Non-Pharmacologic Treatment of Shingles

Shingles pain and lesions resolved in 48 hours after treatment with frequency-specific microcurrent.

By Carolyn McMakin, MA, DC

In unpublished anecdotal reports of Frequency Specific Microcurrent (FSM) treatments during the last twelve years, one frequency combination has been observed consistently to eliminate the pain and shorten the course of shingles. That frequency combination—230 Hz on one channel and 430 Hz on the second channel—applied simultaneously using 150 microamps alternating DC current having a ramped square wave pulse was ultimately successful on this patient's pain and lesions.

Case Report

The patient was an 85-year-old male who presented for treatment with Frequency Specific Microcurrent (FSM) of low back pain caused by myofascial trigger points and degenerative disc disease. The patient noted incidentally that he had a rash on the frontal portion of his bald scalp which was diagnosed one week previously by his dermatologist as actinic keratosis. He was applying a topical gel appropriate to that diagnosis and did not request treatment for the rash during this appointment. He returned two days later complaining of increased pain on his scalp in the area of the rash, rated as a 7/10 on a 0-10 VAS scale, and requested that the rash be treated with FSM appropriate for actinic keratosis since treatment had been effective for his low back pain.[1]

The treatment protocol for actinic keratosis required that microamperage current from a two channel microcurrent device be applied to the skin on his scalp. The current is delivered using graphite conducting gloves with double pin connectors cemented to the back so that one lead from each of two channels can be connected to each glove. One graphite glove, connected to the positive leads from both channels of the microcurrent device, was wrapped in warm moist fabric and placed on the patient's upper back. The second graphite glove, connected to the negative leads from both channels of the microcurrent device, was wrapped in a warm moist face cloth and placed on the top of the patient's head so that it covered the area of the rash on the scalp (see Figure 2).

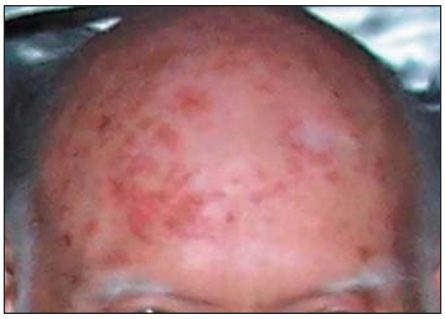

Figure 1. *Patient's rash was first diagnosed as "actinic keratosis" but, as the pain increased, it became clear that it was shingles in the ophthalmic branch of Cranial V.*

The patient was treated with the designated protocol for actinic keratosis—40Hz on one channel and 355 Hz on the second channel using alternating DC subsensory microamperage current at 150 μamps—for twenty minutes. This treatment protocol was expected to be helpful for actinic keratosis since 40 Hz has been shown to be effective for reducing inflammation.[2,3] During this portion of the treatment, the patient became restless and complained of increasing pain in the area of the rash. The rash was reassessed and tentatively diagnosed as shingles since the distribution was consistent with the ophthalmic branch of cranial V and was not responding to treatment appropriate for actinic keratosis.

The patient adamantly refused referral for anti-viral medication and requested immediate treatment for shingles with FSM. He was subsequently treated with the frequency protocol indicated for shingles—namely, 230 Hz on one channel and 430 on the second channel, using 150 microamps and a ramped square wave pattern. The pain gradually decreased during the next fifteen minutes and the patient was pain-free in twenty minutes. Treatment continued for sixty minutes and the patient was told to return the next day for additional treatment.

At the beginning of the second treatment, he rated his pain as a 2/10 on a 0-10 VAS scale and noted that the vision in his right eye was a little blurry. The shingles lesions on the scalp were notably less red and some had developed scabs. The patient was once again referred for prescription anti-viral medication and he adamantly refused. Instead, he was treated for two hours with the same frequency protocol as before. During this treatment, the contact on the scalp was moved forward to cover the patient's closed eyelid.

The pain was reduced from a 2/10 to a 0/10 within 15 minutes. The patient slept for the remainder of the two-hour treatment. At the end of the two-hour treatment, he reported that his vision was clear and he was pain-free. He returned the next day for follow up but refused treatment because he had no pain and all the shingles lesions were scabbed and healing.

Follow-up

At a two-week follow up the patient remained pain free and the lesions had resolved. There was no residual pain and no recurrence of shingles in any dermatome at a two-year follow up.

Treatment Method

FSM can be provided using any two-channel microamperage current device that can provide frequency pulses accurate to three digits on two channels simultaneously, using alternating DC current with a ramped square wave pulse. Two different devices were used to deliver the desired frequency combination for this patient's two treatment sessions. The Precision Micro (Precision Microcurrent, Newberg, Ore.), an analogue battery-operated two-channel three microcurrent device, was used during the first treatment session. This device requires that the frequencies on both channels be set and changed manually. The AutoCare-Plus (Microcurrent Technologies, Seattle, Wa.), a digital two-channel three digit specific microcurrent device preprogrammed to run certain specific frequency combinations for various time periods, was used during the second treatment. It provided the desired three digit combination, 230 Hz on one channel and 430 Hz on the second channel, for 60 minutes and was restarted after the first 60-minute cycle.

Treatment Method History

The frequencies used in this case treatment were obtained in 1995 from a retired British osteopath who had bought a practice in Vancouver, BC (Canada) in 1946 that came with a machine (manufacturer unknown) and a list of frequencies that was developed in 1922 and thought to address specific tissues and neutralize specific conditions. The list acquired from the osteopath included approximately 100 frequencies alleged to neutralize certain pathologies or conditions and over 200 frequencies thought to address certain tissues. The list also contained a small number of two-channel pairs in which neither frequency matched a listed condition or tissue. The combination used in this case report was noted on the list as being useful for "virus."

The osteopath's method of treatment included using a frequency on one channel to "remove a pathology" combined with a frequency on the second channel to "address a specific tissue." The device used by the osteopath has long since disappeared and has never been available for inspection. While it is thought to have plugged into the wall current which may have been DC in 1922, it is not known what current level it delivered and there is no reason to suspect that it delivered microamperage current which was not introduced until the 1970s. The listed frequencies were used, starting in 1995, as if their descriptions were correct for the treatment of myofascial trigger points, nerve pain and injury repair. The treatment protocols were developed clinically using the osteopath's two-channel condition and tissue treatment paradigm and has been taught as Frequency Specific Microcurrent (FSM) since 1997.[1,2,4,5] There are approximately 1,000 medical, chiropractic and naturopathic physicians using FSM in clinical practice in the US, Australia, Ireland, England, Germany, the Netherlands, Spain and Dubai.

FIGURE 2. *Illustration of treatment setup: the two positive contacts for both channels are applied to the upper back and the two negative contacts for both channels are applied to the top of the head along the distribution of the affected nerve.*

Microcurrent electrical neuromuscular stimulation (MENS) was developed in the 1970s as a battery-operated physical therapy modality delivering subsensory current in the microampere range. An ampere (amp) is a measure of the strength of electric current and measures the rate of flow of charge in a conducting medium. One micro amp (μA) equals 1/1000th of a milliamp (mA). By comparison, other systems such as interferential, TENS, and high-volt pulsed galvanic stimulators, deliver currents in the milliamp range causing muscle contraction, pulsing and tingling sensations. TENS applies an electrical force that stimulates pain suppressing A-beta afferent fibers which compete against A-delta and C fibers that transmit pain signals. Most TENS units deliver current around the 60 milliamp range.[6] Although microcurrent devices are approved in the category of TENS for regulatory convenience, in practical use they are in no way similar and cannot be compared to TENS in their effect.

The therapeutic use of frequencies and electrotherapy began in the early 1900s in the United States and England with thousands of medical physicians using a number of devices to treat a wide range of conditions.[6] The Electromedical Society and the journal *Electromedical Digest* served as a forum for physicians to share their research and clinical findings. In 1934, as part of its effort to standardize medicine and medical education, the

American Medical Association (AMA) declared that pharmaceutical medications and surgery were the legitimate tools of medicine and that electromagnetic therapies, among other treatments, were "unscientific."[7,8] The biophysics and medical research explaining the mechanisms and science behind electromedicine would not be done until the 1980s.[9,10] The use of electromagnetic therapies and frequencies declined, the research being reported in Electromedical Digest ceased, and the last edition of the journal available was published in 1951.[11] The FDA made the original devices illegal in the early 1950s.

Clinical Experience With FSM Protocols

The frequency-specific protocols were developed clinically through trial and error by the author after it was determined—through use on volunteers—that the use of a frequency combination that did not produce improvement also did no apparent harm. The descriptions of the frequencies from the osteopath's list were taken at face value and speculatively used in clinical practice for various chronic and acute conditions–including shingles—to determine if they would produce a change in symptoms and clinical improvement. The subsensory current levels made it possible to blind patients to active versus sham treatment and the clinical outcomes appeared to be valid. Treatment results for most conditions appear to be reproducible by practitioners trained in the treatment method.

In 1998, the 230 Hz / 430 Hz frequency pair—described on the list as being useful for "virus"—was first applied to a patient with acute shingles blisters using alternating pulsed DC current along the length of the dermatome to see if it would produce any clinical improvement in this viral condition. The pain was reduced within 20 minutes and it was found that 60-minute treatments on three consecutive days produced permanent pain relief and resolved the blisters within two days after the final treatment. Clinical trial and error demonstrated that thirty-minute treatment periods produced temporary pain relief and shortened the course of shingles to a minor degree but did not have the same effect as the 60-minute treatment period. In 2004, when a patient fell asleep and treatment was extended until he awakened after two hours, it was discovered that a single two-hour treatment produced the same clinical outcome as three sequential one-hour treatments. Further clinical experience determined that shingles diagnosed in the prodrome could be aborted by a single two-hour application of the frequency protocol. In order to be effective, the contacts must be placed so the current flows from the proximal to the distal end of the affected nerve(s).

Clinical experience demonstrated that this treatment protocol is useful for the same class of virus in oral or genital herpes but is not useful for any other condition, including any other viral condition such as the common cold. So far, there have been no patients with a diagnosis of shingles in whom this frequency combination was not effective. This frequency combination is not effective in post-herpetic neuralgia.

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One practitioner reported that a shingles patient did not respond to the treatment protocol and it was presumed that there was finally a patient for whom the protocol was not effective. The physician sent her device in for a standard recalibration and repair the following week and it was discovered that the device was providing frequencies at one-eighth of the 230 Hz and 430 Hz specified. The device was repaired so that it delivered the correct frequencies and the next shingles patient treated with that device responded with the expected reduction in pain and elimination of lesions. Note that the practitioner's expectation that the protocol would be effective did not overcome the inaccurate frequencies delivered by the defective device.

Clinical response to the frequencies over the last 14 years suggests that the conditions being treated and the tissues being addressed may be accurately represented by the frequency descriptions although decades of research will be required to confirm and clarify these effects. Until such research is done no claims can, or will, be made by the author for the specific effects of frequencies on biological tissues or conditions. Clinicians may report the observed effects of treatment using certain frequency combinations without making specific claims for the frequencies used. Fortunately, medicine is pragmatic and it is not uncommon for apparently effective medications, such as aspirin or penicillin, to be used for many years before the mechanism is understood.

About Shingles

Shingles is an infection of a dermatomal or cranial nerve by the herpes zoster virus. The herpes virus establishes a latent infection in the nerve that lasts for the life of the host and may become active at times of stress or immune system compromise.[12] Pain in the affected nerve usually begins during the viral prodrome and can last up to three weeks before red raised lesions and blisters break out along the course of the nerve. Herpes Simplex 1 (HSV1) is part of the same family of viruses that causes "cold sores" or lesions around the mouth. Herpes Simplex Virus (HSV2) lies dormant in the genitals and causes recurrent outbreaks of lesions in the genital or anal area. All are related to the varicella or chickenpox virus and the Epstein-Barr virus is included in this class of viruses.[13]

Proposed Mechanism of Action

There have been no pre- and post-treatment viral samples taken in shingles treatments so the mechanism by which the frequency treatment protocol relieves the pain and shortens the course of shingles and oral or genital herpes outbreak is unknown. The immediate pain reduction and lasting pain relief suggest that it interferes in some way with either viral structure or replication. The mechanism for this effect is unknown. It is not known whether the frequency would be effective if applied by an auditory source since it has only been applied using electrical pulses delivered by microamperage current.

Several mechanisms have been proposed but none have been tested. The

herpes family of DNA viruses has a double stranded DNA molecule located within an icosapentahedral capsid surrounded by an amorphous protein material which is in turn encapsulated by an envelope that consists of polyamines, lipids and glycoproteins. The glycoproteins give the virus its distinctive properties and provide the antigens to which the host immune system can respond.[12]

The frequency complex found in any interferential field includes both frequencies, the sum of the two frequencies and the difference between the two frequencies. The interferential field created by 230Hz and 430 Hz would include coherent frequencies of 230Hz, 430 Hz, 660Hz, and 200Hz plus the high frequency harmonics created by the ramped square waves delivering the frequency pulses. Any or all of these frequencies may participate in the observed clinical effect. There is no clinical effect when only 230Hz or 430 Hz is used alone. The clinical effect requires that both be used together.

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When the frequency pattern encounters the viral structure it is possible that it resonates with either the crystalline structure of viral polymerases in the capsid or the glycoprotein envelope so as to dismantle a crucial bond or change its structure in such a way that it cannot maintain its relationship with the nerve. It is also possible that the frequency resonates with the nerve in such a way that it makes viral attachment impossible, releases the virus into the circulation and makes it available to be dismantled by the immune system. This mechanism, wile possible, seems less likely because of the speed of pain relief and lesion resolution.

Microcurrent Effects

Single channel, single frequency micro amperage current alone did not demonstrate any palliative or curative effect on shingles pain. However, the current must have some contribution to the observed effects since optimal outcome requires that the contacts be placed so the current flows along the nerve distribution.

Gnok Cheng[14] and his associates demonstrated that applying additional current to a biological system could increase both protein synthesis and energy production dramatically as long as the current was small enough. Direct current levels of 50 to 1,000 μamps applied across rat skin increased glycine (amino acid) transport by 75% compared with untreated controls and current levels of 500 μamps increased aminoisobutyric acid (amino acid) uptake by 90% indicating a dramatic increase in protein synthesis. However, current levels above 1,000 μamps decreased protein synthesis by as much as 50%.

ATP (adenosine triphosphate) is the chemical energy molecule that fuels most mammalian biological process. Direct current levels between 100 and 500 μamps applied to rat skin increased ATP levels by three to five times (300% to 500%). Current exceeding 1,000 μamps caused ATP production to level off and currents above 5,000 μamps reduced ATP levels as compared to untreated controls. Once the external current was discontinued the ATP production and amino acid transport levels returned to baseline; there was no residual effect in rat skin. This study has not been replicated in vivo or in humans.

Voltage-gated ion channels (VGICs) transport ions such as sodium, potassium and calcium across the cell membrane and influence virtually all cellular processes. The microcurrent devices used are constant current generators and increase the voltage, up to 20 volts, as needed to maintain the current levels set on the device. It has been proposed that VGICs in cell and neural membranes may be affected by the current and voltage flowing along or across the membrane but no one has measured changes in these transport proteins in response to externally-applied microamperage current. VGICs require ATP activation to change configuration thus allowing them to transport their ion across the cell membrane. If the current affects VGIC function, it may do so simply by increasing ATP production.

Effects of Frequencies

Frequencies refer to the number of pulses of sounds or electrons moving through a conducting medium in one second. Frequencies are measured in hertz. One hertz is a single waveform or cycle passing a fixed point in one second. In engineering terms, the word "frequency" should only be used when referring to the pulse produced by a sine wave which has no harmonics. Microcurrent devices usually output square wave pulses containing a large number of high frequency harmonics instead of using sine waves because the clinical effects were found to be better with square waves.[6] A square wave frequency of 40 Hz is technically a pulse train of 40 Hz—i.e., 40 square waves that pass a point in space every second.

FSM therapy delivers current and two frequencies simultaneously. The frequency thought to neutralize a condition is delivered on one channel. The frequency thought to address a specific tissue is delivered simultaneously on a second channel. In an unpublished blinded placebo controlled trial in mice, one frequency combination, 40 Hz on channel A and 116 Hz on channel B reduced arachidonic acid induced lipoxygenase (LOX) mediated swelling in the mouse's ear by 62% in four minutes. The ear swelling was measured with mechanical calipers and recorded in millimeters. Three other frequency combinations—294 on channel A and 62 on channel B, and 91 on channel A and 59 on channel B, and .3 Hz on both channels—were tested in the same model and had no effect on inflammation or swelling.[3]

The response in mice was time dependent. One half of the response was present at 2 minutes and the full response was present at 4 minutes. Further time spent on the frequency had no additional positive effect.

40Hz was described on the osteopath's list and in the Electromedical Digest as being useful to "reduce inflammation." Use of this frequency in a clinical setting suggested that it did only that and was not useful for any other condition. Use of 40Hz on channel A and 10 Hz on channel B was found to reduce pain in fibromyalgia patients whose onset of pain was associated with spine trauma and to reduce all of the inflammatory cytokines and substance P and to increase β-endorphins, as measured by micro-immunochromatography.

Patient response to this frequency combination was time dependent. Sixty to ninety minutes of treatment was required to reduce pain from an average of 7.4/10 to an average of 1.4/10 on a 0-10 VAS scale and to produce maximal changes in cytokines and neuropeptides. At the thirty minute mark, approximately half of the full effect was present.[2]

Biological Resonance

Resonance is the tendency of a system to oscillate at larger amplitudes in response to some frequencies and not others. Every mechanical system and every chemical bond has a resonant frequency. At the resonant frequency, even small driving forces can produce very large amplitude vibrations. These large amplitude vibrations can cause the system to oscillate so violently that it comes apart. Mechanical resonance destroyed the Tacoma Narrows Bridge when the resonant frequency of the bridge was matched by the frequency of oscillations in the bridge caused by the wind during a rain storm. The resulting violent pendulum effect tore the bridge apart and created a most memorable visual example of the power of resonance.

Likewise, acoustic resonance shatters a lead crystal glass when the musical note being played matches the resonant frequency that binds the lead atoms together in the crystal matrix. The resonance causes the atomic bonds to oscillate and the glass comes apart. Resonant phenomena occur with every type of vibration or wave and every type of bond and structure.

If every chemical bond and every physical structure has a binding energy that holds it together and has a resonant frequency that will cause it to oscillate, then it is possible to hypothesize that a resonant frequency exists for every bond that will cause oscillations sufficiently violent to weaken or break the bonds that hold the structure together. Think of the bonds within the herpes virus capsid or its glycoprotein coating as the Tacoma Narrows Bridge. The resonant vibration and oscillations created by the frequency pattern may resonate with one or more crucial bonds in the crystalline structure that makes them act as a mediator of viral infection. This would account for the rate and degree of reductions in pain and the speed of lesion repair. Any other mechanism that has been considered cannot explain the rapid rate of change in symptoms.

The one- to two-hour treatment time required to eliminate the symptoms in shingles and herpes patients corresponds to the time-dependent response seen in mice anti-inflammatory research. In the mice, half of the effect was produced in two minutes and the full effect was seen at four minutes. Additional treatment time beyond four minutes did not produce any additional effect. In shingles, a thirty minute treatment time is insufficient to create a significant improvement. A one-hour treatment must be repeated every day for three days. A single two hour treatment appears to be sufficient to abort an outbreak. It is hypothesized that biological bonds simply require time to oscillate sufficiently to change configuration or break.

Conclusion

One particular frequency combination, 230Hz and 430Hz, produced dramatic improvement in this patient. It appears to have promise in the treatment of acute shingles. It is low risk, appears to have no side effects, and has been consistently effective in other cases. A controlled trial should be performed to further evaluate its effectiveness. ■

Disclosure

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Carolyn McMakin, MA, DC, is the clinical director of the Fibromyalgia and Myofascial Pain Clinic of Portland, Oregon and developed Frequency Specific Microcurrent (FSM) in 1996. She maintains a part-time clinical practice, participates in research and teaches seminars on the use of FSM. She has lectured at the National Institutes of Health and at medical conferences on the subjects of fibromyalgia, fibromyalgia associated with cervical trauma and on the differential diagnosis and treatment of chronic pain syndromes. Her text book on FSM in pain management is in press with Elsevier to be released in 2010. She may be contacted at cmcmakin@msn.com or 3915 NE 38th St, Vancouver, WA 98661.

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