Chronic Pelvic Pain Treatment: Expanding the Paradigm

Submission to Conference on: **Multidisciplinary Approaches to Low Back and Pelvic Pain**

Dear Conference Leadership: *

Your Seattle conference, Oct. 18-20, 2002 [www.upledger.com/myofascial.htm] should be a very crucial one. I cannot attend so am sending you the enclosed observations about Chronic Pelvic Pain and general pain management. I think these should be part of a unified approach. Your ad announced **Interdisciplinary Solutions**, and I believe this is essential to restoring health to these men and women. I placed a link to this document on my web page. You are welcome to post this for conference attendees or give the URL for my website. Maybe through our combined efforts you will come up with a synthesis that will help us all.

I am enclosing keynote concepts I think are important on the next page. You are aware of most of them. The main items I think get inadequate attention are: **Toxicity** (heavy metals), **Microbial activit**y (parasites, etc.) and **Tissue Bioterrain Support**. I assume someone among you will present direct internal soft tissue and coccygeal manipulation; in case not, I am including Dr. Jerome Weiss in this communication because he has done excellent work on that aspect of an overall program.

Some internet links: On Pelvic floor therapies, including Dr. Weiss's work: http://www.ic-network.com/handbook/pelvic.html; Dr. Weiss's web site: http://www.jmweissmd.com; An interview he gave: http://www.obgyn.net/avtranscripts/stones_weiss.htm Mercury Detoxification: Protocol can be downloaded at my web site: http://drwilson89.tripod.com/Linksx.html.

Potential vendors: 1. DesChutes Medical, for their Kegel manometry device [www.DesChutesMed.com];
2. Bio-Energy Services for the Pap-IMI pulsed electromagnetic field device [www.pap-imi.gr].

Home exercise tip: I devised simple dural tube/Kegel exercises. Based on pubo-coccygeus pulling the sacrum toward the pubic bone and stretching the dura. With appropriate bending of the neck during Kegel contractions (forward/backward/sideways), one enhances the dural tube glide. It also pulls on the brain, helps concentration and staying awake (while driving, or in long classes).

My motivation: Expanded points from a survey I sent a year ago to the DAMS dental support network [www.DAMS.cc]:

….I have treated women with chronic pelvic pain (vulvodynia and coccydynia) using information shown on the next page, and became suspicious of the role of mercury in chronic pelvic pain. My CPP patients have mercury fillings. One started having her mercury removed quadrant by quadrant and in a couple days after the first of four planned appointments she had tremendous worsening of her symptoms of vulvodynia. One woman I talked with said she has been near-suicidal with pain.

Tampons: Searching the Internet there are several sites for support and information about pelvic pain. One posted a note from a woman who dated the start of her chronic pelvic pain to the day at age 16 she inserted a tampon. I heard years ago that one of the unlisted ingredients in tampons was mercury (as the antimicrobial "thimerosol"). Maybe her pain and that of many other women could be related to mercury in tampons (and possibly pads as well if these contain mercury).

Expanding on Dr. Weiss's work: One of my patients went to California and received the treatment that Dr. Weiss offers. This helped some but not completely. My treatment helped significantly more at the time, but she needed more detox work than we could do at my office and I have since moved. It will take a careful approach to get mercury out of body tissues [download protocol on my web site]. I would like to get more observations from individuals about any correlation they may see with dental conditions, especially mercury amalgam fillings, and their chronic pelvic pain, vulvodynia and/or coccydynia.

Thank you for your consideration. I hope we can work together to help people with this puzzling class of health debilitation.

Sincerely,

Ralph Wilson, N.D.

Ralph Wilson, N.D., M.S. Acupuncture
Clinical Associate at National Integrated Health Associates
Washington, DC
www.nihadc.com; http://DrWilson89.tripod.com

*Copies to Conference Leadership:
Judith Aston, BA, MFA, MT; Leon Chaitow ND DO; Judith P. (Walker) DeLany LM; Benny F. Vaughn LMT ATC; Judith DeLany, LMT; Craig Liebenson DC; John Downes, DC; The International Alliance of Healthcare Educators; The Upledger Institute; Jerome Weiss, M.D.

Chronic Pelvic Pain (CPP) Treatment Overview Sent to Upledger-Promoted Conference Leadership

Proposed for National Integrated Health Associates, adapted from earlier clinical experience

By Ralph Wilson, N.D. †

See articles for overview of this debilitating condition [affecting men and women], and Dr. Weiss's forthright approach. TREATMENT is an individualized program with two areas of emphasis: 1) Detect and remove obstacles to healing, and 2) Educate the patient and give self-care measures to be done at home.

1. **SUPPORT AUTONOMIC SELF-REGULATION** by ART evaluation and addressing the blocks and disturbances of the body's innate ability to deal with various stressors. This may require continued attention during the course of treatment. Clinical experience has suggested that Mercury may be a major factor in CPP, unrecognized by other treating centers. NIHA has a variety of resources to deal with mercury and other stressors of the Autonomic Nervous System. [For detoxification articles read Klinghardt's at www.neuraltherapy.com; also see NIHA's web site at www.nihadc.com, and my own web site with links to Biological Dentistry sites at http://DrWilson89.tripod.com.]

A. Detoxification of heavy metals and other xenobiotics. [see-- http://drwilson89.tripod.com/Linksx.html]*
    a. This may include Pap-IMI device stimulation to pelvic tissues. * See www.papimi.gr
B. Treat infestations of microbes and bowel flora imbalance. [May include Lyme sequestered in fascia.]
C. Psycho-Emotional work (see #6 below). This should **not** be the sole treatment used for CPP.
D. Tissue biochemistry support:
    a. Avoid allergenic foods.
    b. Essential oils. Trace minerals.
    c. Check and strengthen adrenals and/or thyroid (ref: www.DrRind.com).
    d. Digestive support as needed. e. Bio-Terrain treatments with Sanum homeopathic remedies.
E. Structural work: Dental alignment, skeletal alignment, etc.
F. Other factors mentioned by Klinghardt, including "NICO" jawbone "holes" after extractions, etc.

2. **CRANIO-SACRAL THERAPY* AND AURICULAR ACUSTIMULATION** help restore flexibility of the skeleto-muscular system and encourage energy flow in pelvic acumeridians (this uses the acupuncture energy flow lines through the ear but does not require acupuncture needles).

3. **PELVIC FLOOR THERAPY*** applies the fluid dynamics of tissue mobility described in texts on Cranio-Sacral Therapy combined with naturopathic coccyx manipulation techniques [performed in Hawai'i office, not allowed in DC]. This goes beyond the internal pelvic therapy developed by Jerome Weiss, M.D. Therapy includes gentle compressing and stretching of muscles guided by sensory feedback from the Cranio-Sacral tissue fluid system. The desired outcome is release of restrictions to ebb and flow of tissue fluids and improvement in blood supply to pelvic tissues. This helps the body's self-healing mechanism. If this therapy cannot be performed at your clinic, a regimen of soft tissue external manipulation, yoga-like stretching and cross-crawl treatments (there are several popularly available) may suffice.

4. **BIOFEEDBACK** is an option that allows measurement of the strength of muscles of the pelvic floor. Instruments are available for home use (see DesChutes reference below) as part of an exercise program to address issues of muscle strength and tone.

5. **MASSAGE AND BODYWORK** * may be recommended. There is a range of approaches to help improve muscle function, mobility, posture, etc. Appropriate referrals can be given.

6. **MIND-BODY SUPPORT & APN (APPLIED PSYCHO-NEUROBIOLOGY)** are part of the NIHA offerings and are integrated into treatment on an individual basis. This includes Photron light therapy and helps the person deal with powerful effects of stressors in the mental, emotional, spiritual areas of life. [See Meridian and Energy Therapies: http://theamt.com.]

7. **SELF-CARE AT HOME** is an individualized program including recommendations from the ART evaluation, and exercises to maintain the tone and relaxation of abdominal and pelvic muscles. Partners may be instructed in the technique of basic internal muscle stretching. Dural tube/Kegel sequence (pubococcygeus enhancement of dural glide, from Dr. Wilson), and DesChutes Medical's Kegel manometer device (800-323-1363, www.DesChutesMed.com) can enhance tissue tone and mobility.

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*Mobilizing heavy metals that are stored in tissues needs to be done carefully. My observations lead me to believe that tissue manipulation from Cranio-Sacral Therapy, massage and the Pap-IMI treatments (electromagnetic field therapy) can expose mercury to the circulation and increase the stress on the body. This may be dealt with using mercury abatement approaches. There are a number of these, see www.neuraltherapy.com, www.bioray2000.com and the Biological Dentistry links on my web site [including NICO lesions, which may store mercury ions]. My Links page has downloadable protocol on mercury detoxification.

†National Integrated Health Associates, 5225 Wisconsin Ave., NW, #401, Washington DC 20015; 202-237-7000, Ext 202
Dr Wilson's web site: http://DrWilson89.tripod.com; clinic web site: www.nihadc.com.

HANNA KROEGER'S COCCYC PROCEDURE

[reported by Carolyn Libby, of www.spiritinhealth.com]

This procedure may be adequate to mobilize tissues inside the pelvis so that direct internal access to the soft tissues is not necessary. The work of Dr. Jerome Weiss has shown the great benefit of mobilizing these soft tissues; techniques such as the one outlined here may allow practitioners to gain the benefits when they are unable to apply direct tissue pressure techniques.

--Ralph Wilson, N.D.--

The tailbone is like a pump handle that moves every time you breathe. It pumps the bone marrow up. When the coccyx is out of place, the spleen does not get the bone marrow ingredients to make the blood. The solution is to put the tail bone in place.

Procedure:

Client lies face down, turns head one way, practitioner gently moves hands down the back to the sacrum. One hand stays on the sacrum, the other hand goes up to the top of the back, brings other hand up and moves down the back again. Do this three times. During the following procedure the practitioner keeps one hand on the sacrum at all times (whenever possible).

Bring leg farthest from you up, bending at the knee. Stretch it three times towards you, three (3) times away from you, stretch leg down to table three (3) times, bring heel to buttocks three (3) times. Walk around the table and pick up that same leg. Put both hands under the leg above the knee cap (keeping leg straight) and move the entire leg out (toward you), up, and over (the other leg), three (3) times.

Repeat this procedure on the other leg.

Then, ask the client to turn head to the other direction and repeat the procedure on both legs.

Aura brush:

Client faces up. Brush the etheric body twice over the top of body, once over sides, then repeat a few times. This allows the tailbone to stay in place.

Spleen* drain:

Practitioner puts left hand over spleen, right middle finger under client's right armpit (moving in from behind). Hold for a minute or two. The client may flush as the spleen becomes energized.

*** Note:** In Traditional Chinese Medicine (TCM) the function of the Spleen meridian system is different than the western understanding of the physical organ called the spleen. It is interesting that Hanna Kroeger includes the spleen meridian as it passes near the armpit. The TCM listing of the functions of the spleen system includes holding fluids within the vessels and holding tissues in their place [ref.: http://www.geocities.com/altmedd/acupuncture/zang_fu/spleen.htm]. Thus, treating the spleen has been used to prevent prolapse of organs such as the uterus. Including this in the coccyx procedure will result in an energy input to the spleen system which helps maintain proper tone of the internal pelvic tissues. –Dr. Wilson--

Shewire's Allyson Bates delves into the secrecy of chronic pelvic pain.

by Allyson Bates. 1999-10-27 [http://bodysoul.chickclick.com/articles/859p1.html]

Phew. We've finally reached a point in time when female health issues are no longer whispered behind closed doors. Well, not exactly. Instead, women whisper conversations in hushed tones with their friends about problems with their monthly cycle. Couples share intimate details about contraception during pillow talk. And a few OB-GYNs take the time to ask women detailed questions about their health and wellbeing. But even though there have been great strides in raising the public's awareness of cervical and breast cancer, there are still many agonizing symptoms and diseases that go unspoken. Take chronic pelvic pain, for example.

Not only is chronic pelvic pain (CPP) an unmentionable topic of conversation, but if you ask several women if they experience pelvic pain, they would probably respond with a puzzled look. No, of course they don't have pelvic pain. No one wants to talk about or expose personal ailments such as painful intercourse, urinary urgency and frequency, lower back spasms, and interior vaginal pain. The plain truth is that even though we are more comfortable talking about women's health issues, pelvic pain is still too intimate to discuss openly, even among close friends. Sure some of these symptoms may be as obscure to particular women as jock itch, but recent studies show that more than 15 percent of the female population experiences some degree of pelvic pain.

Chronic pelvic pain, usually a series of tight muscle spasms on the pelvic floor, affects 1 in 7 women in the United States between 18 and 50 years of age, according to a recent article by Alexandre Ravski, MD on obgyn.net. This disease can be caused from a variety of both physical and emotional diseases. Chronic straining, childbirth, surgery from diseases such as endometriosis and vulvodynia, chronic bladder infections, and emotional stress can all trigger pain in the pelvic area. Yet, since this pain is hard to pinpoint and many times, sporadic, it can be difficult to diagnose or can be easily overlooked by a physician. And according to Ravski's studies, a woman's recall and perception of pain and discomfort is influenced by complaint which can delay correct diagnosis.

"I can't even begin to count the number of doctors that I saw who told me all this pain was in my head," explained a 24-year-old woman with chronic pain caused by endometriosis. "Everyone kept telling me to deal with it, that [the pain] was something I had to get used to." But for many women, these symptoms interrupt their daily lives, restrict physical and sexual activity, and result in missed time from work.

But a San Francisco-based physician, Jerome Weiss, is using techniques, both old and new, to address the issue of CPP. Weiss, founder and director of The Pacific Center for Pelvic Pain and Dysfunction, currently has more than 450 patients under his care. Not surprisingly, most of his patients are female. But what is, perhaps, the most interesting is that most of his patients are young women, 20 to 30 years of age. "I believe that women become sexually active [between 20 and 30 years of age], and these symptoms impact their quality of life," explains Weiss, a urologist in private practice for more than 30 years.

Weiss theorizes that women in the past have had similar symptoms, but were conditioned to live with it. "It's not something that people are ready to talk about," says Weiss. "In fact, surveys show that many women still don't bring it up in doctor's offices." Weiss hopes to change all that. Six years ago, when he couldn't find anyone to help his patients correct their problems; he opened his own clinic for pelvic pain and dysfunction. In a small office space, Weiss and staff treat women with a program that promotes wellbeing through a variety of exercises including pelvic floor physical therapy, biofeedback, acupuncture, stress-reduction, yoga and home programs. Weiss and his staff of trained physical therapists stretch and compress muscles on the pelvic floor to correct postural and movement problems. A biofeedback specialist assesses the strength and tension of the pelvic floor muscles to monitor muscle control and flexibility. And psychotherapy is used to reduce and manage stress. In addition to in-office procedures, Weiss and his staff instruct patients on how to manage their health from home with a series of exercises and internal techniques for the patient and her spouse or partner. And his success has reached quickly beyond the Bay Area. In fact, many of his patients live on the opposite coast, or travel great distances to get a 20-minute session with the doc. "It wasn't uncommon to be in his waiting room with other patients who flew in from across the country to see him," explains a 26-year-old former patient. "And he's in such high demand that you'd need to make appointments months in advance."

Although some of his techniques, such as internal pelvic therapy, may be interpreted as fringe-medicine, he's had an unbelievable response from the medical community. "Most physicians are happy to have me doing my work," says Weiss. "In fact I get many referrals from proctologists, gynecologists, and other urologists." When asked if he would expand his center to other parts of the country, Weiss was hesitant, explaining: "Quality is important to me, and I can't give up my hands-on thing." But Weiss is optimistic about helping young women cope with chronic pain. Through his variety of procedures and techniques, he hopes to find the right prescription to subdue the sharp pains that some women experience during sex. He also hopes that his relaxation techniques and muscle strengthening will improve bladder reflexes to alleviate bladder urgency and frequency. "All I want is to do good work and make people well," says Weiss with a gleam of optimism.

For more information on Dr. Weiss, CPP, and other diseases, log on to www.jmweissmd.com or www.obgyn.net. Freelance writer Allyson Bates lives in San Francisco and writes for Upside Magazine, CNET, San Jose Mercury News, and women.com.

Chronic Pelvic Pain and Myofascial Trigger Points

by Jerome Weiss, M.D.

This article was originally printed in The Pain Clinic, December 2000,Vol.2; No. 6:13-18

[Note from Dr. Wilson: This article shows the careful approach Dr. Weiss has toward this important and puzzling condition. One of my patients saw him but made little progress; she had many mercury dental fillings. My belief is that he does not address the issue of tissue insult due to mercury/heavy metal deposition; nor does he or many other practitioners focus on subacute infestations with microbes such as Lyme/Borrellia. These “obstacles to cure” may be the key to helping people with CPP. The approach I used in my Hawai’i practice expanded on his basic protocol. In my Washington, DC practice, I have not been able to continue this work that I think would greatly help patients with CPP. Possibly the Low Back and Pelvic Pain Conference will provide the catalysis for a national access to a broader approach to CPP.]

INTRODUCTION

The additive effect of tense pelvic-floor holding patterns, trauma, inflammation, or pelvic organ disease can overload the muscles, stimulating the development of myofascial trigger points and pelvic floor hypertonus. The increased tenderness and tension in these muscles may refer pain into the lower back, abdomen, or perineum, or it may cause urethral, vaginal, or anal symptoms by compression. The noxious stimuli created by this self-perpetuating process can alter the central nervous symptom in a manner that magnifies and spread s the symptoms.

A stimulus-free period has been shown to reverse central sensitization, and thus all noxious input entering the relevant sacral spinal cord region must be eradicated. Therefore, a comprehensive approach must be followed, with attention paid to the skin, viscera, myofascial structures, the stressed or depressed mind, hormonal imbalances, poor nutrition, and sleep disturbances.

CASE REPORT

Ms. M., a 38-year-old woman, gave a 14-year history of right lower quadrant pain, urinary urgency, frequency, suprapubic pressure, and deep right-sided dyspareunia. These symptoms had arisen after a Caesarean section that followed two days of traumatic labor. Her pelvic pain symptoms had been treated elsewhere with nine laparoscopic procedures for lysis of adhesions, a right oophorectomy, and total abdominal hysterectomy. When she presented to our clinic complaining of continued pain, external pelvic examination revealed myofascial trigger points of the right rectus abdominus muscles and a tender suprapubic scar. Internal pelvic examination disclosed myofascial trigger points of the right obturator internus, pubourethralis and urinary sphincter.

She was treated with internal myofascial release techniques, which eradicated the trigger points and hypertonus of the pelvic floor, and trigger point injections of 0.5% bipuvacaine into the rectus abdominus trigger points and scar.

She became completely asymptomatic after 12 treatments.

DISCUSSION

As in the case of Ms. M., dysfunctional muscles of the pelvic floor are a frequently overlooked contributor to chronic pelvic pain. For example, it is not unusual to see regional pain appear to metastasize: what begins as lower abdominal pain progresses to urethral pain with urinary urgency and frequency, vulvar pain, anal pain and constipation, lower and upper back and neck pain, headache, anxiety, stress and fatigue. The classical analytic process used in medical diagnosis would attempt to implicate one source for these symptoms, not a dozen. The common denominator may be a myofascial trigger point, described as "a hyper-irritable spot, usually within a taut band of skeletal muscle or in the muscle fascia, that is painful on compression and that can give rise to characteristic referred pain, tenderness and autonomic phenomena."1

A myofascial trigger point is the end result of muscle injury at the motor end plate by overloading, whether acute, sustained or repetitive.1 The tender trigger point can then refer pain along that muscle or to surrounding and distant muscles (see Figure), set off autonomic nervous system symptoms in the reference zone, weaken the muscles so that they cannot accomplish a full range of motion, and increase their sensitivity. The affected muscle and fascia contract, establishing a shortened position and causing surrounding muscle groups to compensate. These in turn become so overloaded that they too develop trigger points, thereby spreading the symptoms.

The increased vulnerability of the pelvic floor muscles can be attributed to their anatomically central location, which transmits forces between the upper and lower body. Their constant functional activity (supportive, sphincteric and sexual) and their eccentric or enlongating contractions are additional factors making these muscles a major target of stress.

To visualize how the pelvic floor responds to stress, one need only look at the movement of a dog s tail: when the dog is happy, the tail wags loosely from side to side; when the dog is stressed, the tail is pulled tightly under its legs. It is the pelvic floor muscles that control the tail. They were also the tail-waggers in man before the evolutionary loss of the tail and the assumption of the upright position made them supporting muscles. In fact, the pelvic floor muscles are still attached to the rudimentary tail, the coccyx, which is pulled forward when contracted, thereby compressing its penetrating organs. Therefore, man s pelvic muscles, as the dog s, may be the ultimate representation of the mind/body connection, for they are constantly responding to fluctuations in feeling. As a result, they may become overloaded and develop self-sustaining dysfunctional patterns.

The most common events that lead to injury are:
1. Chronic tense holding patterns that develop in childhood as a result of sexual abuse, traumatic toilet training, abnormal bowel patterns, guilt surrounding sexual feelings, dance training or stress;
2. Repetitive minor trauma or straining with constipation or urinary obstruction;

3. Sudden brief severe strain sustained in sports, dance or gymnastic accidents;
4. Direct physical trauma from bicycling, childbirth, urologic or gynecologic instrumentation or surgery;
5. Inflammation of pelvic organs such as prostatitis, cystitis, urethritis, endometriosis, vaginitis, proctitis or an al fissures;
6. Referred pain from other attaching muscle groups or viscera or nerves.

The intensity of the force required to create injury depends on the baseline muscle integrity. Common predisposing biomechanical problems that create pelvic muscle imbalance are skeletal deformities (scoliosis, articular dysfunction of the back, hips or SI joint) or hormonal (hypothyroidism, estrogen deficiency), nutritional (iron, vitamins B and C) or genetic deficits.

Depending on the severity of the myofascial injury, a trigger point can be latent (asymptomatic) or active (symptomatic). The development of a symptomatic trigger point can cause diagnostic confusion, as the traumatic events leading to it may be additive. With the final trauma, the muscle exceeds its stress tolerance.2 Sometimes this triggering event is so minor that its contribution is not even recognized, as in the case of Ms. M.

DIAGNOSTIC CONSIDERATIONS

Myofascial trigger points create chronic pelvic pain or mimic visceral disease by three mechanisms: local tension around the penetrating organs and muscle referral patterns; viscerosomatic and somatovisceral reflexes; and central sensitization.

Local Effect

Unlike other striated, voluntary muscles, those of the pelvic floor surround and are intimately attached to visceral structures (urethra, bladder neck, vagina and rectum) for support and sphincteric control. Because the afferent nerves of viscera and deep muscles (i.e., those of the pelvic floor) go to the medial thalamus, they cannot localize noxious stimuli as well as nerves from the skin, which go from the lateral thalamus to the somatosensory cortex. Therefore, patients with active myofascial trigger points and spasm of the pelvic floor may not perceive their symptoms as originating in the pelvic musculature. Not only can they have urinary urgency and frequency, vaginal or anal pain, referred pain to the low back, suprapubic or perineal areas, but--because of neural pathways to the limbic centers via the medial thalamus--they can also experience varying degrees of emotional distress.

Viscerosomatic and Somatovisceral Reflexes

The effect of visceral pain on somatic structures was shown by Vecchiet et al.3 and Giamberardino et al., 4 who found that 30 to 64% of patients who had had repeated episodes of renal colic experienced hyperalgesia in the lumbar muscles years after the original pain. The latter group postulated that the stone pain triggered plastic neuronal changes at the spinal or supraspinal levels that were sustained after visceral input stopped, although they did not rule out tissue alterations in the referred zone. One of the tests, striking the muscle with the ulnar portion of the hand until contact with the tender point prompted the patient to jump, can be compared to the jump sign in the diagnosis of myofascial trigger points. Their study may actually have found myofascial trigger points created by visceral pain via the viscerosomatic reflex.

T his model of repeated episodes of renal colic causing chronic muscular flank pain can be applied to recurrent endometriosis or other pelvic organ inflammation causing chronic pelvic myofascial pain. Wesselmann and Lai5 demonstrated the viscerosomatic referral pattern from a gynecologic organ by experimentally inducing uterine inflammation in the rat. Using Evans blue as a plasma marker, they found that neurogenic inflammation was produced in the trunk, perineum, bilateral thighs, saddle area and proximal tail.

The pain distribution from this experimental uterine inflammation is similar to that seen clinically in women. In addition, once myofascial structures become physically involved in the pain process, they can develop myofascial trigger points that maintain pain, in this case even after the visceral inflammation has subsided.1 This may be the mechanism underlying gynecologic surgical failure, as in the case of Ms M: in actuality the pain is related to pelvic myofascial trigger points, not visceral disease.

Central Sensitization

Myofascial trigger points not only can be a source of pain, but also can sensitize CNS neurons and thereby lead to the much deeper and treatment-resistant neuropathic pain. A review of basic pain neurophysiology indicates that an afferent nerve branches in the spinal cord to synapse with many dorsal horn cells in many spinal cord segments, above, below, 6 or contralaterally.7 In addition, nerves from multiple organs (muscle, viscera and skin) can converge on a single dorsal horn neuron and affect each other in the supraspinal levels as the second-order neurons travel in close proximity in the brain stem and thalamus on the way to the cerebral cortex.

The obvious importance of this intermingling is to enable the organs to communicate for normal and coordinated body functions. However, since the dorsal horn neurons and thalamic cells are the heart of the communication system, any damage to them can cause widespread dysfunction. Their normal activity is most commonly disrupted by a severe or chronic painful stimulus from the peripheral nerves that synapse with them. This noxious input can have many causes, e.g. active myofascial trigger points, visceral pain, or skin inflammation. When these noxious impulses reach the dorsal horn cells in the spinal cord via the C-fibers, neuropeptides are released, initiating physical, chemical and genetic changes that activate low-efficiency synapses or neurons with a wide dynamic range and facilitate abnormal connections. The manner in which pain is processed is thus altered. This increased excitability of the spinal cord, or altered central processing, is termed neuroplasticity to signify a change that lasts longer than the triggering event.8These plastic changes can variously alter the sensation of pain: the threshold may be lowered, whereby a non-painful stimulus will cause pain (allodynia); pain may be spontaneous or intensified (hyperalgesia) or its field may be expanded; or the degree and duration of pain may be enhanced with each repeated painful or non-painful stimulus (windup).8 These are all of the pain qualities we begin to observe as the CNS becomes unstable and the symptoms escalate--not from worsening of the disease, but rather from its chronicity.

In addition to these generalized phenomena, symptoms specific to the spinal cord segment are involved. Dorsal horn or thalamic cells sensitized by myofascial pain can cause sensitivity in other organs that converge on them, and painful viscera (e.g., kidney,3,4 and uterus5) can cause sensitivity in myofascial structures in their reference zone. What begins as myofascial, visceral or skin pain can, with enough noxious stimuli, become neuropathic pain, affecting a wider area and more organs.8 If the dorsal horn cells remain in this sensitized state, the original pain can be

reignited by a noxious stimulus that reaches them from any of the converging organs in their shared receptive fields. The studies of Vecchiet and Giamberardino et al.3,4 indicated that the renal colic left the thoracic dorsal horn cells sensitized after its subsidence, and therefore pain anywhere within that thoracic receptive field could reproduce the original colic. The degree of sensitivity in these dorsal horn cells can be influenced by a multitude of changing factors, e.g. depression, hormonal fluctuations during the menstrual cycle,9 sleep disturbance, or diet. Therefore, the reason the pain experience may fluctuate may be that a summation of these factors, rather than a single factor, is necessary to exceed the threshold for the perception of pain.

TREATMENT

From a practical standpoint, the question arises: How can these altered or sensitized neurons become normal again? We have methods to eradicate myofascial trigger points, but how do we treat sensitized nerves?

Gracely et al. 10 suggest that altered central processing cannot be sustained without ongoing input from a painful focus. In their study, when an anesthetic block was administered to a painful point near the elbow, the chronic pain in the distal arm and hand subsided. Koltzenburg et al.11 have stated that "central sensitization cannot be perpetuated by central processes alone." They suggest that, when nociceptor activity is blocked or reduced below a critical level, the central processing mechanism quickly reverts to normal. Cohen12 has also indicated that ongoing remote but related nociceptors can maintain neuropathic pain. In a study with Arryo,13 their patient s knee pain was not significantly helped until the ipsilateral dysfunctional SI joint was treated.

The success of blocking painful input to the spinal cord to allow altered central processing to return to normal is described by Bach et al.,14 who reported that pain memories in phantom limbs appeared less common when an anesthetic block created a pain-free interval between the onset of pain and the amputation. Bonica15 found that closely spaced anesthetic blocks yielded pain relief of progressively greater duration and magnitude. This indicates that the block allowed the sensitized nerves a stimulation-free period in which to recover.

Therefore, effective therapy must be widespread and comprehensive to identify and correct any ongoing painful input that originates anywhere in the receptive fields. Therapy must be directed at eradicating all noxious stimuli transmitted to the sacral spinal cord from, for example, the skin, viscera, myofascial trigger points, or abnormal body mechanics, to allow a stimulation-free period. General factors should also be treated, as these disrupt normal pain modulation: e.g., hormonal and nutritional abnormalities and sleep disturbances.

Chronic stress, a contributor to neural sensitivity and increased symptoms, must also be addressed. Psychotherapy can play an important role in identifying old traumas that sustain muscle hypertonus. In addition to deep-seated psychological problems, day-to-day stress can create or increase muscle tension and decrease the pain threshold. Therefore, the daily practice of a stress-reduction technique is essential to lower the overall muscle tension and keep it below a symptomatic level.

The failure to use a broad therapeutic approach to search out and eradicate all incoming noxious stimuli that maintain nerve sensitization will result in continued or recurrent pain. Therefore, it follows that the successful treatment approach must be holistic and comprehensive.

REFERENCES

1. Travell J, Simons, D. Myofascial pain and dysfunction: The trigger point manual, Vol 1, Baltimore: Williams & Wilkins, 1992.
2. Sola AE, Bonica JJ. Myofascial pain syndrome, in Bonica JJ. The management of pain, Vol 1, 2nd ed, Philadelphia: L ea and Febiger, Chap 21, 1990, p. 354.
3. Vecchiet L, Giamberardino MA, Dragani L, Albe-Fessard P. Pain from renal/urethral calculosis: Evaluation of sensory thresholds in the lumbar area. Pain 1989;36:289-295.
4. Giamberardino MA, Bigontina P, DeMortegiani C, Vecchiet L. Effects of extracorpeal shock-wave lithotripsy on referred hyperalgesia from renal/urethral calculosis. Pain 1994;56:77-83.
5. Wesselmann V, Lai J. Mechamisms of referred visceral pain: Uterine inflammation in the adult virgin rat results in neurogenic plasma extravasation in the skin. Pain 1997;73:309-317.
6. Field HL. Pain, New York: McGraw-Hill, 1987, pp. 42-44.
7. Linderotin B, Brodin E. Mirror pain and indications of bilateral dorsal horn activation in response to unilateral nociception. Pain 1994;58:277.
8. Coderre TJ, Katz J, Vaccarino AL, Melzack R. Contribution of central neuroplasticity to pathological pain: Review of clinical and experimental evidence. Pain 1993;52:259-285.
9. Giamberardino MA, Berkley KJ, Iezzi S. Pain threshold variations in somatic wall tissues as a function of menstrual cycle, segmental site and tissue depth in non-dysmenorrhric women, dysmenorrhric women, and men. Pain 1997;71:187-197.
10. Gracely RH, Lynch SA, Bennett GJ. Painful neuropathy: Altered central processing maintained dynamically by peripheral input. Pain 1992;51:175-194.
11. Koltzenburg MK, Torebjork HE, Wahren LK. Nociceptor modulated central sensitization causes mechanical hyperalgesia in acute chenrogenic and chro nic neuropathic pain. Brain 1994;117:579-591.
12. Cohen ML. Comment on Gracely et al. Painful neuropathy: Altered central processing maintained dynamically by peripheral input. Pain 1992;51:194.
13. Cohen ML, Arryo TF. Comment on Hopkins and Charters. An unusual case of causalgia relevance to recent hypothesis on mechanisms of causalgia. (Pain 1989;37:93-95) Pain 1990;40:354-355.
14. Bach S, Noreng MF, Tjellden NV. Phantom limb pain in amputees during the first 12 months following limb amputation, after preoperative lumbar epidural blockage. Pain 1988;33:297-307.
15. Bonica JJ Causalgia and other reflex sympathetic dystrophies. in Bonica JJ The management of pain, Vol. 1, 2nd ed, Philadelphia: Lea and Febiger, 1990, pp. 220-256.