

Acupuncture in the 1990s

A Review for the Primary Care Physician

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The purpose of this article is to educate primary care providers regarding the theory and basic principles of acupuncture. Various indications for acupuncture are discussed. It is hoped that this article will allow the primary care practitioner to correctly identify patients in his or her practice who might benefit from acupuncture treatment. (Arch Fam Med. 1996;5:237-240)

A recent article in the *New England Journal of Medicine*¹ documents the exploding popularity of alternative methods of treatment. The authors estimate that a form of unconventional therapy is used by one of three adults. They also point out that 70% of patients who use alternative treatments do so without the knowledge of their primary care practitioner. The authors suggest that one of the reasons for this communication failure might be the fact that physicians are not well informed regarding these alternative treatments.

Acupuncture is an ancient therapeutic technique that employs needle insertion at specific points on the body to effect a specific therapeutic goal. Acupuncture artifacts that have been found date back to 1000 BC. Classical acupuncture, the focus of this article, involves needling points on the body that were well described by 200 BC. *The Yellow Emperor's Classic of Internal Medicine* from the second century BC described therapeutic needling.^{2,3} Jesuit missionaries returning from China reported the therapeutic use of needles that they had witnessed and coined the term *acupuncture* from the Latin *acus*, "needle," and *punctura*, "pricking," to describe this previously unknown technique. Osler described the use of acupuncture and recommended its use in the treatment of lumbago. President

Richard Nixon's trip to China in 1972 served to popularize acupuncture in the United States. James Reston, a reporter with the *New York Times*, was successfully treated with acupuncture for post-operative complications of an appendectomy he had undergone during Nixon's visit to China.^{2,3}

ACUPUNCTURE PHILOSOPHY

Acupuncture treatment is philosophically distinct from allopathic medical care. Organs are considered to be energetic, not anatomic, concepts. Diagnosis in acupuncture is based on the measurement of energetic flow. Traditional treatment in acupuncture is based on energetic manipulations that are performed at acupuncture points. Historically, acupuncture's use has been inextricably bound to this theoretical structure. Yin and yang are the summary of the Chinese cosmology.¹ The forces of yin and yang are both complementary and contradictory. Balance between the two varying forces of yin and yang is necessary for wholeness and harmony to exist. Man is the microcosmic reflection of the universal harmony. As the universe has yin and yang forces, so does man. The sum of yin and yang forces is manifested in the flow of *Qi*, or life energy, through the body along the pathways that are termed *channels* or *meridians* (the term *Qi* is itself not translatable, but it represents tendency or movement). Acupuncture

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needles are inserted into various points on the channels to assist in the correct flow of Qi. The proper flow of Qi reflects energetic balance. Energetic balance is necessary for the maintenance of good health, according to traditional Chinese medical belief. Additionally, Five Phases, or Five Elements,⁴ ie, wood, fire, earth, water, and metal, are considered to be intrinsic qualities in all things, living and inanimate. The Five Phases are linked and interdependent; they are used to help explain various natural processes via systems of correspondences.²

ACUPUNCTURE METHODOLOGY

Six approaches to acupuncture commonly used in the United States are described herein: traditional Chinese medicine acupuncture, French energetics, Korean hand acupuncture, Five Phases (Five Elements) treatment, auricular acupuncture, and myofascially based acupuncture.

In traditional Chinese medicine acupuncture, the patient's history and speech qualities, overall appearance, and odor are used to help formulate a diagnosis, which is supplemented with pulse diagnosis. The qualities of six pulses at each radial artery are believed to correlate with the predisposition to various disease states. From the diagnosis, the traditional Chinese medicine practitioner chooses appropriate therapeutic points on lines, or meridians, of energy flow. Attempts to demonstrate a neuroanatomic correlate to the meridians have been unsuccessful. Local tender points, *ah shi* points, are also considered to be acupuncture points. Points are located precisely on the meridians by a system of proportional measurement and by palpation. These points are then stimulated by needles.^{2,4,5}

French energetic acupuncture is based on the principles of bioenergetics. The body is considered to be an electrolytic milieu in dynamic equilibrium. A blockage in the circulation of electrolytes on a channel or meridian can be corrected with the therapeutic insertion of an acupuncture needle that functions as an electrode.⁶

Korean hand acupuncture is based on the principle that the energy circulating in the body originates in the hands and feet. Therapeutic needling of these locally concentrated points is employed to treat a variety of illnesses.²

Acupuncture may also be performed according to the Five Phases (Five Elements) theory. Wood, fire, earth, water, and metal qualities are assigned to all living and inanimate objects, and there are correspondences between the Five Phases and the organs. The phases are linked in unvarying sequences of circulating energy pathways. These sequences of energy flow and correspondences are then used to help determine the diagnosis and the choice of therapeutic points. Abnormalities in energy flow will be mirrored in abnormalities of the pulses previously described. These abnormal energy flows are then manipulated with acupuncture to correct the energy flow and balance.⁵

Auricular acupuncture is of relatively recent origin. Nogier described extensive correlation between points on the ear and other anatomic sites in a European acupuncturist's journal in 1957.²

There now exist entire texts of auricular acupuncture treatments for a wide variety of illnesses, with over 200 ear points described for therapeutic needling.²

The myofascially based treatment approaches begin with assessing which meridian pathways may be involved in producing the patient's complaints and the carefully palpating both locally and distally along these meridians for tender points. These tender areas or *ah shi* points represent areas of abnormal energy flow that must be stimulated to effect a cure. Treatment of the tender points is then used to restore correct energetic flow by releasing the myofascial holding pattern.⁷

Acupuncture needles vary in both length and diameter, from approximately 1.25 to 15 cm in length and from 26 to 36 gauge or even less in diameter. Disposable needles are commonly stainless steel. Some practitioners use non-disposable needles. Appropriate sterilization of the needles should be employed if nondisposable needles are used. The needling produces a sensation of soreness, numbness, or tingling called *de qi*. Sometimes, needles are manipulated by manual twirling or with direct current passed into the needle to increase effect; they may be retained briefly or for periods of over an hour, depending on treatment goals. Moxibustion is a technique that uses herbs (most often *Artemisia vulgaris*), which are burned either directly on the skin with a moxa cone or above the skin. Precautions must be taken to avoid burning the patient. Moxa is contraindicated in certain conditions such as fever; however, it is often combined with several of the above-described acupuncture methods for a variety of illnesses and, generally, to facilitate the flow of Qi and blood.²

THEORIES REGARDING THE NEUROPHYSIOLOGIC BASIS OF ACUPUNCTURE

Acupuncture needling attempts to provoke a sensation named *de qi*. The *de qi* sensation is felt by some to be essential for the therapeutic effect. Blocking the sensation with local procaine blocks acupuncture analgesia. This sensation, often described as numb or tingly, is secondary to the activation of small myelinated type II and III afferent nerve fibers.⁸ These fibers, in turn, are theorized to transmit impulses to the spinal cord, which causes cascading activation of various central nervous system centers.

At the spinal cord level, acupuncture activation leads to the release of enkephalin and dynorphin. These two endorphins serve to help block the incoming painful signals. It has been demonstrated that acupuncture analgesia can be reversed with the endorphin antagonist naloxone in a dose-dependent fashion.⁹ Microinjection studies with intrathecal instillation of antidynorphin and antienkephalin have also produced blockade of acupuncture analgesia.¹⁰

The periaqueductal gray matter is activated by acupuncture needling, which, in turn, leads to secretion of the monoamines, serotonin and norepinephrine. Acupuncture analgesia can be blocked by "lesioning" the nucleus raphe magnus, the site of this monoamine elabo-

ration. Similarly, inhibitors of monoamine action affect acupuncture analgesia.^{3,11}

The pituitary-hypothalamic region and the autonomic nervous system have also been implicated in less well-defined manners in acupuncture's underlying mechanism of action. Lesions of the arcuate nucleus of the hypothalamus abolish acupuncture analgesia.^{3,11,12} Adrenocorticotrophic hormone and β -endorphin are released by the pituitary with acupuncture needling. Adrenocorticotrophic hormone is the biologic precursor to cortisol, and blood cortisol levels do increase after acupuncture treatment.¹³ Electroacupuncture does inhibit early-phase vascular permeability, impairs leukocyte adherence to vascular endothelium, and suppresses exudative reaction equivalently to orally administered indocin, aspirin, or piroxicam.¹⁴ The autonomic nervous system is also involved in the underlying neurophysiology of acupuncture. The motor point of the first dorsal interosseous muscle of the hand, LI-4, is an acupuncture point, and unilateral needling of LI-4 leads to bilateral hand warming, as demonstrated by thermography. Acupuncture needling at LI-4 also leads to nonsegmental temperature increases that decrease in a cranial-to-caudal direction.^{3,12,15}

INDICATIONS

Acupuncture is a complete system of disease treatment. Potential indications for acupuncture, which have been discussed in various acupuncture journals, include, but are not limited to, various diseases of the respiratory, ocular, gastrointestinal, and neuromuscular systems¹² (also see the *Technical Corner IASP Newsletter*. May/June 1994:3-5). Unfortunately, clinical research regarding many of these diagnostic categories is suboptimal or not available. Currently, the National Institutes of Health Office of Alternative Medicine is actively involved in several research projects concerning the clinical effectiveness of acupuncture. Richardson and Vincent,¹⁶ after an exhaustive review of acupuncture for the treatment of pain, found that more and better research regarding the clinical efficacy of acupuncture was needed before firm conclusions regarding the role of acupuncture for many clinical syndromes could be stated. Some of the paucity of good acupuncture research relates to difficulties in research design involving acupuncture. Different schools of acupuncture may treat a patient with different techniques. A traditional acupuncturist may treat low-back pain using 20 different ways, depending on the associated clinical findings. Blinding a therapist with the use of either theoretically incorrect point locations for the treatment of a given syndrome is difficult. Use of transcutaneous electrical stimulators as a control therapy would also lead to immediate unblinding of the study population. If non-specific acupuncture needling leads to neurohormonal secretion, as is suggested, many patients would be required to demonstrate the greater efficacy of the classical acupuncture points. Many other research dilemmas exist, including defining the duration of a therapeutic trial and the timing of appropriate follow-up. Re-

search studies usually have predetermined treatment courses that do not allow for supplemental treatments to assist with maintenance of clinical improvement.¹⁷

Many clinical studies do support acupuncture as an adjunct method in patient care. A study of acupuncture in the treatment of painful knees in patients with rheumatoid arthritis found this method to be more effective than treatment with intra-articular steroid drugs.¹⁸ Studies of patients with chronic tension-type headache found that acupuncture led to significant reductions in electromyogram recordings of muscle tension that persisted for 28 weeks following discontinuation of treatment.¹⁹ Studies of the use of acupuncture for the treatment of low back pain in general have supported a substantial therapeutic effect of acupuncture. However, many of the studies had design flaws. In general, 50% to 80% response rates for various pain syndromes are described.¹⁶

Acupuncture has also been shown to have a potent antiemetic effect.²⁰ Dundee et al²¹ demonstrated the efficacy of acupuncture in relieving postchemotherapy nausea. Of 130 patients with a history of postchemotherapy nausea, 97% experienced decreased postchemotherapy nausea after acupuncture.²¹ Furthermore, acupuncture significantly relieved perioperative nausea following gynecological procedures.²⁰

Acupuncture may be a useful adjunctive therapy in the treatment of asthma. Although some studies of acupuncture in the treatment of asthma have demonstrated no clear clinical benefit, other studies have found it to be quite effective. A study of acupuncture for exercise-induced asthma found that both real and sham acupuncture attenuated decreases in forced expiratory volume in 1 second secondary to exercise. The needling of true points was more effective than the needling of sham points.²²

Acupuncture is widely used in the treatment of various addictions. Heroin and cocaine addictions have both been successfully treated with the use of auricular acupuncture. Lincoln Hospital in New York City incorporates acupuncture into its addiction treatment program. Dr Smith of Lincoln Hospital claims that 50% to 75% of people treated in the hospital's program are "clean" at program's finish (*Consumer Reports*. January 1994:51-59). However, additional research is needed to evaluate long-term vs short-term success rates.²³

Recent reports indicate that acupuncture may have efficacy in improving the clinical outcome following cerebrovascular accident. One study²⁴ added acupuncture to conventional treatment of patients with acute partial ischemic stroke. Better neurologic outcomes were observed in the patients randomized to receive acupuncture.²⁴ A study by Johansson et al²⁵ randomized 78 patients with severe hemiparesis to receive daily physiotherapy and occupational therapy or daily physiotherapy and occupational therapy with a treatment course of acupuncture twice per week over 10 weeks. Mobility and quality of life indexes were improved in the patients receiving acupuncture.²⁵

Some proponents of acupuncture have claimed that acupuncture is effective in treating a wide variety of ailments, including immune deficiencies and viral syn-

dromes. These claims need to be further investigated before firm conclusions can be drawn.

ADVERSE EFFECTS

Adverse effects secondary to acupuncture are reported but are unusual. Probably the most frequent complication of acupuncture treatment is the vasovagal episode. Other more serious complications have been reported, however. Pneumothoraces and lacerations of various viscera have been reported infrequently. Local hematomas that may cause compression of adjacent structures such as nerve trunks are a concern. Sepsis and endocarditis have been reported following acupuncture.²⁶⁻²⁸ Auricular acupuncture may cause otitis externa and perichondritis.²⁶ This latter condition, once established, can be very difficult to eradicate because of the poor vascularization of cartilage. Transmission of infection with contaminated acupuncture needles should now occur rarely because of the availability of disposable needles. Other complications, including, but not limited to, spinal cord injury and death, have been infrequently reported.^{3,26-28} Various medical conditions may increase the risk-benefit ratio of this therapy, and these need to be carefully assessed by both the primary care provider and the acupuncturist.³

SUMMARY

Acupuncture has been successfully used as a treatment method for thousands of years. It remains a very useful treatment modality today. It is probably effective in the treatment of a wide variety of pain syndromes and addictions. It can provide relief in situations where traditional Western medicine has been unsuccessful.

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