

POLIO NETWORK NEWS

INTERNATIONAL POLIO NETWORK



ST. LOUIS, MISSOURI



WINTER 1997 VOL. 13, No. 1

PAIN IN POST-POLIO SYNDROME

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Symptoms of post-polio syndrome include fatigue, new weakness, and pain in muscle and joints. Chronic pain is the second most prevalent symptom reported and frequently is the most difficult to treat. Improvement in the evaluation and treatment of pain can significantly improve comfort and restore function. The differential diagnosis is extensive, but many of the problems appear to be related to overuse of weak muscles along with abnormal joint and limb biomechanics.

To facilitate the diagnosis and treatment of pain, a classification that divides the pain syndromes into three classes has been developed: 1) *post-polio muscle pain*; 2) *overuse pain*; 3) *biomechanical pain*.

POST-POLIO MUSCLE PAIN occurs only in muscles affected by polio. It is described as either a deep or superficial aching pain, which many survivors say is similar to the muscle pain they experienced during their acute illness. Characterized by muscle cramps, fasciculations, or a crawling sensation, it typically occurs at night or the end of the day when one tries to relax. It is exacerbated by physical activity and stress, and cold temperatures.

OVERUSE PAIN includes injuries to soft tissue, muscle, tendons, bursa, and ligaments. Common examples are rotator cuff tendinitis, deltoid bursitis, and myofascial pain. Myofascial pain in post-polio is similar to that in others. It occurs most frequently in the muscle of the upper back and shoulders and is characterized by bands of taut muscles and discrete *trigger points* that elicit a *jump* response when palpated. These occur due to poor posture or improper body biomechanics.

Fibromyalgia (see box on page 2) with its associated symptoms is another cause of muscle pain that has been recognized by other investigators and has similar symptoms, but is distinctly different from post-polio muscle pain. The classic *tender points* are uncommon with post-polio muscle pain.

BIOMECHANICAL PAIN presents as a degenerative joint disease (DJD), low back pain, or pain from nerve compression syndromes. Weakness induced by polio affected muscles, as well as poor body mechanics, makes the joints more susceptible to the development of DJD. Survivors who walk develop degenerative joint disease in the lower extremities because years of ambulating on unstable joints and supporting tissue increase the chance of developing further pain and deformity. Those

who use wheelchairs or assistive devices such as canes, crutches, or walkers are prone to DJD, or overuse syndromes, in their upper extremities, especially the wrist and shoulders. The joint pains are only rarely accompanied by swelling and/or inflammation, but do demonstrate tenderness and abnormal range of motion. X-rays of painful, weight-bearing joints may show degenerative changes proportional with the amount of stress the joints have sustained.

Nerve compression syndromes, including carpal tunnel syndrome (CTS), ulnar mononeuropathy at the wrist or elbow, brachial plexopathy, and cervical or lumbosacral radiculopathy, are syndromes that can cause pain as well as neurologi-

cal deficits in the post-polio individual. Risk factors for the development of focal neuropathies of the median and ulnar nerves include use of an assistive device such as a cane, crutch, or wheelchair. These neuropathies can be detected on electrodiagnostic tests (EMG/NCS) before the individual has the characteristic symptoms of CTS.

The evaluation of post-polio individuals with pain requires careful investigation of all aspects of their pain. Among the questions asked are typical ones such as "What makes the pain better?" and "What makes it worse?" The way pain interferes with the survivors' ability to sleep and work is noted. Which treatments are helpful and by whom they are given is also documented.

*"Altering the pace
and intensity of
discretionary activities
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is essential."*

Pain management in post-polio is based on a few basic principles, supplemented by class-specific recommendations. These basic principles include efforts to:

1) improve abnormal body mechanics; 2) correct and minimize postural and gait deviations mechanically; 3) relieve or support weakened muscles and joints; 4) promote lifestyle modifications; 5) decrease the abnormally high work load of muscles relative to their limited capacity.

TREATMENT FOR POST-POLIO MUSCLE PAIN includes decreasing activity throughout the day, applying heat, and stretching. Stretching has a role in maintaining the extensibility of muscle and connective tissue; however, it must be performed judiciously because there are situations in which a polio survivor may derive greater functional benefit and be safer with tighter tendons and reduced joint range of motion.

A variety of medications are used to treat post-polio muscle pain, but the most common ones — such as nonsteroidal anti-inflammatories (NSAIDs), Tylenol, benzodiazepams, and narcotics — are of little use. The use of tricyclic antidepressants (TCAs), especially amitriptyline, can help with pain and also with fatigue.

TREATMENT FOR OVERUSE PAIN includes modification of extremity use, followed by modalities such as ice, heat or ultrasound, transcutaneous electrical nerve stimulation (TENS), and occasionally NSAID medications. Treatment for myofascial pain consists of myofascial release techniques, including spray and stretch and trigger-point injections. Often rest is not possible since many rely on upper extremities for both locomotion and self care. In rare cases, steroid injections or surgery may be needed.

TREATMENT FOR BIOMECHANICAL PAIN includes posture and back-care education and decreased weight bearing through use of assistive devices such as braces, crutches, wheelchairs, and scooters. Abnormal biomechanics can often be modified with fairly simple and practical interventions such as cervical pillows, lumbar rolls, glottal pads, dorsal-lumbar corsets, and heel lifts. These pains are usually improved by conservative measures aimed at reducing mechanical stress — pacing activities, supporting weakened muscles, stabilizing abnormal joint movements, and improving biomechanics of the body during common daily activities. Anti-inflammatory agents are used sparingly, and then only in low doses to supplement conservative measures. In particular, efforts should be directed at improving routine daily activities such as sitting, standing, walking, and sleeping, as well as any repetitious activities at

DIAGNOSTIC CRITERIA FIBROMYALGIA SYNDROME (FMS)

(according to the 1990 American College of Rheumatology)

To meet the criteria, patients must have:

- ➔ Widespread pain in all four quadrants of their body for a minimum of three months
- ➔ At least 11 of the 18 specified tender points

Although the above criteria focuses on tender point count, a consensus of 35 FMS experts have recently determined that a person does not need to have the required 11 tender points to be diagnosed and treated for FMS. This criteria was created for research purposes and many people may still have FMS with less than 11 of the required tender points as long as they have widespread pain and many of the common symptoms associated with FMS. Commonly associated symptoms include:

fatigue
sleep disorder (or sleep that is unrefreshing)
jaw pain (TMJ dysfunction)
post-exertion malaise and muscle pain
numbness and tingling sensations
skin sensitivities
irritable bowel
chronic headaches (tension-type or migraines)
cognitive or memory impairment
morning stiffness
menstrual cramping and PMS
dizziness or impaired coordination

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work. Weight bearing with the wrist hyperextended and radically deviated should be avoided.

For those with carpal tunnel syndrome who must use a cane or crutch, an Ortho-ease or *pistol grip* is prescribed to place the wrist in a more neutral position and spread out the weight-bearing surface on the palm. Providing adequate support for weakened muscles and unstable joints can often be a difficult challenge; how-

ever, the basic orthotic principles are similar to those used in the management of other neuromuscular diseases. For individuals with low-back pain, lumbosacral corsets, a shoe lift, or pelvic lift can help improve biomechanics. For genu recurvatum (back knee) or genu valgus (knock knee) due to quadriceps weakness or ligament instability, a long-leg brace (KAFO — knee, ankle, foot, orthosis) with a free ankle and an extension stop at the knee is used. Polio survivors with dorsiflexion weakness or ankle instability can benefit from an athletic ankle splint, high-top shoes, or a short leg brace (AFO — ankle, foot, orthosis).

Many individuals need an orthosis that combines strength and lightness. The new plastics and lightweight metals can often be used alone or in combination. Frequently, survivors prefer to repair and use their old braces rather than start over with new ones. Others may resist using any kind of brace for cosmetic and psychological reasons. Orthotics are recommended for the following indications: 1) to improve safety by reducing the risk of falls; 2) to reduce pain; 3) to decrease fatigue by improving gait speed and symmetry.

Pain can be reduced by altering biomechanics and by changing to a lifestyle that reduces physical activity. These strategies may be difficult to accomplish, however, because they often require developing behaviors unlike the old, familiar ones. Altering the pace and intensity of discretionary activities and learning new ways to gain more control over when and how activities are performed is essential. Restoration of function as well as relief of pain can be accomplished by an interdisciplinary team that includes the polio survivor, physical therapist, occupational therapist, psychologist, rehabilitation engineer, and physician. ❧

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Before moving to Spain Rehabilitation Center at the University of Alabama in Birmingham, Dr. Gawne treated polio survivors at National Rehabilitation Hospital for nine years. She co-authored *Post-Polio Syndrome: Pathophysiology and Clinical Management* with Lauro S. Halstead, MD, National Rehabilitation Hospital, which was published in *Critical Reviews in Physical Medicine and Rehabilitation*, Vol. 7, Issue 2, pages 147-188.

To receive a copy of Dr. Gawne's Post-Polio Pain Evaluation Questionnaire, send a self-addressed stamped envelope to her at Spain Rehabilitation Center, 1717 Sixth Avenue South, Birmingham, Alabama 35209.

SKILLS HELPFUL IN MANAGING PAIN

FROM THE AMERICAN CHRONIC PAIN ASSOCIATION

We do not dwell on physical symptoms of pain. Instead we focus on becoming a person rather than being a patient.

We recognize and talk freely about our feelings about pain and its control over our lives. We do not make judgments.

We use relaxation audiotapes to help ease the tension that increases pain.

We demonstrate mild stretching exercises and encourage you to do them daily, if your doctor approves.

We set realistic goals which are evaluated weekly. This helps members to see that their desires can be reached, one step at a time.

We become more assertive by recognizing our basic rights, including the right to make mistakes, the right to say no, and the right to ask questions.

The American Chronic Pain Association (ACPA) is an international non-profit, self-help organization that offers educational materials and peer support groups to help individuals live fuller lives in spite of chronic pain. To learn more about managing chronic pain (pain that lasts six months or longer) or to locate an ACPA group near you, contact the national office at 916/632-0922; 916/632-3208 FAX; ACPA@pacbell.net; write to the ACPA at P.O. Box 850, Rocklin, California 95677.

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ISSN 1066-5331

POLIO NETWORK NEWS is an international newsletter for polio survivors, health professionals, and resource centers to exchange information, encourage research, and promote networking among the post-polio community.

ISSUED QUARTERLY

EDITOR/EXECUTIVE DIRECTOR: Joan L. Headley

PUBLISHER:

Gazette International Networking Institute (G.I.N.I.)
4207 Lindell Blvd, #110, St. Louis, MO 63108-2915 U.S.A.

SPECIAL THANKS TO:

Ellen Peak, Volunteer Editor

ANNUAL SUBSCRIPTION:

U.S.A ♦ \$16 (U.S. dollars only)

CANADA, MEXICO & OVERSEAS (Surface) ♦ \$21

(U.S. dollars or Canadian equivalent)

OVERSEAS (Air) ♦ \$25 (U.S. dollars only)

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