report was based on patients who were followed for a relatively short period of time; in order to assess long-term benefits, future outcome studies must have a longer follow-up period.

An Israeli study (Bornstein,1995) compared two surgical approaches to vulvar vestibulitis, perineoplasty and vestibuloplasty. In perineoplasty, the surgeon excises the entire vulvar vestibule, whereas in vestibuloplasty, the area is denervated but most of the vestibular skin remains intact. Unfortunately, only a small number of patients were studied. Nine of the eleven women who underwent perineoplasty had complete resolution of symptoms, whereas none of the ten patients who had vestibuloplasty experienced any pain relief.

Reid (1995) examined the results of dye laser therapy in 163 patients. This technique burns off painful vulvar tissue instead of excising it. Vulvodynia symptoms were eliminated in 43 percent of patients and partially resolved in 26 percent. One drawback of this study is that the patients were only followed for a short period after laser surgery. These doctors consider dye laser surgery a major breakthrough in the treatment of vulvodynia, but a 43 percent cure rate is not very high.

An acetic acid test, a potential diagnostic test for vulvodynia, was recently developed by Sonni (1995). Different concentrations of acetic acid solutions were applied to the vulvar tissue of 10 patients with vulvodynia and 10 control

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Physical Therapy (From P. I)

Physical therapists attempt to manage vulvodynia by evaluating all painful areas of the body, not simply the region of vulvar pain. Once possible physical causes for the pain are determined, an appropriate treatment plan can be started.

A Holistic Approach

The effects of chronic vulvar pain can manifest themselves throughout all body systems. Patients with vulvar pain often stand, sit, and sleep in improper positions to reduce vulvar pressure, resulting in abnormal posture. The inability to sit squarely often causes musculoskeletal pain in the hips, lower back, and shoulders. Gait patterns become imbalanced and problematic. Muscle imbalances are perpetuated, visceral systems lose their natural action, and sexual relations may become strained at best, absent at worst. Life as a whole becomes overpowered and controlled by the relentless pain.

As an integral part of the medical management of vulvodynia or vulvar vestibulitis, the physical therapist's goals are to evaluate, identify, and treat musculoskeletal dysfunctions that result from chronic pain. A normal posture, when viewed from the side, should show a straight line passing through the earlobe, midway between the back and the abdomen, through the hip joint, and just in front of the knee and the ankle. With perpetuating vulvar pain, the muscles in the pelvis subconsciously begin to contract, hold, and immobilize the region of pain, a reaction that occurs anywhere in the body when pain persists. The posture often becomes abnormal. With chronic pelvic pain, the most noted postural abnormalities appear in the region of the low back, with the lumbar spine increasing its lordotic curve and the pelvis becoming anteriorly tilted (tipped forward). As this postural pattern itself becomes chronic, muscle imbalances develop in the musculature attaching to the pelvis--the abdominal muscles, anterior hip flexors (especially muscles found deep within the lower abdomen), quadriceps, lower back muscles, hamstrings, and buttocks.

It may be easier to understand this phenomenon if we use a similar example from another part of the body. If, for instance, there is a chronic problem with a cervical vertebra, the muscles of the shoulders, neck and shoulder blades eventually begin a splinting (holding) mechanism, attempting to restrict movement in the region of the pain. As this splinting progresses, the affected muscles lose their ability to function fully and eventually become a source of pain. Chronic contracted muscles are painful.

The same pattern occurs within the muscles of the pelvic floor. These muscles, known as the Kegel muscles, consist of two main layers. The outermost layer forms the superficial pelvic floor. It is these muscles that encircle the vagina and rectum and help to support the perineal body, the skin between the vagina and the rectum. The innermost layer of muscles provides a sling-like support system for the pelvic rectum. This sling is made up of two parts, the levator ani and the coccygeus. Together they span the space between the lateral ischial spine, the coccyx, and the sacrum, coming together at the midline. In simple terms, they form a hammock that goes from the tailbone in back to the pubic bone in front.

When pain or itching in the vaginal region becomes severe, progressive, and/or longlasting, the muscles within the pelvic floor begin to splint chronically, contracting and holding tight against the pain. This often creates uncontrolled spasm. When this tension is present, it can cause a decrease in the size of the vaginal opening, making intercourse and the use of tampons painful, and eventually impossible. The muscles of the pelvic floor, as in the example of the shoulder, become symptomatic.

Although not yet proven, it appears that pelvic floor tension can cause and perpetuate vulvar tissue burning. With time and splinting, the muscles can actually lose their ability to contract or relax fully, physiologically losing their length through adaptive shortening. This concept can be visualized by considering an arm that has been casted for eight to ten weeks. When the cast is removed, the elbow can neither

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Physical Therapy (From P. 5)

extend or bend fully due to the adaptive process. With time and exercise, the joint becomes completely functional and the muscles regain their needed length and strength. The same procedure must be applied to the muscles of the pelvic floor to restore their functional range of motion. Electromyographic (EMG) biofeedback is often used as a tool to help monitor this muscular re-education.

vulvar pain can be caused by exacerbations of low back or hip pain, chronic diarrhea and/or constipation, stress, or fatigue. Treating mechanical dysfunctions and musculoskeletal imbalances of the pelvic floor will not prevent a recurrence of pelvic floor tension in reponse to the burning and itching of recurrent yeast infections. Treating only the pelvic floor without addressing a yeast infection or a musculoskeletal imbalance in the lower back can

"The effects of chronic vulvar pain can manifest themselves throughout all body systems."

The visceral system, consisting of internal organs within the abdominal and pelvic cavities, can also be affected by this chronic, tensed posture. Continued lack of full range of motion of the trunk affects the gut as the cast does the arm. It appears that many women who have vulvodynia also suffer from bowel dysfunction, be it constipation, diarrhea, or a vacillation between the two. Through physical therapy, this visceral system disorder can often be gently and successfully treated.

Physical therapists need to be aware of all body systems in treating vulvar pain, as many factors appear to contribute to this dysfunction. Some case studies have suggested that increased

be fruitless. Many vulvodynia sufferers have noted exacerbation of symptoms with increased life stresses. Treatment should include attempts to identify possible "triggers," as well as what initiates them. Hopefully, by addressing the problems that increase vulvar symptoms, the therapist and patient can begin to develop strategies to avoid severe flares of vulvar pain.

Physical Therapy Evaluation

A proper physical therapy evaluation should include the following elements:

1. *A complete history.* You are physically where you are today because of everything that has occurred within your body. Your lifelong medical history is important. For instance, that fall you had in eighth grade that left you unable to walk for three weeks may have caused a sacral malalignment that is the sustaining factor in the pelvic floor tension causing your vulvar burning. If you've had chronic yeast or urinary tract infections, they contribute to the overall health of your pelvic region. History taking should include questions about physical and/or mental abuse, urinary and bowel habits (frequency, urgency, stress incontinence, constipation, irritable bowel, diarrhea), obstetrical experiences, past surgical procedures (vulvar and other), current and past drug interventions, diet (liquid and solid intake), and past treatments specifically for vulvar pain.

2. *Postural evaluation.* Posture plays an important role in pelvic health. As mentioned above, correcting a chronic anteriorly tilted pelvis and increased lumbar lordosis can be a key variable in regaining a normal pelvic floor and vulva.

3. *Movement testing.* Joint range of motion, and muscle length and strength, should be fully assessed and corrected. Of special importance are the ranges of motion of the hip and trunk.

4. *Visceral assessment.* Both motility and mobility testing should be completed for the large

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Physical Therapy (From P. 6)

and small intestines, the bladder and ureters, and the uterus.

5. *Soft tissue evaluation.* Musculature of the abdomen, hips, thighs, buttocks, and low back should be checked. Assessments should be made as to the presence or absence of proper muscle tone, and active or latent trigger points. Should any scar tissue be present abdominally or vaginally, internally or externally, its mobility should be evaluated for proper range or adhesion, i.e., the skin in the scarred area should be easily moved in every direction.

6. *Vulvar assessment.* The vulvar region should first be checked visually, and then physically for sensitivity to pressure and touch. The presence or absence of inflammation, starting from the labia majora and progressing medially into the mucous membrane of the vagina, should be noted. Using a moistened Q-tip, sensitivity testing should be done along the length of the labia majora, labia minora, and clitoral hood. Pressure point testing should be performed at the opening of the vulva, with results recorded specifically at 3, 6, and 9 o'clock (with the clitoris as 12 o'clock).

7. *Internal muscle evaluation.* Just as the external musculature is assessed, the vaginal musculature should also be evaluated. Digital pressure testing should be completed around the vaginal opening and continue inward. Assessment should be equal to that of other soft tissue (see #5). Active range of motion can then be subjectively checked and graded. Further objective testing is then completed utilizing proper intravaginal EMG biofeedback, assessing for resting muscle tone, stability, and strength.

Physical therapists have a choice of many treatment options which address physical imbalances throughout the body. These options include soft tissue mobilization (trigger point therapy), myofascial release and craniosacral technique, visceral manipulation, postural and gait training, bony realignment, interferential electrical stimulation, vulvar ultrasound, and icing. Intravaginal treatments include therapeutic exercise, soft tissue mobilization, EMG biofeedback, and electrical stimulation.

Choosing a Physical Therapist

Finding a physical therapist interested in treating vulvodynia may prove somewhat difficult. It may be helpful to ask the following questions. Are you familiar with vulvodynia? Are you interested in learning about vulvodynia? Are you trained to do intravaginal muscle assessment and treatment? Have you done intravaginal biofeedback? Do you perform an assessment of the viscera and the abdominal musculature? Are you familiar with, and do you use, soft tissue mobilization and myofascial release? Are you familiar with the treatment of trigger points?

The American Physical Therapy Association's section on women's health has members specializing in the treatment of female dysfunction. This could be your first avenue in the location of a qualified physical therapist in your area. Treatment will require some patience on your part. Physical therapists, as well as other health professionals, are still learning what treatments work best for chronic vulvar pain.

Back Issues Available

Five back issues of the NVA News are now available for a cost of $5 each. They feature:

Dr. Stanley Marinoff - *Vulvodynia: A Perplexing Disorder*
Dr. David Foster - *Treating Vulvodynia*
Dr. Helene Emsellem - *Chronic Pain: A Neurologist's Perspective*
Dr. Gae Rodke - *Diagnosis and Management of Vulvodynia*
Dr. Daniel Clauw - *Disorders Associated with Vulvodynia*

Vulvodynia and Pregnancy

An informal talk by Dr. Stanley Marinoff

Dr. Marinoff is well-qualified to give advice to vulvodynia patients who want to have children because he has seen many pregnant vulvodynia patients in his OB/GYN practice. The following is an excerpt of a talk he recently gave to the NVA's Washington, D.C. support group.

As with most aspects of vulvodynia, there is a lack of good information on the subject. I base my comments on what I've noted in two dozen pregnancies in my private practice, as well as the literature.

First, let's consider conception. If everything else is normal-- normal periods, normal sperm count in the husband-- then the major problem is that it's hard for a woman with vulvodynia to have sexual relations. I hope that most of you, with proper treatment, have been able to arrive at the point where you can have reasonably normal sexual relations, even though it might still be a little difficult. To achieve pregnancy, timing is crucial; optimally, sexual relations should take place within six days before ovulation. The sperm need time to find their way to the right place. After sexual relations, the sperm must first pass through the cervix into the uterus; then they have to travel up the Fallopian tubes to be available to fertilize the egg when ovulation occurs. Sexual relations at or after ovulation will not result in pregnancy.

As women reach their thirties and forties, fertility drops and it is more difficult to become pregnant. This has nothing to do with vulvodynia, but is simply another factor to consider. My advice is that if you want to start a family, don't keep putting it off. If it's too painful for you to have sexual relations, I'd like to tell you about my turkey baster twins. One couple in my practice used a turkey baster to insert the husband's sperm into the wife's vagina and the result was twins. So it's even possible to have children without sexual relations!

There is no reason that vulvodynia alone should stop you from getting pregnant, but the medication issue must be examined. If you are taking an antidepressant, for example, should you discontinue it before getting pregnant? Amitriptyline (Elavil), a tricyclic antidepressant, has been widely used for the past thirty years, but we do not have conclusive results on its use during pregnancy. In general, research has shown that three percent of all newborns have some kind of congenital abnormality, varying from slight malformations to major anomalies. Although the majority of babies whose mothers took amitriptyline during pregnancy are born normal, most doctors will advise patients to discontinue the drug before they become pregnant, in order to protect themselves from legal liability. Patients who use other antidepressants are given the same advice. It should be noted, however, that the amount of amitriptyline used to treat vulvodynia tends to be much lower than the amount used for depression.

There is no available information on the effects of the newer antidepressants, such as Prozac and Zoloft, on the outcome of pregnancy. If you happen to become pregnant while taking antidepressant medication, I would recommend weaning yourself off the drug as soon as possible. Regular sonagrams will enable your doctor to monitor the development of the fetus.

While we're on the topic of medication, I'd like to digress for a minute and talk about the use of generic drugs. Our country has no laws regulating generic drugs. All we have is what is known as a substitution law. This means that, in many cases, a pharmacist can legally substitute a comparable generic drug for a trade name drug. What most people don't know is that the concentration in generic drugs can be as much as twenty percent higher or lower than the trade name drug. For certain drugs that may not matter, but with antidepressants, anticonvulsants, and hormones, it is critical. If you are taking a generic drug, it is important that you buy the same generic drug each time; otherwise your medication could vary as much as forty percent from refill to refill (Generic A might have only 80% of the concentration of the trade name drug, while Generic B might have 120% of the concentration).

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Pregnancy (From P. 8)

Let me also point out that taking medication in later pregnancy is not nearly as risky as it is in the first trimester. It is highly unlikely that a drug taken for vulvodynia in the last trimester will cause a malformation. But there can be problems with taking certain other drugs in late pregnancy, for example, tetracycline can cause brown or mottled teeth in the newborn. As for the use of topical lidocaine, a common practice in women with vulvodynia, so little is absorbed that it should not be a concern.

Some women with vulvodynia take calcium citrate and follow the low-oxalate diet. An intake of 1200-1500 milligrams of calcium per day is fine; higher amounts are not necessarily harmful to the fetus, but can be harmful to the mother because of the danger of developing kidney stones. However, following the low-oxalate diet during pregnancy can be injurious, because many necessary nutrients for both fetus and mother are lacking.

Many women ask if vulvodynia worsens during or after pregnancy. In my experience one-third of patients improve, one-third stay about the same, and one-third get worse. There is definitely more pressure placed on the pudendal nerve, but the body is producing a lot of steroids, so it's a trade-off. When the onset of vulvodynia is linked to pregnancy, however, it is likely that it will recur in future pregnancies. But it's important not to be afraid -- pain can be managed!

Based on what I've seen, vulvodynia does not have to interfere with having a family. It may, however, affect some decisions, including whether to have natural childbirth or to breast-feed the baby. During labor and delivery, I recommend that vulvodynia patients have as much anesthesia as they need to be comfortable. Epidural anesthesia, commonly used for childbirth, allows the patient to be examined without pain. Even if a vulvodynia patient has had vulvar surgery, there is no medical reason for her to have a Caesarean section. Depending on the level of pain after childbirth, a woman who has vulvodynia may choose to resume drug therapy right away. In this case, I recommend that she bottle-feed rather than breast-feed the baby, since most drugs cross over into the breast milk.

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subjects. It was observed that, upon application of the solutions, vulvodynia patients had a significantly lower pain threshold. Sonni concluded that this is probably due to the increased sensitivity of small sensory fibers that innervate the vestibular area. This study is important because it provides an objective measure of vulvar hypersensitivity. As patients proceed with a particular course of treatment, this test could be used to measure the treatment's success.

Turner and Marinoff (1991) were the first ones to conceptualize and treat vulvodynia as neuropathic pain. Instead of excising painful tissue, this approach employs pharmacological substances to influence the nerves that innervate the vulva. They suggested treating vulvodynia with antidepressants and anticonvulsants that were commonly used for other types of neuropathic pain syndromes. The use of tricyclic antidepressants and/or anticonvulsants in the treatment of vulvodynia patients was a major breakthrough.

A Multidisciplinary Approach

At Johns Hopkins Hospital, the approach to vulvodynia is comprehensive. Most vulvodynia patients present with unexplained vulvar pain, sexual dysfunction, and psychological difficulties related to the disorder. Patients usually range from twenty to sixty years old, suggesting that vulvodynia is not necessarily related to hormonal status. First the patient provides a detailed medical history: gynecological, gastroenterological, urological, dermatological, neurological, and psychological. It is important that the doctors know if there are any other

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problems with the bladder or bowel, since these organs are innervated by the same nerves as the genital tract. A psychological history is also relevant, because pain that continues for more than six months usually affects other aspects of a person's life and can cause depression.

After the history is taken, the patient undergoes a physical examination and a psychological interview. Doctors perform a thorough gynecological and dermatological exam, biopsy suspicious lesions, and rule out any underlying problems. From a neurological perspective, the problem can either lie with the nerves in the periphery or at the spinal cord level. Since there are probably multiple causes of vulvodynia, there is no "magic bullet" and one has to examine different treatment possibilities. The initial goal of treatment is for the patient to have more good days than bad days. Because it takes time for symptoms to improve, patients usually benefit from psychological support.

Treatment for Neuropathic Pain

Neuropathic pain treatment options have expanded since the initial report by Drs. Turner and Marinoff. There is evidence that neuropathic pain is due to a disturbance of function or pathological change in nerves. Many pharmacological substances that modify nerve impulses have been developed over the last five years. These substances work by stabilizing the nerve membrane and influencing neurotransmission, thereby reducing painful sensations that are relayed from the periphery to the central nervous system. A wide variety of antidepressants and anticonvulsants can be utilized for this purpose, usually at lower dosages than for treatment of depression or epilepsy. Another option is a membrane-stabilizing agent such as mexilitive. One should keep in mind that if one medication doesn't work, there are still many others to be tried. It typically takes about six weeks to assess the effect of one of these drugs. Since antidepressants and anticonvulsants affect not only neurons involved in pain transmission, but also neurons involved in other functions, one of the common side effects is feeling drowsy. The treatment goal is to find an effective medication with minimal side effects.

Over the past five years there has also been extensive research on opioids (opiates) and pain. It is known that there are opioid receptors in the brain and spinal cord, as well as the periphery. Some doctors fear that opioids are addictive, but addiction is not common among people suffering from chronic pain (Portenoy, 1994). (Most people drink alcohol but only a very small percentage become alcoholic ---this appears to be true of opioid use for pain as well.) There are, however, strict rules at Johns Hopkins and other pain clinics for prescribing these medications. The patient is evaluated by a psychologist to make sure that she does not exhibit addictive characteristics or suffer from depression (opioids can exacerbate depression), only one physician can prescribe the drug, and the patient must sign a consent form. Opioids are usually only considered for chronic nonmalignant pain after other reasonable attempts of pain control have failed.

> "The aim of pharmacological pain therapy is to break the vicious cycle of pain."

The aim of pharmacological pain therapy is to break the vicious cycle of pain. As mentioned previously, sensory information (pain) from the vulva can cause neurological changes in the spinal cord or the brain. With neuropathic pain medications, it may be possible to suppress the pain long

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enough for the neuro-transmitters in the spinal cord or brain to return to normal. The first step is to find a pain medication at a dosage that suppresses the painful sensations adequately. Once the appropriate medication and dosage is found, the patient continues on that level. After three to six months, an attempt is made to reduce the dose or taper off the medication. Some patients tolerate a dose reduction, but for others the dose has to be resumed at its previous level.

Future Research on Vulvodynia

As with many other pain syndromes, no one knows the exact prevalence or natural progression of vulvodynia. What percentage of women have vulvodynia? What happens if it is not treated? Does it ever go away spontaneously? No data are available because, to date, research money has not been forthcoming. Unlike some other neuropathic pain syndromes which have a low incidence in the population, there appears to be a sufficient number of women with vulvodynia to perform controlled research. Dr. Martha Goetsch (1991) found that 15% of patients in her general gynecological practice had symptoms which fulfilled the criteria of vulvar vestibulitis. Initially, it will be important to send in-depth questionnaires to all patients who have been diagnosed with vulvodynia, and statistically analyze the results. This type of survey is important because it can shed light on what triggers the disorder.

As doctors treat more and more vulvodynia patients, good outcome measures will be needed. For example, patients might be asked a series of questions both before and after their surgery to evaluate whether the surgery produces any improvement in symptoms. For example, is there a change in the patient's participation in daily activities, frequency of sexual relations, or psychological functioning? It is also critical that future studies on treatment follow patients' progress for longer than six months. Better controlled research, using large groups of patients and longer follow-up periods, is the only way to determine which treatments are truly effective for vulvodynia.

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