

Review Article

Complementary and alternative methods of dental pain management

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Abstract

Pain management remains a vital concern in dental care and patient management. Complementary and Alternative Medicine (CAM) is considered as a mode of non- traditional medicinal therapy as opposed to conventional procedures based on Western medicine. Conventional therapy comprises allopathic treatment and practice by medical/dental practitioners and other professionals in the health sector. Allopathy involves the use of antagonists to combat disease/pathology/abnormal conditions. There has been a sharp rise in popularity of CAM interventions over the past few years due to dissatisfaction with conventional allopathic medicine, increased patient awareness and integration in medical decision making.

Keywords: Acupuncture, Allopathy, Biofeedback, Chelation therapy, Chiropractic therapy

Introduction

National Center for Complementary and Alternative Medicine (NCCAM) has defined Complementary and Alternative Medicine (CAM) as 'a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine'. CAM aims for diagnosis, treatment and/or prevention strategies that accompany or supplement mainstream Western medicine by contributing to a common whole i.e. in a holistic fashion, fulfilling needs that are not met by orthodoxy, or expanding the conceptual frameworks of medicine.¹ Complementary medicine procedures are used in association with conventional medicine procedures whereas alternative medicine procedures are employed as a substitute to traditional medicine procedures.

When CAM therapies and conventional medicine are combined, it is called as Integrative Medicine.

CAM Interventions

The National Institute of Health Office of Alternative Medicine (OAM) and NCCAM have classified CAM therapies into four domains: biologically based medicine (e.g., herbalism), energy medicine, manipulative and body-based medicine, and mind–body medicine. In addition, the NCCAM also defines a separate domain, “whole or professionalized CAM practices/ Alternative Medical Systems” (e.g., acupuncture and homeopathy).²

Alternative Medical Systems

Alternative Medical Systems involve theory and practice different from Conventional/

Allopathic medicine. These systems comprise homeopathy, naturopathy, Traditional Indian and Chinese medicine systems etc.

1. Homeopathy

The name “homeopathy” is combined from the Greek words 'homoios' meaning similar, and 'pathos' meaning disease. Homeopathy is a set of procedures using highly diluted medications made from animal, mineral and vegetable sources. These preparations are used as replacements for antibiotics and pain medication. The principles of homeopathy date back to Hippocratic times. This methodology involves the use of minimal amount of medicaments to cause symptoms the patient is experiencing. It is a natural system of medicine that stimulates the body to respond to the disease. A homeopathic dose of Arnica in dentistry is known to accelerate healing, whereas Hypericum causes tooth desensitization. Aconite is used for reducing fear and anxiety of dental treatment. Chamomile is used for problems associated with teething infants. There are three principles of Homeopathy

2. Naturopathy

Naturopathy includes therapies of nutrition, medicinal plants, dietary supplements, natural foods, regular exercise and the avoidance of medications. Dietary Supplements are products (other than tobacco) taken orally like vitamins, minerals, herbs, amino acids, enzymatic products, glandular products and metabolites. They are considered foods, not drugs, and are regulated by the Food and Drug Administration.

3. Traditional Indian and Chinese Medicine

Ayurveda evolved over the Indian subcontinent over 5,000 years ago. This system emphasizes body, mind and spirit remedies. Diet, exercise (yoga), meditation,

botanicals, massage, sun bathing and regulated breathing are used to combat and prevent disease. Ayurvedic medicine aims to restore the harmony of the body. Powders, balms, decoctions, medicated oils (*taila*), medicated ghees (*ghritas*)³, confections, and wines are the various types of medicines used, ingredients for which are derived from roots and leaves of certain plants. To preserve normal dental health, different methods are advised for constant practice, such as brushing, gargling, oil massage, exercise and errhine therapy.⁴

Traditional Chinese medicine is based on the concept of *Qi* energy, which is thought to regulate spiritual, emotional, mental and physical forces that are thought to be affected by negative energy (*yin*) and positive energy (*yang*). Disease occurs due to disruption of *Qi*, leading to a *yin* and *yang* imbalance. Therapies include botanical/nutritional preparations, physical exercise, meditation, therapeutic massage and acupuncture.

4. Acupuncture

Acupuncture involves positioning of fine needles into acupuncture points. The theory behind acupuncture therapy is that the human body consists of 14 main channels that contain 700-800 acupuncture points. The purpose of these channels is thought to be energy flow from one organ to another. Nerves can be stimulated or sedated electrically by the placement of needles into the acupuncture points. Another technique using acupuncture principles is drug injection. Local anesthesia, saline or antibiotics injected into acupuncture points that affect a specific organ, are believed to be more efficacious than intravenous or intramuscular administrations. Acupuncture has been indicated for anesthesia allergies, acute abscess or cellulitis, sinusitis, cold symptoms, or other respiratory disease, or as a supplement to local or general anesthesia. Contraindications include dermatitis,

hemophilia, pregnancy, uncooperative patients, patients that may make sudden jerky or uncontrolled movements, exhausted, fasting, anxious or perspiring patients. The success of acupuncture in treating TMD and facial pain is undeniable and acupuncture may prove to be a valuable alternative to conventional treatment.⁵

Mind-Body Interventions

Mind-body medicine is founded on the theory that mental and emotional factors regulate physical health through a system of interdependent neuronal, hormonal, and immunologic connections throughout the body. Behavioral, psychological, social, and spiritual techniques are used to enhance the mind's capacity to affect the body and thus to preserve health and to prevent or cure disease.

1. Mental imagery

Imagery is using all of the senses in the absence of any stimuli to create a perception. Guided imagery, a type of mind-body medicine, constitutes the use of mental images, self-directed or guided by a practitioner, to assist patient relaxation (e.g., before a procedure) and to promote betterment and healing (to try to cause physical changes—e.g., by mobilization of the immune system). The images may involve any of the senses. When guided imagery is employed as a presurgical coping strategy, it can reduce the patient's anxiety and decrease postoperative surgical pain, use of narcotics and duration of hospital stay for inpatient surgical cases.⁶ Audio-analgesia using white noise and/or music (as produced by a commercially) has been proven to effectively increase the threshold of pain and its tolerance during dental procedures.⁷

2. Biofeedback

Biofeedback is a part of behavioral science which aims to teach individuals the development of conscious control or

alteration of internal body processes by the use of imagery and relaxation methods. Devices like electroencephalograms, electrocardiograms and thermometers are used to measure physical changes such as brain activity, blood pressure, heart rate, muscle activity and body temperature during biofeedback. Biofeedback can be used to stimulate the body's immune system for healing, for the treatment of the dental phobic/anxious patient and the patient with temporomandibular disorders (TMD)⁸.

3. Hypnotherapy

Hypnosis is a method that employs a natural altered state of consciousness. The hypnotic state is a highly relaxed state similar to the sensation felt before falling asleep. It is suggested that only about 15 percent of people display a good hypnotic ability. For these people, there are many therapeutic uses of hypnosis. These include reducing fear and anxiety in patients suffering from dental phobia, controlling bleeding, regulating salivary secretion, preventing gagging, producing anesthesia to reduce pain, breaking of deleterious oral habits like thumb sucking and speeding up treatment of TMD. The use of hypnosis for pain relief in the West dates back to the 1770s. Prior to the availability of chemical anesthesia, hypnotic anesthesia had been used to successfully perform surgeries causing minimal pain.⁹ Common techniques for inducing hypnosis rely on using verbal suggestions or eye fixation.

4. Meditation

Meditation involves deep breathing exercises as well as focused concentration to effect muscle relaxation. Dr. Herbert Benson came up with the concept of the "relaxation response" in the early 1970s¹⁰ under which he brought together various relaxation and meditation techniques that led to a state of consciousness that decreased heart rate,

blood pressure, breathing rate, brain-wave patterns, and often, pain.

Biologically Based Therapy

Biologically Based Therapy involves theory and practice of using naturally found materials. They have become the most commonly used CAM intervention after prayer. These practices include the following:

1. Chelation therapy

In chelation therapy, a drug is used to bind to and eliminate excessive or toxic quantities of a metal in blood. In mainstream medicine, chelation therapy is a widely used method for treatment of lead and other heavy metal poisoning

2. Diet therapies

Dietary supplements like vitamins C and E show improve results when used in treatment of inflamed gingiva because of antioxidant properties.

3. Herbalism

Dental mouthwashes containing herbal extracts of calendula, chamomile, echinacea, ginkgo biloba, green or orange pekoe tea, licorice, myrrh, peppermint or tea tree are thought to have a role in maintaining periodontal health. Echinacea and ginkgo biloba products are used to treat gingival inflammation.

4. Biologic therapies

Biologic therapies use substances that occur naturally in animals to treat disease. For instance: S-adenosyl-l-methionine (SAME) for the treatment of depression and Glucosamine in osteoarthritic patients.

5. Aromatherapy

Aromatherapy makes use of pure oil essences from herbal and floral extracts that improve patient's health by hormone-like stimulation. They are natural and gentle;

lavender, bergamot, sandalwood, and basil oils have soothing and calming properties¹⁰. Orange clove bud tea tree oil is effective in providing relief in cases of mouth ulcers. Clove, peppermint or tea tree has also provide relief from dental pain in certain cases.¹¹

Manipulative and Body Based Methods

Manipulative and Body-Based Methods comprise theory and practice of body manipulation and/or movement. In dentistry, physical therapy, reflexology, chiropractic or massage therapies can be used when a patient's chief complaint is chronic facial pain involving the head, neck, throat or the oral tissues. Some dentists prefer physical therapy for relief of oro-facial pain, the management of cases of jaw malalignment, spasmodic and tense muscles and temporomandibular dysfunction. Manipulative and body-based practices are

1. Chiropractic therapy

Chiropractic Manipulation involves manipulation of the hard tissues of the body. Skeletal structures are re-adjusted to improve the vertebral alignment of the spine to restore normal neural transmission and treat the disease. There are two classes of chiropractic medicine. "Straight" chiropractors locate and remove subluxations. Most chiropractors though practise "mixer" chiropractory, which supplements spinal adjustments with other techniques like hot or cold treatments and nutrition counseling. Some subsets of patients have shown a fair response to chiropractic manipulation for their TMD.¹²

2. Massage therapy

Massage is the manipulation of the soft tissues of the human body. Swedish massage of the head and neck uses various techniques of soft tissue manipulation to stimulate blood flow through the soft tissue. Massage therapy is being considered as a method of

treatment of myofascial pain¹³ and to improve salivary secretion. For instance, a robot system that provides massage therapy to maxillofacial region has been developed in Japan. The robot has been designed to perform appropriate massage to the patients with dry mouth, etc by stimulation of the salivary glands.¹⁴

Other less common therapies under the domain of manipulative and body based methods include reflexology, structural realignment, moxibustion and cupping.

ENERGY HEALING THERAPY

Energy healing therapies involve the use of energy fields. They are of two types:

Biofield therapies are applied to affect the energy fields that are thought to surround and penetrate the human body. There is no evidence of presence of biofields in science until now. Biofields are believed to be manipulated by application of pressure to, or placement of the hands in, or through, these fields. E.g., *Qi gong* and therapeutic touch.¹⁵

Bioelectromagnetic therapies include the unorthodox usage of electromagnetic fields, such as pulsed fields, magnetic fields, or alternating or direct current fields.

Drawbacks of CAM Interventions

In incorporating CAM modalities into dental treatment plans, several issues need to be considered. First, not all CAM therapies are equally efficacious. Secondly, with the increase in popularity of herbalogy, homeopathy and *Ayurveda*, there is increased risk of development of adverse drug reactions or drug interactions, and confusion when consumed with conventional medicines.¹⁶ Also, there are significant holes in the scientific knowledge and research that base limit the accuracy with which dentists can guide their patients in regard to CAM methods used to treat chronic facial pain.¹⁷

It is essential that dentists become informed practitioners so that they can provide correct and meaningful advice to patients about the advantages and limitations of CAM.¹⁸

Conclusion

Although CAM modalities in some cases can help in pain management and provide significant relief for many dental problems, more research is required to specify the mechanisms of different CAM treatments. The framework for integration of CAM therapies into the conventional medical system in a systematic way is yet to be established. The ease of incorporation of CAM interventions into dental treatment plans is likely to be influenced by the level of public acceptance; CAM procedures may eventually become standard practice after their effectiveness is verified scientifically.

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