Workshop on Acupuncture

Yuan-Chi Lin, M.D., M.P.H., F.A.A.P.
Medical Acupuncture Service
Children’s Hospital Boston
Harvard Medical School
Boston, Massachusetts

Acupuncture is performed by inserting special hair-thin needles into the skin at specific sites, known as acupuncture points, for desired therapeutic and preventive purposes. Acupuncture is called “Jin Jiao” in Chinese. It consists with the practice of “acupuncture” and “moxibustion.” Moxibustion, warming sensation of moxa (artemisia vulgaris) over the acupuncture points, can be also used for the treatment of various illnesses. Other modalities of acupuncture practice include electro-acupuncture, cupping, laser acupuncture, acupressure, Chinese Tui-Nai massage, etc.

Acupuncture as a therapeutic intervention is currently widely practiced.[1] NIH consensus development conference on acupuncture concludes that there are promising results supporting the efficacy of acupuncture in adult postoperative and chemotherapy related nausea and vomiting and in postoperative dental pain. In other situations, such as addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel syndrome, and asthma, acupuncture may be useful as an adjunct treatment, as an acceptable alternative, or be included in a comprehensive management program[2].

Defining and explaining the nature phenomena of acupuncture by the ancient Chinese, and the theory of Traditional Chinese Medicine involve the conceptions of “Yin and Yang” and “the Five Phases.”[3] The body is viewed as a dynamic system of organs connected by the flow of Qi within the meridians. Illness results from stagnation or inadequate flow of Qi through the meridians. The flow of Qi may be restored by the insertion of several very fine needles into a combination of points from the acupuncture points that exist along the meridians. The manual twirling of these needles produces a sore, heavy, or numb sensation known as “De Qi” (“obtaining Qi”). Acupuncture practitioners observed that stimulating specific acupuncture points resulted in predictable responses in patients with a given pattern of signs and symptoms. Practitioners of acupuncture routinely request the patient’s detailed past history and present illness in pursuing the diagnosis. In addition, attention is focused on the character of the pulse and the appearance of the tongue. In Traditional Chinese Medicine, there are six pathological factors that cause disease: wind, cold, heat, dampness, dryness, and fire. The goal of the history and physical is to assess the patient’s balance of Yin and Yang, and to gain insight into other symptoms. There are eight principal classifications of symptoms, which include Yin or Yang, external or internal, cold or hot, and deficient or excess. The aim of therapy is to restore deficiencies or correct excesses in Qi, thus refurbishing the health. It is frequently used for preventive as well as therapeutic purposes.

The first European report on Traditional Chinese Medicine and acupuncture came from a sixteenth century Jesuit in Canton, China by Portuguese, Dutch, Danish, and French missionaries. The first English text “A treatise on Acupuncture” by James Morss Churchill in 1823 described acupuncture had most success on rheumatic conditions, sciatica, and back pain.
Basic scientific research has focused on understanding acupuncture from a neurobiological perspective. One possible theory is that acupuncture inhibits the transmission of pain according to the gate-control theory put forth by Wall and Melzack in 1965.[4] In this model, acupuncture may act by stimulating sensory A-beta fibers, directly inhibiting the spinal transmission of pain by a smaller A-delta and C fibers.[5]

The subject of most basic research has been the relationship between acupuncture and the production of endogenous opioid peptides, such as the endorphins, enkephalins, and stimulation of the endogenous descending inhibitory pathways. In human studies, analysis of cerebrospinal fluid (CSF) showed elevated levels of serotonin, endorphins, and enkephalins following acupuncture treatments. [6] Although the mechanism of acupuncture analgesia is not entirely clear, a growing body of scientific knowledge indicates that, “the essence of acupuncture analgesia is mainly the activation of the endogenous anti-nociceptive system to modulate pain transmission and pain response.” [7] Low frequency (2Hz) and high frequency (100 Hz) electrical acupuncture selectively induces the release of enkephalins and dynorphins in both experimental animals and humans.[8] Peripheral stimulation of the skin or deeper structures activates various brain structure and/or spinal cord via specific neural pathways.[9] Functional magnetic resonance (fMRI) is utilized to investigate the effect of acupuncture in normal volunteers in order to provide the foundation for the understanding of the mechanism of acupuncture. Correlations between the BL 67 (Zhi Yin) acupuncture point with the visual cortex were investigated. [10]

Acupuncture is essentially harmless. Occasionally, a patient may have some bruising at an acupuncture site. The principal risk is infection from use of improperly sterilized needles. Acupuncture is safe in the hands of competent practitioner. Pediatric patients can also receive benefit from acupuncture treatment without side effects. [11]

Systemic reviews of randomized controlled trials provide the best evidence and the least subject to bias assessing the efficacy of medical therapy. Clinical research of acupuncture has largely consisted of uncontrolled trials. While beneficial results have been frequently demonstrated, the flawed design of many studies gives limited value to the results. Several difficulties are inherent in the designing of valid blinded, randomized controlled trials of acupuncture.[12, 13] Currently, acupuncture can be used for preoperative sedation, to reduce intraoperative opioid use, and to decrease postoperative pain. There is convincing substantial research supporting that acupuncture reduces postoperative nausea and vomiting.

Acupuncture is effective for reducing preoperative anxiety. In a double-blinded, sham-placebo study, preoperative acupuncture at the “relaxation” point on the ear reduced anxiety up to 48 hours postoperatively as compared with sham acupuncture. [14] Auricular acupuncture significantly decreased maternal anxiety during the preoperative period.[15]

Acupuncture reduces the required dose of opioids and offers more comfortable postoperative conditions. In a randomized controlled, double-blind study of patients scheduled for elective upper and lower abdominal surgery acupuncture was found to reduce postoperative pain. Consumption of supplemental intravenous morphine was reduced 50%, and the incidence of postoperative nausea was reduced 20-30%. Plasma cortisol and epinephrine concentrations were reduced 30-50% in the acupuncture group.[16] Preoperative treatment with low- and high-electro-acupuncture can reduce postoperative analgesic requirements and associated side effects in patients undergoing lower abdominal surgery.[17]
Acupuncture is commonly used for the management of nausea and vomiting due to surgery or chemotherapy using acupuncture needles, electrical apparatus, pressure, or magnets. A systemic review was conducted of 33 randomized controlled trials of acupuncture and acupressure. The results of twenty-seven of the trials were positive. [18] The efficacy of acupuncture for postoperative nausea and vomiting prevention is similar to commonly used pharmacotherapies. [19] Acupuncture is as effective as droperidol in controlling early postoperative nausea and vomiting in children.[20] A double-blind, randomized, placebo-controlled study revealed that hand acupressure is an effective method for reducing postoperative vomiting in children after strabismus repair.[21] [22] Randomized controlled trials conducted by Yentis et. al.[23] and Lewis et. al.[24] reported that acupuncture and acupressure were ineffective in preventing nausea and vomiting associated with strabismus repair.

Richardson and Vincent[25] have reviewed 27 controlled studies of acupuncture for treating acute and chronic pain, as well as several large uncontrolled studies. Fifty to eighty percent of patients showed that short-term data made assessment of long-term effectiveness difficult. Patel and colleagues found that while few of the individual trials demonstrated statistically significant benefit from acupuncture, the pooled results for several subgroups attained statistical significance in favor of acupuncture. [26] Acupuncture therapy for migraine headaches has also been reported to be effective in several adult studies. [27, 28] A systemic review of 22 trials, including a total of 1042 patients, concludes that the existing evidence suggests that acupuncture has a role in the treatment of recurrent headaches.[29]

Acupuncture has become an increasingly evident part of the health delivery system in Western medical society.[30] Its long-established theoretical framework is fundamentally distinct from Western biomedical practice. Research on acupuncture has allowed for its integration into our practice of conventional anesthesia and pain practice. Acupuncture does not decrease the amount of anesthetic requirement to a clinically significant degree; however, it has promising effects in perioperative sedation and can be useful for relieving pain and suffering in children. In this workshop, we will explore this ancient medicine and hands-on demonstrate the acupuncture will be offered.

References


