

Review Article

Energy Medicine - A New Ray of Hope in the Management of Chronic Oro-Facial Pain: A Mini Review

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ABSTRACT

Energy medicine is one of the five domains of “Complementary and Alternative Medicine” (CAM) identified by the National Centre for Complementary and Alternative Medicine (NCCAM) in the United States. Energy medicine is based on the principle that we, and the world we live in are all made up of energy, when our energies are flowing smoothly and in harmony we feel great and our bodies are able to naturally heal them. Energy medicine enhances ones health, vitality and overall sense of well being by releasing stuck, stagnant or otherwise imbalanced energies and restoring them to a balanced state. One feels better both physically and mentally as the energies become stronger and resilient. The therapeutic role of energy medicine is to restore the flow of energy to the system and is characterized by the self help and self care. Application of such energies for the management of pain has been largely used since many years. This review projects light on various energy medicine treatment modalities that can be used in oral medicine for chronic Oro-facial pain.

Key Words: Energy medicine, Oro-facial pain.

INTRODUCTION

Energy medicine is the diagnostic and therapeutic use of energy, by means of a medical device or by the human body. Energy medicine involves energy of particular frequencies and intensities and wave shapes that stimulate the repair of one or more tissues. Examples of energy include light, heat, sound, gravity, pressure, vibration, electricity, magnetism, chemical energy, and electromagnetism.

Energy medicine is one of the five domains of “Complementary and Alternative Medicine” (CAM) identified by the National Centre for Complementary and Alternative Medicine (NCCAM) in the United States. ^[1] The complementary and alternative medicine (CAM) or

unconventional or integrative medicine has been defined as “diagnosis treatment and/or prevention which complements mainstream medicine by contributing to a common whole, satisfying a demand not met by orthodoxy, or diversifying the conceptual frameworks of medicine”. ^[2]

It has found its application in dentistry in the treatment of Chronic Oro facial Pain. Chronic pain is a complex disorder which is influenced by biological factors and psychosocial factors, such as emotion, psychological distress, family, work environment and cultural background. ^[3] Atypical facial pain, trigeminal neuralgia, Horton's syndrome (cluster headache), temporomandibular disorders, dental pain, sinusitis, cancer pain. cervical pain,

myofascial pain are included in the chronic orofacial pain. [4]

The most recent definition of pain, produced by the Task Force on Taxonomy of the International Association for the Study of Pain (IASP) is, "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." Merskey describes chronic pain as "a persistent pain that is not amenable, as a rule to treatments that is based on specific remedies or to the routine methods of pain control such as non narcotic analgesics" (IASP publication on classification). [5]

Facial pain, a common problem that affects at least 10% of the adult population and 50% of the elderly population, and its recognition and management present an enormous problem to the health service. [6] Oro-facial pain is an appealing yet inadequately grasped condition in field of oral medicine. Thus render diversified treatment modalities. As far as diagnosis of Oro-facial pain is concerned, explanation will be found for patient's complaint of pain. Extensive and reasonably adequate diagnostic investigations are complied, if they also fail then one should probe for mere unusual conditions, sometimes psychiatric evaluation is also recommended.

Managing or treating chronic pain with energy medicine, aims to prevent medication misuse or abuse, increasing function, reducing the use of allopath medicine and incorporating practice of alternative medicine.

ENERGY BASED THERAPY [7]

Energy healing is based on the concept that the healing energy is channelized by the healer into an individual seeking help, and is performed by different methods such as hands-on, hands-off, and distant (or absent), where the patient and healer are in different locations. Energy medicine is classified into two fields:

1. Putative Energy Fields - Bio field energy healing therapies where the hands are used to direct or modulate energies which are

believed to effect healing in the patient. It works in two ways

a. Spiritual healing and psychic healing.
b. Therapeutic touch, healing touch, esoteric healing, Qi Gong, pranic healing, crystal healing, acupuncture.

2. Veritable Energy Medicine

It includes magnet therapy and light therapy collectively referred as electromagnetic therapy and radiation therapy.

Advantages of Energy Medicine: [8]

1. It serves as a complement to the usual methods and at times shows better results than the conventional approach.

2. Energy storage points are present at specific regions and energy medicine activates such points to heal the body by activating and restoring the energy reservoirs which are weak or altered due to illness and disease.

3. Usually it is done by massaging, pinching, poking and prodding the energy reservoir to initiate flow, maintain balance and institute harmony in the energy system.

4. As the incidence of side effects is less, this method is much better than the conventional drug therapy.

5. Conventional approach to a prevailing illness would be diagnosis & treatment whereas in energy medicine the approach involves a thorough check over the functioning of individual's body and reaching at the energy systems in the body where the flow of energy has been blocked or disturbed due to illness.

Uses of Energy Medicine in Dentistry: [4]

Energy medicine may be used in the treatment of Temporomandibular Joint arthritis, trigeminal neuralgia, viral disease, inflammatory oral disease, myofascial pain dysfunction syndrome, fractures and drug over dosage as a complimentary to traditional methods.

Energy medicine treatment modalities which are used in dentistry for the management of chronic Oro-facial pain include

1. Transcutaneous Electrical Nerve Stimulation(TENS)
2. Acupuncture
3. Laser therapy
4. Vibro- acoustic therapy
5. Qigong Therapy

1. Transcutaneous Electrical Nerve Stimulation (TENS) ^[9]

TENS is the administration of electric current by surface electrodes produced by a device to stimulate cutaneous sensory nerves to reduce both acute and chronic pain. TENS treatment targets painful regions instead of specific nerves. Its objective is to relax hyperactive muscles and promote pain relief. ^[4] TENS units are available in different pulse frequencies, intensities and durations. They are classified in two groups based on the frequency: high frequency, higher than 50 Hz and low frequency, lower than 10 Hz. Those used in dentistry are mixed, with low and high frequency currents. In high frequency (50 to 150 Hz) and low intensity TENS therapy, the action is essentially central on the contrary a low frequency has essentially peripheral action and is indicated for muscle relaxation. In orofacial pain high frequency (50–100 Hz), low intensity (paresthesia, not painful), small pulse width (50–200µs) is given for 30 mins. TENS, blocks pain signal, stimulates endorphin production which enhances feeling of overall well-being. Other indications of TENS in oral medicine are in the management of neuromuscular pain, myo- fascial pain, trigeminal neuralgia, pain following surgery various injuries including, Sports injuries causing derangement of joints.

Mechanism of action:

TENS effects, are based on different theoretical bases: direct stimulation of motor nerves leads to execute rhythmic contractions of masticatory muscles. The repetitive movement, increases blood flow in the applied area and thus decreases noxious metabolites and interstitial edema. Thus pain is decreased due to increase in the availability of phosphate radicals,

decreasing muscle hypoxia and masticatory muscles fatigue. ^[10]

TENS is a relatively economic, safe and non-invasive therapeutic modality and may be used to treat several painful conditions. Electrodes of silicone are usually used with gel application between them and the skin, or may be self adhesive. They are placed at the origin of pain or as close as possible to the highest pain site; within the same dermatome, myotome and on myo-facial trigger points. ^[11]

Singla *et al.* ^[12] conducted a study on 30 patients with trigeminal neuralgia. He used portable tens machine and continuous bursts of current for 20 minutes was given over the path of the affected nerve, daily for 20-40 days with a portable TENS machine. Patients were subsequently evaluated at 1 and 3 months intervals for pain by Visual Analog Scale, Verbal Pain Scale and functional outcome scale which showed significant decrease in pain.

Yameen *et al.* ^[13] used TENS to treat trigeminal neuralgia pain in 31 refractory cases or partially responsive to drug therapy. The pain severity was assessed on a Visual analog scale prior to and 15 days after treatment. 83.7% patients showed significant improvement with TENS therapy and a constant mode therapeutic results were slightly better the then burst mode of TENS.

2. Acupuncture:

Acupuncture is derived from Latin word (acus-needle, pungere-to prick) is one of the complementary and alternative medicine techniques used to treat a variety of diseases and disorders. An ancient, Chinese practice of piercing specific areas of the body with fine needles to relieve pain, to induce surgical anesthesia and for therapeutic purposes. The most common use of acupuncture is in pain management, particularly in the treatment of musculoskeletal pain. Literature suggests that, (1) acupuncture may enhance the immune response (2) reduce feelings of stress and anxiety (3) Acupuncture can be

used in the management of temporomandibular Disorders, Oro-facial Pain, trigeminal neuralgia Xerostomia, Bell's palsy, dental pain.

Acupuncture involves penetration of the skin by thin, solid, metallic needles that are stimulated either manually or electrically. Melzack R and Wall P suggested that the needle blocks the nerve impulse transmission by irritating the thicker nerves fibres of the skin receptors. Desai et al. suggested that secretion of endogenous enkephalin and endorphin possess strong analgesic and sedative effects. [14] Acupuncture needles are typically made of stainless steel wire. The disposable sterile needles involve minimal risk of infection. Needles are available in various lengths, between 13 and 130 mm (0.51-5.1 inch), the shorter needles are used near the eyes and face, and longer needles in the fleshy areas.

Mechanism of Action:

It works by the stimulation of acupuncture points that activates A- δ and C afferent fibres that send signals to the spinal cord with local release of dynorphin and enkephalins. After it reaches the midbrain, both excitatory and inhibitory mediators are activated in the spinal cord. Neurotransmitters like serotonin, dopamine and nor epinephrine are produced causing pre- and post-synaptic inhibition of pain transmission. When the signals reach the hypothalamus and pituitary gland, adreno corticotrophic hormones and endorphins may be produced. [15]

Raustia AM et al. in 1985 compared the efficacy of acupuncture with standard treatment methods in the management of TMD. A similar marked effect on a number of subjective and objective variables was seen with both the modalities. [15]

List et al. in 1987 compared occlusal splint and acupuncture on 40 patients suffering from facial pain and concluded that acupuncture may be a realistic alternative/ supplement to conventional treatment. [16]

3. Low Level Laser Therapy (LLLT)

Laser stands for an acronym- Light Amplification by Stimulated Emission of Radiation- lasers have analgesic, myo-relaxant, tissue healing, bio-stimulation effects. Laser interaction with biologic tissues increases metabolism of endorphins, acetylcholine, serotonin, and cortisol alters blood flow and induces angiogenesis, increases lymph drainage decreases inflammation. It uses 600 - 830 nm wavelengths. Laser in several appointments is required in cases of Trigeminal Neuralgia, Temporomandibular Disorder Pain, Dental Pain, Mucositis, Aphthous ulcer, myofacial pain.

Low-power lasers (soft, cold) have no thermal effect on tissues and produce a reaction in cells through light, called photobiostimulation or photobiochemical reaction. The Output power of these lasers is less than 500 mW. The photochemical reactions with or without heat differentiates, low power lasers from high-power ones. The LLLT is a useful modality for acceleration of the healing process and pain attenuation. This is further supported by the absence of side effects, reasonable equipment and operating cost, and the fact that there are few effective alternative treatments for many conditions. [17]

Mechanism of action:

Anti-inflammatory. LLLT reduces oxidative stress: Mitochondria in stressed or ischemic tissues produce nitric oxide (mtNO) that binds to cytochrome oxidase competitively displacing oxygen leading to oxidative stress and reduced ATP production. When Light of suitable wavelength, sufficient irradiance and time when applied to injuries is absorbed by cytochrome oxidase displaces nitric oxide thereby reducing oxidative stress and increasing ATP production. This cascade of downstream metabolic effects leads to a reduction in inflammatory markers including prostaglandin E2, interleukin 1 β and tumor necrosis factor α . [18]

Kulekcioglu used semi-conductive gallium arsenide laser, 904 nanometers with

mean output power of 17 mW, in temporomandibular disorder patients, 15 sessions daily and found significant relief in pain. [19]

Altafini et al. reported no pain in their patients up to 3 months after laser therapy. Effectiveness of laser acupuncture has been confirmed decreasing myofascial pain. [20]

4. Vibroacoustic Therapy: [21, 22]

Vibro acoustic stimulation is a complementary and alternative medicine modality that has been effective as a pain reduction therapy for acute and chronic musculoskeletal pain. It uses acoustic (sound) energy in the form of micro-vibrations to reduce pain by direct vibratory analgesic action. TENS uses electrical energy while VS uses acoustic energy.

Mechanism of action:

Higher temperature in local applied area increases blood flow, an anti-inflammatory effect and improves joint flexibility. It enhances the synovial fluid production and cartilage regeneration.

Bonica J. conducted a study on 731 patients suffered from chronic musculoskeletal or Orofacial pain. High or low frequency TENS therapy and Vibro acoustic stimulation at 20Hz, 100Hz, 200Hz was given. The results showed that Vibro acoustic stimulation was as effective or to be more effective than TENS in reducing chronic musculoskeletal or orofacial pain. They also concluded that dual stimulation (TENS and VS combined) alleviated pain in more cases than TENS or VS alone, and had a more long-lasting effect.

5. External Qigong Therapy. [23-25]

Qigong is a component of traditional Chinese medicine that combines movement, meditation, and regulation of breathing for enhanced flow of chi in the body.

Mechanism of action:

Qigong therapy improves immune functions and increases the microcirculation. Qigong improve psychological and physical wellbeing, the

underlying psychobiological mechanisms remain elusive.

Study including 10 patients, 4 - Myofascial face pain (MFP), 4- MFP and comorbid fibromyalgia, 7 of them for phantom tooth pain, experiencing constant or daily pain were seated in a treatment room along with the Qigong healer and the translator (KC) for 5 to 10 minutes at a distance of 10-15 cm from the patient. All patients reported some degree of relief and all but one reported reduction in pain after the treatment

CONCLUSION

Diagnosis & Treatment are the Conventional approaches to a prevailing illness. Whereas in energy medicine the approach involves a complete thorough check and treatment over the functioning of individual's body. As energy medicine is non-invasive and cost effective it can be used as an adjunct to the conventional therapy or can also replace it in future.

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