



Pain MANAGEMENT

SPECIAL INTEREST GROUP • ORTHOPAEDIC SECTION, APTA, INC.

President's Message

Joe Kleinkort, PT, MA, PhD, CIE

There are so many new modalities and abilities to manage chronic pain; I think it is only appropriate for us practicing in the field to have a greater knowledge of these modalities. The same is true with new inroads in science and knowledge of mechanisms that cause pain. In discussing the neurobiological aspects of chronic pain, Butler's new book has refreshing new insights to some of the neurobiological mechanisms that recently have been found to take place in the patient with chronic pain. I highly recommend his latest text.

In a like manner, there is an area of treatment medically that has received very little attention in the US and that is the use of ozone. It is a treatment of choice for many conditions in the rest of the world. I hope this article is enlightening to you that other options are available. I do hope that you all consider sending short articles for publication in this media. It is through this common dialogue that we can grow and become all that we can be to serve our fellow humans.

The Use of Current Perception Threshold Testing in the Pain Management Physical Therapy Clinic

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A screening procedure that provides for the quantification of peripheral neuropathies can be performed quickly and easily in the clinical setting using the noninvasive, nonaversive diagnostic technique known as current perception threshold (CPT). The integrity of a sensory nerve can be measured by recording the intensity of neuro-selective electric stimuli applied transcutaneously. The device is the Neurometer CPT, a portable battery operated, (6v) nerve stimulator emitting a graded sinusoidal wave at frequencies of 5 Hz for C fiber stimulation, 250 Hz for A delta fiber stimulation, and 2000 Hz for A beta fiber stimulation. The current is delivered at intensities of up to 10 milliamperes, while maintaining constant alternating current. The skin is stimulated from a pair of 1 cm diameter gold-covered electrodes (separated by 1.7 cm) placed on the distal portions of the peripheral nerve fiber. The reported CPT value corresponds to the minimum amount of applied electrical stimulus that an individual perceives 50% of the time. To determine this, a single-blind experimental procedure is employed, with the controls hidden from the patient's view to ensure accuracy and reproducibility. The test selector indicator can be switched, producing an audible "click," in any of the 3 positions—true, rest, or false. While in the "true" position, the operator increases

the applied current until the subject reports a sensation of tingling, buzzing, or burning (corresponding to 2,000, 250, and 5 Hz respectively). The current is subsequently turned off and then stimulus is reapplied at decreasing intensities. These minimum values of CPT are then compared to established normative values to determine what degree, if any, of nerve dysfunction is present. This device is capable of detecting hypoesthetic as well as hyperesthetic conditions of any or all of the 3 types of sensory nerve fibers.

The following case reports illustrate how Current Perception Threshold studies were used to help locate sources of neural compression and improve the probability of treatment success.

CASE HISTORY I

The patient was a 47-year-old female nurse's aide who was referred because of persistent pain and paresthesia in the lumbar spine and into the right leg because of a work injury 2 years prior. EMG and NCV were reported normal, but her MRI suggested a mild disc bulge at the L5, S1 level.

CPT testing was performed and indicated a 0 score at L4, a +3 score at L5, and a +2 score at S1. Based on her CPT findings, she underwent a discogram which indicated prolapse of the L5, S1 disc.

Patient subsequently underwent decompression surgery and returned to work after a 6-week course of lumbar rehabilitation.

CASE HISTORY II

The patient was a 46-year-old male telephone lineman who was referred because of paresthesia of the right 5th finger, which lasted over 2 years. EMG, NCV, MRI, and Thoracic Outlet provocation tests were negative. X-rays suggested a slight forward slippage of C7 on T1.

CPT testing was performed and indicated a 0 score at C6 and C7 and a +3 score at C8. He was treated with physical therapy—consisting of iontophoresis with salicylate, IFC electrical stimulation, and cervical stability exercises, for 2 months and was retested by CPT. His score at C8 had returned to 0 and he was discharged asymptomatic.

CASE HISTORY III

A 55-year-old female assembly worker was referred because of bilateral hand paresthesia due to over usage at work. EMG and NCV were normal.

CPT testing showed a grade 0 for C5, C6, and C7 but +2