The Healthcare Medicine Institute presents

Acupuncture for Hypertension and Arrhythmias

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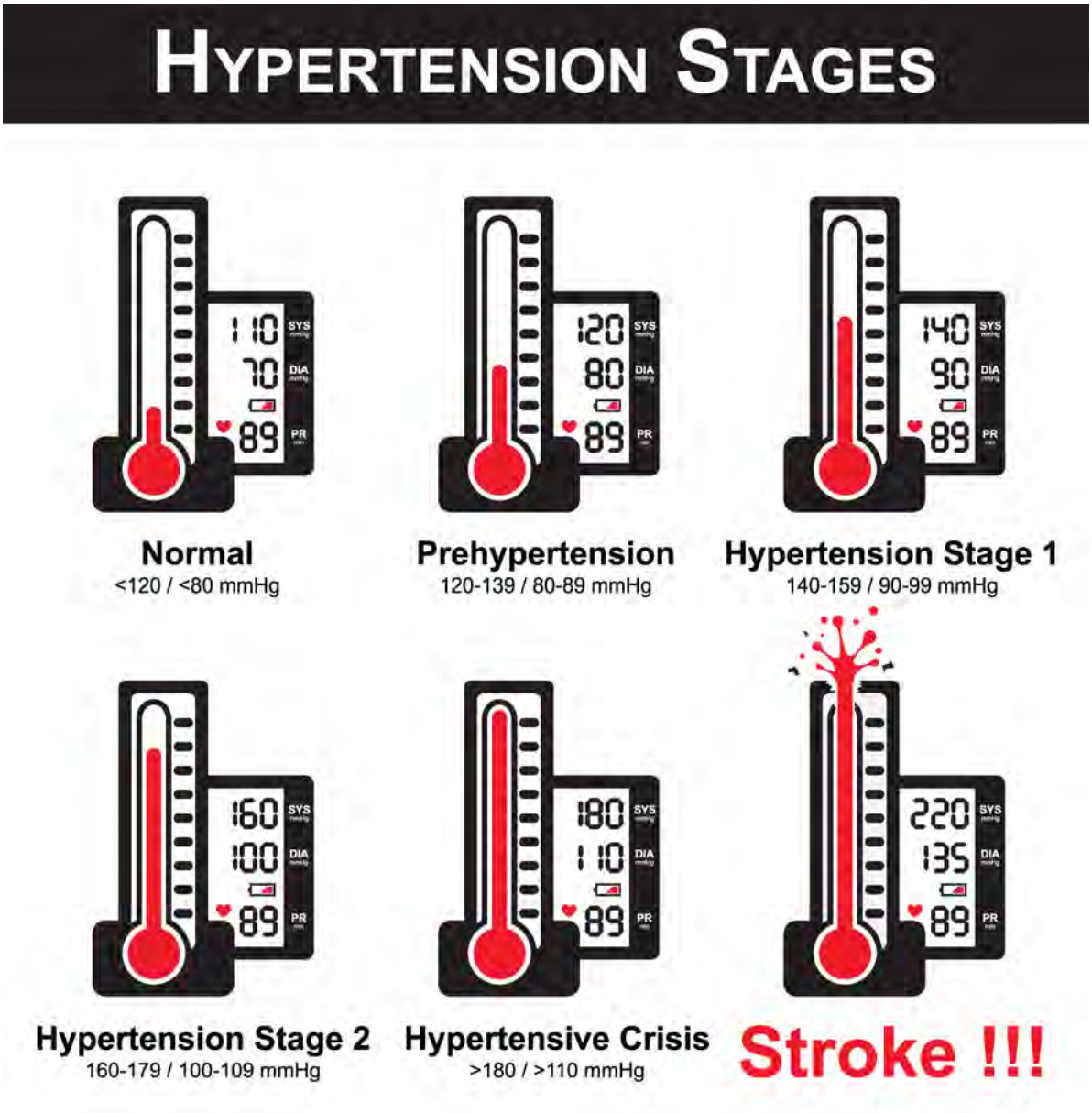
1. Hypertension

Overview

Hypertension (high blood pressure) poses an enormous public health risk worldwide. Hypertension dramatically increases the risk of stroke, heart attack, and heart failure. Additionally, it is second only to diabetes as an antecedent to end stage renal disease. [1] In the year 2000, over 26% of the adult population had hypertension, enumerating approximately 972 million people globally, and those numbers are expected to rise. [2] In 2010 in the United States alone, over 1 million people died from cardiovascular, lung, and blood diseases, accounting for 41% of all deaths. Among these, the leading cause of death is heart disease and cerebrovascular disease (including stroke) ranks fourth. [3] In the United States, the estimated cost of treating these illnesses in 2009 accounted for $424 billion, or 23% of costs associated with illness and death. [4]

Effective treatment of hypertension could save millions of lives by preventing the sequelae associated with high rates of morbidity. It could also dramatically decrease the cost of healthcare worldwide, by millions if not billions of dollars annually. Based on the evidence, acupuncture is an important treatment option and must be seriously considered for its potential in both these realms: clinical efficaciousness and cost-effectiveness.

Normal blood pressure is generally 120/80 mm Hg or less. Pre-hypertension is 120-139/80-89 mm Hg. Stage 1 hypertension is 140-159/90-99 mm Hg. Stage 2 hypertension is 160-179/100-109 mm Hg or greater. In biomedicine, secondary hypertension results from a known disorder such as a renal or endocrine disorder. Primary hypertension (essential hypertension) has no known etiology in biomedicine.



In Chinese medicine, primary hypertension is categorized into a variety of differential diagnostic patterns. According to diagnostic pattern differentiation, there are many root causes of chronic hypertension. Acupuncture, herbal medicine, and other treatment modalities are applied to address these underlying concerns. The focus of this course is to present research supporting the use of specific points. First, we'll start with a brief overview of Chinese medicine diagnostic theory and commonly used

acupoints. Next, we'll present the research.

Chinese Medicine

Excesses of food, alcohol, and stress precipitate hypertension. Causes of hypertension may due to excess, deficiency, or a combination of both. Hypertension often arises from one or more of the following patterns:

- Excess phlegm and dampness
- Kidney and liver yin deficiency with liver yang uprising
- Liver Fire
- Ascendant liver yang excess causes internal wind
- Blood stasis due to qi deficiency
- Yin and yang deficiency

One common condition is when kidney yin fails to moisten and soften the liver. In this scenario, kidney yin deficiency leads to liver yang uprising. In a vicious cycle, the ascendant liver yang further depletes kidney yin. If this condition is not addressed, excess liver yang may lead to liver fire or internal wind, which places the patient at a high risk for a stroke. The following indications and diagnoses may point to hypertension:

- Excess phlegm and dampness is characterized by chest congestion, dizziness, palpitations, nausea, vomiting, and heaviness or numbness of the limbs. The tongue has a thick, greasy coating and the pulse is slippery.
- Deficiency of yin with hyperactivity of liver yang is characterized by dizziness, vertigo, restlessness, insomnia, dream disturbed sleep, blurry vision, tinnitus, chest irritability, or numbness of the limbs. The pulse is deficient, wiry, floating, or rapid. The tongue is red.
- Liver fire blazing upwards is characterized by headaches, irritability, stiff neck, red eyes, dry mouth, flushed face, constipation. The tongue has a greasy-yellow coating and is red. The pulse is forceful, wiry, or rapid.

- Deficiency of both yin and yang is characterized by dizziness, fatigue, shortness of breath, weakness of the legs and knees, frequent urination, or impotence. The pulse is deep and weak. The tongue is pale.
- Internal liver wind is characterized by headache, dizziness, seizures, tremors, syncope, aphasia, or stroke. If liver fire causes internal wind, the pulse is wiry, rapid, and full. The tongue is red with a yellow coating. If liver yang uprising causes internal wind, the pulse is floating, empty, wiry, or rapid. The tongue has a peeled coating and may be deviated. If liver blood deficiency causes internal wind, the pulse is choppy and the tongue is pale and deviated.

Acupuncture Points

Research Acupoints

This course focuses on scientific research confirming the efficacy of acupuncture points. Research indicates that several acupoints are effective for the treatment of hypertension. We will take a closer look at the following acupuncture points in research articles reviewed following this section:

From hypertension research article #1:

Electroacupuncture from PC5 (Jianshi) to PC6 (Neiguan)

Electroacupuncture from ST36 (Zusanli) to ST37 (Shangjuxu)

From hypertension research article #2:

LV3 (Taichong), LI4 (Hegu), SP10 (Xuehai)

Acupoints For Hypertension

The following is a brief overview of acupuncture points commonly used in Chinese Medicine for the treatment of hypertension:

- GB20 (Fengchi)
  This acupuncture point is in the depression between the upper portion of the sternocleidomastoideus and the trapezius, level with GV16, below the occiput. It is midway between GV16 and GB12. Care must

be used when needling this acupoint, do not puncture the medulla oblongata. GB20 is the meeting point of the gallbladder and sanjiao (triple burner) channels with the yang motility and yang linking vessels. GB20 disperses wind, benefits hearing and vision, and clears wind-heat. GB20 is given its name Fengchi, meaning wind pool. GB20 treats both internal and external wind. GB20 is effective for the treatment of many disorders and is especially useful for the treatment of hypertension, headaches, dizziness, eye disorders, vertigo, tinnitus, insomnia, febrile diseases, seizures, sinusitis, rhinorrhea, and neck pain.

- LI11 (Quchi)
  When the elbow is flexed, this point is in the depression at the lateral end of the transverse cubital crease, midway between LU5 and the lateral epicondyle of the humerus. LI11 is a He Sea, earth, mother, Ma Dan-yang heavenly star, and Sun Si-Miao Ghost Point. LI11 regulates the blood, drains dampness, cools heat in the blood, clears exterior heat, and eliminates wind. LI11 is indicated for the treatment of hypertension, sore throat, toothache, red and painful eyes, scrofula, goiter, neck nodules, urticaria, skin diseases, upper limb paralysis, febrile diseases, and chest oppression.

- ST36 (Zusanli)
  This acupoint is 3 cun below ST35, one finger-breadth from the anterior crest of the tibia, in tibialis anterior. This point is lateral to a notch that is palpable on the tibia. Zusanli (leg three measures) is a He Sea, earth, lower He Sea of the Stomach, and Sea of Nourishment point. ST36 is a Gao Wu command point and a Ma Dan-Yang heavenly star point. ST36 orders the spleen and stomach, regulates qi and blood, and tonifies qi. Common indications for usage include hypertension, gastric pain, vomiting, abdominal distention, diarrhea, constipation, mastitis, breast accesses, enteritis, gastritis, edema, asthma, general weakness, emaciation, anemia, indigestion, hemiplegia, neurasthenia, and mental disorders.

- LV3 (Taichong)
  This point is located on the dorsum of the foot in the depression distal to the junction of the first and second metatarsal bones. LV3 is a shu stream, earth, and source point. LV3 pacifies the liver, regulates blood,

reduces hyperactivity of liver yang, and opens the channels. Common indications for use include hypertension, headache, vertigo, insomnia, irregular menstruation, abnormal uterine bleeding, extremity and joint pain, eye pain, rib pain, retention of urine or enuresis.

- GV20 (Baihui)
  GV20 is 7 cun above the posterior hairline, on the midpoint of the line connecting the apex of the auricles. GV20 is located at the vertex at the midpoint of the head. GV20 may be measured 8 cun posterior to the glabella or 6 cun superior to the occipital protuberance. GV20 is a Sea of Marrow point. GV20 calms the spirit, clears the senses, extinguishes liver wind, and stabilizes ascending yang. GV20 is indicated for treating hypertension, headaches, dizziness, tinnitus, nasal congestion, shock or coma, mental disorders, poor memory, palpitations, and prolapsed rectum or uterus.

- ST40 (Fenglong)
  This point is 8 cun superior to the external malleolus, about 1 fingerbreadth lateral to ST38. ST40 is a luo point. ST40 transforms dampness and phlegm, benefits the lungs, chest and heart, and calms the spirit. Indications for use include hypertension, headaches, vertigo, cough, excess sputum, chest pain (especially when combined with GB40, Qiuxu), and swelling of the lower limbs.

- PC6 (Neiguan)
  This point is 2 cun above the transverse wrist crease, on the line connecting PC3 and PC7, between the tendons of the palmaris longus and flexor carpi radialis. PC6 is the luo (connecting) point of the pericardium channel. It is the confluent point of the Yinwei vessel (Yin Linking Vessel). PC6 regulates the heart, calms the spirit, regulates qi, suppresses pain, and harmonizes the stomach. Common indications for use include: hypertension, nausea, vomiting, hiccups, pain (cardiac, chest, elbow, upper arm, head, neck, stomach), mental illness, seizures due to epilepsy, insomnia, fever, palpitations, irregular menstruation, dysuria, postpartum dizziness. As a confluent point of the Yinwei vessel, this point is paired with the confluent point of the Chong (Thoroughfare) vessel (SP4). Together, PC6 and SP4 are indicated for the treatment of heart, chest, and stomach

- HT5 (Tongli)
  HT5 is on the radial side of the tendon of flexor carpi ulnaris, 1 cun above the transverse wrist crease. HT5 is a luo point. HT5 calms the spirit and regulates heart qi. It is indicated for the treatment of dizziness, palpitations, hysterical aphasia, stiff tongue, sore throat, blockage of throat, headaches, abnormal uterine bleeding, and incontinence.

- HT7 (Shenmen)
  HT7 is located at the ulnar end of the transverse crease of the wrist, in the depression on the radial side of the tendon of the flexor carpi ulnaris. Use caution when needling this point to avoid the ulnar artery and ulnar nerve. HT7 is a Shu-Stream, earth, son, and source point. HT7 calms the spirit, pacifies the heart, and the clears channels. Common indications for use include insomnia, mental illness, irritability, cognitive impairment, palpitations, epilepsy or seizures, hypochondriac region pain, icteric sclera, five palms heat, and jaundice. Naturally, ear shenmen, located in the triangular fossa, is also a very important and useful point for soothing the shen (spirit).

- SP6 (Sanyinjiao)
  SP6 is 3 cun directly above the tip of the medial malleolus, on the posterior border of the medial aspect of the tibia. Sanyinjiao is translated as 3 yin junction; this point is the meeting of the 3 lower yin meridians. SP6 strengthens the spleen, transforms dampness, spreads liver qi, and benefits the kidneys. SP6 is an important acupuncture point in obstetrics and gynecology. Indications for use include: dysmenorrhea, irregular menstruation, abnormal uterine bleeding, leukorrhea, prolapse of uterus, infertility, difficult or delayed labor. Other common indications for use include: hypertension, abdominal pain and distention, diarrhea, nocturnal emissions, enuresis, dysuria, lower limb atrophy, lower limb motor impairment or hemiplegia, vertigo from blood deficiency (xue xu), insomnia.

- KD3 (Taixi)
  This point is located between the medial malleolus and the tendocalcaneous. KD3 is a shu stream, earth, and source (Yuan) point. KD3 benefits the kidneys, nourishes kidney water and liver wood, cools heat, and strengthens the lower back and knees. Common indications

for use include hypertension, irregular menstruation, enuresis, toothache, sore throat, tinnitus, deafness, emphysema, asthma, sore throat, and thirst.

- N-HN-22b (Anmian #2)
  This point is located midway between GB20 (Fengchi) and Yiming (M-HN-13). Yiming is located one cun posterior to TB17 (Yifeng), behind the ear. Indications include hypertension, insomnia, palpitations, psychosis, and mental restlessness.

- LV2 (Xingjian)
  LV2 is on the dorsum of the foot, proximal to the margin of the web. LV2 is a ying-spring, fire, and son point. LV2 drains liver fire and spreads stagnant qi. Indications include hypertension, headache, dizziness, vertigo, intercostal and hypochondrium pain, painful urination, red or swollen eyes, seizures, epilepsy, insomnia, uterine bleeding, and abdominal distention.

- GB34 (Yanglingquan)
  This point is in the depression anterior and inferior to the head of the fibula. GB34 is a He Sea, lower He Sea of the gallbladder, earth, and meeting point of the muscles and tendons. GB34 benefits the liver and gallbladder, clears and cools damp-heat, and benefits the sinews and bones. Indications include hypertension, lower limb and knee pain or paralysis, hypochondrium pain, bitter taste in the mouth, jaundice, and hepatitis.

- CV6 (Qihai)
  CV6 is located on the midline of the abdomen, 1.5 cun below the umbilicus. CV6 regulates qi, strengthens the kidneys, tonifies qi and yang, fosters original (source) qi, harmonizes blood, regulates the penetrating (chong) and conception (ren) vessels, and dispels dampness. Traditional indications include hypertension due to deficiency, abdominal pain, irregular menses, dysmenorrhea, leukorrhea, uterine bleeding, urinary disorders, spermatorrhea, nocturnal emission, and impotence.

- CV4 (Guanyuan)
  This point is located on the midline of the abdomen, 3 cun below the

umbilicus. CV4 is the front mu point of the small intestine. CV4 nourishes and stabilizes the kidneys, fosters original qi and benefits essence, moves and builds qi, and restores yang. CV4 is the intersection of the three leg yin channels deeply. Common indications for use include hypertension due to deficiency, abdominal pain, diarrhea, irregular menstruation, dysmenorrhea, leukorrhea, and enuresis.

- LI4 (Hegu)
  This point is on the dorsum of the hand, between the 1st and 2nd metacarpal bones, approximately in the middle of the 2nd metacarpal bone on the radial side. LI4 is a source point and entry point. LI4 disperses wind, releases exterior conditions, suppresses pain, and clears the channels. Indications include headaches, eye pain, epistaxis, toothache, deafness, facial edema, facial paralysis, sore throat, trismus (lock jaw), fever, delayed labor, and pain.

Point Combinations and Variations

Let's look at ways to combine the aforementioned acupuncture points based on differential diagnostics and indications. If patients present with liver yang uprising due to deficiency of heart, liver, and kidney yin, the following acupoints may be applied:

- LV3 (Taichong)
- GB20 (Fengchi)
- HT7 (Shenmen)
- KD3 (Taixi)
- GV20 (Baihui)

This combination nourishes yin, calms the liver, settles the yang, and eliminates wind. The points are often used when there is pronounced hyperactivity of liver yang characterized by headaches, dizziness, irritability, restlessness, tinnitus, insomnia, blurry vision, a flushed red face, and a wiry pulse. Add the following acupoints for specific presentations:

- If there is phlegm, add ST40 (Fenglong).
- If there is tinnitus, add SI19 (Tinggong).

- To focus on nourishing kidney and liver yin, add BL18 (Ganshu), BL23 (Shenshu), and SP6 (Sanyinjiao).
- To focus on descending the liver yang or for dizziness, add Yintang (extra).

The next two research articles in the following section are significant in that classic acupuncture points used for the treatment of hypertension are tested in controlled trials. The results indicate that specific acupuncture points produce a normalization or lowering of blood pressure for patients with hypertension.

Notes

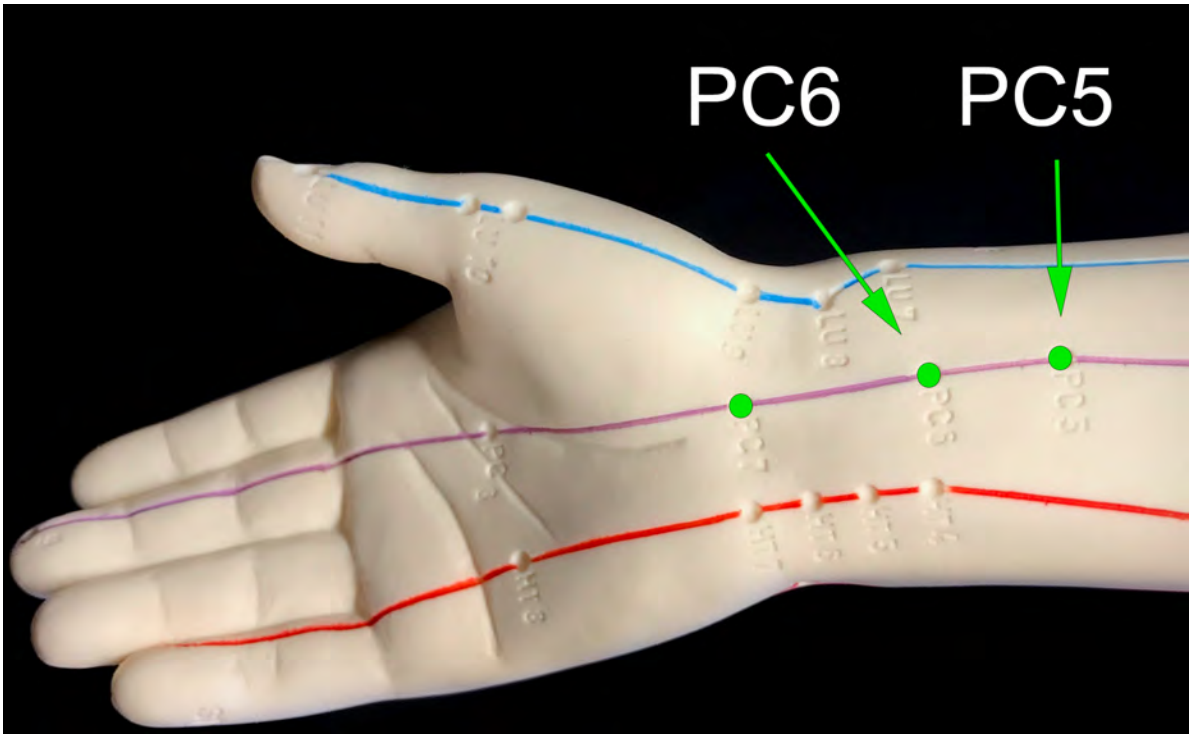
1. Chobanian, AV et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA 2003: 289(19): 2560-72. nhlbi.nih.gov/files/docs/guidelines/jnc7full.pdf (pg 6).

2. Kearney, Patricia M et al. Global burden of hypertension: analysis of worldwide data. Lancet 2005; 365(9455): 217 -- 223 thelancet.com/journals/lancet/article/PIIS0140-6736(05)17741-1/abstract.

3. nhlbi.nih.gov/about/documents/factbook/2012/chapter4.

4. nhlbi.nih.gov/about/documents/factbook/2012/chapter4.

Research #1



University of California School of Medicine researchers have proven that acupuncture lowers blood pressure in subjects with hypertension. [1] The depth and breadth of the research extends across multiple university controlled studies. The investigations also reveal how acupuncture works; the biological mechanisms stimulated by acupuncture are no longer a mystery.

The University of California School of Medicine, Irvine, researchers determined several key items. Acupuncture produces long-lasting lowering of blood pressure in subjects with hypertension. Acupuncture regulates sympathetic nervous system responses resulting in lower blood pressure in cardiovascular related centers of the brain and “specific neurotransmitter systems.” [2] In addition, their cross-over double blinded research identifies specific acupuncture points and procedures that are especially effective for lowering blood pressure.

The researchers note that electroacupuncture is effective “at two sets of standardized acupoints known to provide input to brain stem regions that

regulate sympathetic outflow lowers blood pressure….” [3] They highlight three key points. First, electroacupuncture that is administered once per week in 30 minute acupuncture sessions over a period of 8 weeks is effective for lowering blood pressure in patients with hypertension. [4] Second, results are observed by the second week of acupuncture therapy and last for 4–6 weeks if no follow-up treatment is administered after completion of the 8 weeks of acupuncture therapy. [5] Third, monthly acupuncture maintenance treatments maintain the healthy low blood pressure for at least 6 months. [6]

The University of California School of Medicine researchers find electroacupuncture a mediator of the autonomic nervous system. Plasma norepinephrine and renin-aldosterone measurements indicate that electroacupuncture lowers blood pressure by downregulating sympathetic nervous system outflows. [7] This mechanism resulted in a lowering of both systolic and diastolic blood pressure in subjects with hypertension. Furthermore, the researchers successfully differentiated acupuncture points that were effective from those that were not.

Acupuncture Points

Electroacupuncture applied to PC5 (Jianshi)–PC6 (Neiguan) and ST36 (Zusanli)–ST37 (Shangjuxu) were found effective for lowering blood pressure. Electroacupuncture applied to LI6 (Pianli)–LI7 (Wenliu) and GB37 (Guangming)–GB39 (Xuanzhong, Juegu) was ineffective. Using 24/7 ambulatory blood pressure monitoring equipment, electroacupuncture applied to PC5–PC6 and ST36–ST37 was effective for reducing peak and average systolic and diastolic blood pressure. [8] The results were published in the *Journal of Intensive and Critical Care*. In this electroacupuncture application, PC5 is connected to PC6 on each side of the body and the same is for ST36 to ST37. As we will see in a moment, the electroacupuncture is set at 2 Hz to patient tolerance levels. The upcoming data we will examine in a moment also suggests that manual acupuncture stimulation may be equally effective.

Point Specificity

A closer look reveals extensive prior research by University of California School of Medicine researchers. One investigation demonstrates that electroacupuncture applied to PC5–PC6 produces “point-specific effects on cardiovascular reflex responses.” [9] The researchers add that sympathetic cardiovascular rostral ventral lateral medulla neurons that respond to both visceral (reflex) and electroacupuncture nerve stimulation “manifest graded responses during stimulation of specific acupoints.” [10]

The researchers conclude that electroacupuncture "demonstrates a range of cardiovascular responses" and the levels of "visceral reflex pressor responses are influenced by the anatomic location of somatic nerves beneath the acupoints." [11] They identified specific responses; "deep nerves exerting strong influence and superficial cutaneous nerves demonstrating little or no attenuation of cardiovascular reflex responses." [12] The acupuncture continuing education results were published in the *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology*.

Another investigation by the University of California researchers was published in *Autonomic Neuroscience*. The research identifies specific regions of the brain regulated by acupuncture. Based on the findings, they conclude that electroacupuncture “suppresses elevated blood pressure (BP) by activating the arcuate nucleus, ventrolateral periaqueductal gray (vlPAG), and inhibiting cardiovascular sympathetic neurons in the rostral ventrolateral medulla.” [13] The research documents that “a reciprocal excitatory glutamatergic neural circuit between the arcuate and vlPAG contributes to long-lasting EA [electroacupuncture] cardiovascular inhibition.” [14] Glutamatergic biochemicals regulate the excitatory amino acid system throughout the body and brain.

Endocannabinoids and Serotonin

In another investigation, the researchers mapped the effects of electroacupuncture on endocannabinoids and the cardiovascular system. The researchers determined that a “long-loop pathway, involving the hypothalamic arcuate nucleus (ARC), ventrolateral periaqueductal gray

(vlPAG), and the rostral ventrolateral medulla (rVLM), is essential in electroacupuncture (EA) attenuation of sympathoexcitatory cardiovascular reflex responses." [15] They note that electroacupuncture "releases endocannabinoids and activates presynaptic CB1 receptors to inhibit GABA release in the vlPAG. Reduction of GABA release disinhibits vlPAG cells, which, in turn, modulate the activity of rVLM neurons to attenuate the sympathoexcitatory reflex responses." [16]

University of California researchers completed another study mapping the effects of electroacupuncture on serotonin. They determined that electroacupuncture applied to PC5–PC6 "activate serotonin (5-HT)-containing neurons in the nucleus raphe pallidus (NRP)." [17] They note that "activation of the NRP, through a mechanism involving serotonergic neurons and 5-HT (1A) receptors in the rVLM during somatic stimulation with EA [electroacupuncture], attenuates sympathoexcitatory cardiovascular reflexes." [18] In another study, the researchers document additional pathways. They conclude that the arcuate nucleus is required for prolonged suppression of reflex cardiovascular excitatory responses by electroacupuncture. [19] In the rostral ventrolateral medulla, opioids and GABA (γ-aminobutyric acid) are active in long-term electroacupuncture inhibition of sympathoexcitatory cardiovascular responses. [20]

High and Low Frequency Electroacupuncture

In another investigation, the researchers discovered that manual acupuncture and electroacupuncture produce similar results at PC5 and PC6. The researchers conclude that "there is little difference between low-frequency EA [electroacupuncture] and MA [manual acupuncture] at P 5–6. Furthermore, simultaneous stimulation using two acupoints that independently exert strong effects did not lead to an additive or a facilitative interaction." [21] Low frequency acupuncture proved more effective than higher frequencies. Two Hz electroacupuncture "activated more somatic afferents than" 10 or 20 Hz electroacupuncture. [22] The researchers add that the "similarity of the responses to EA and MA and the lack of cardiovascular response to high-frequency EA appear to be largely a function of somatic afferent responses." [23]

The above-mentioned studies are only a fraction of the published research on acupuncture and its mediation of cardiovascular and cortical activity. Important is that there is both clinical and laboratory research that is blinded, randomized, and sham controlled. The findings determine efficacy rates for specific acupuncture points for specific conditions and the biological mechanisms responsible for positive patient outcomes. The University of California School of Medicine, Irvine, (UCI) researchers provide us with great insight into the active mechanisms involved in acupuncture treatments.

Susan and Henry Samueli College of Health Sciences

The quality and level of research produced at UCI brings exacting rigor to the scientific investigation of acupuncture. In related news, the College of Health Sciences at UCI received a $200 million gift for the purposes of exploring and supporting interdisciplinary integrative health. This is one of the largest donations ever granted to a public university.

The integrative health center, devoted to teaching and patient care, is named after its donors: The Susan and Henry Samueli College of Health Sciences. The goal of the center is to promote health, based on scientific evidence. This includes redefining the practitioner-patient relationship and a holistic approach to lifestyle, preventative measures, and healthcare disciplines. This complements the efforts of the existing Susan Samueli Integrative Health Institute, which focuses on research, education, service, and community.

At the Healthcare Medicine Institute, we support and promote appropriate medicine, defined as medicine that is both safe and effective. The Susan and Henry Samueli College of Health Sciences and the Susan Samueli Integrative Health Institute adhere to this principle by identifying and supporting treatment options based on positive patient outcome rates. Fundamental to implementation of healthcare is the identification of optimal approaches to individual and community based medicine. We look forward to additional clinical and laboratory research that ultimately yields healthier outcomes.

What we are seeing is a fundamental shift in awareness. Modern research now widens treatment options to those once considered outside the norm of

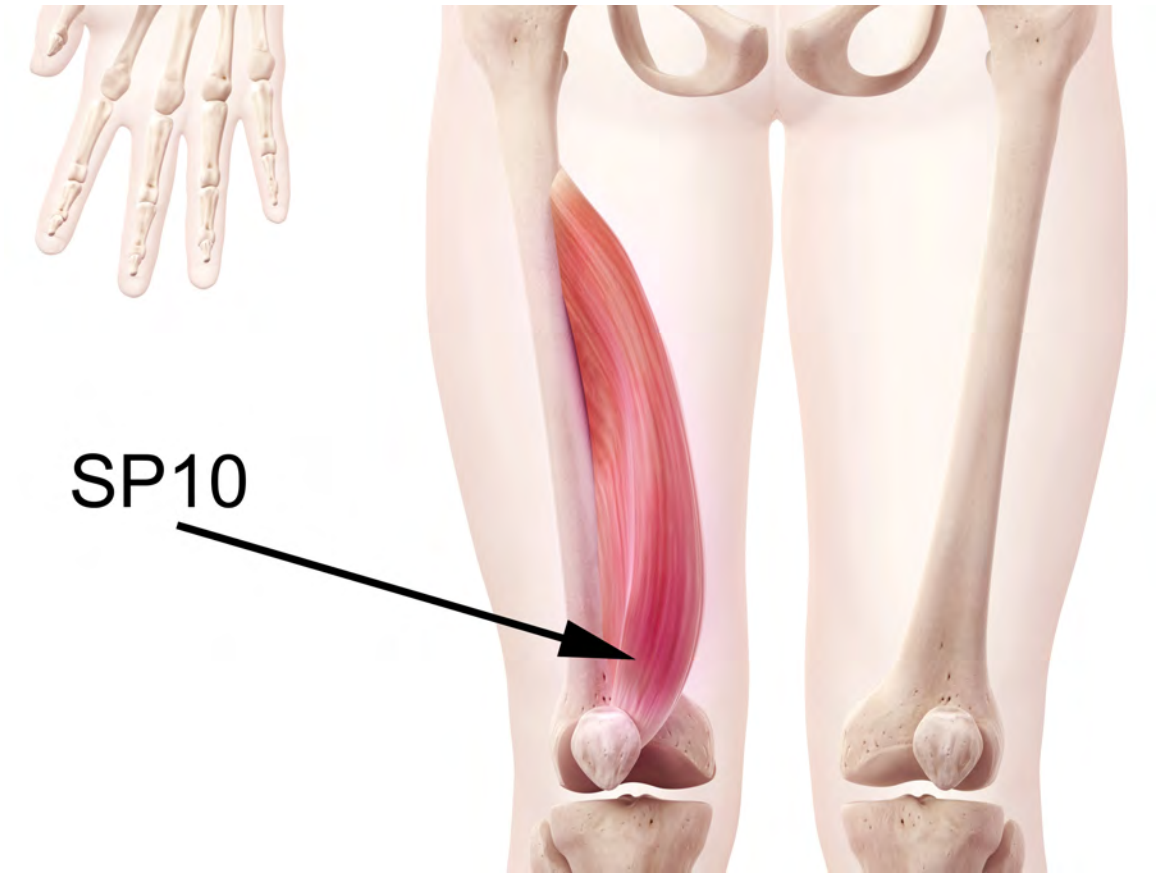
scientific medicine. Acupuncture now gains acceptance, along with many other forms of holistic medicine, as scientific investigations map mechanisms of action and document rates of effectiveness. This understanding ultimately contributes to the humanitarian relief of suffering.

Notes

1. Tjen-A-Looi, Stephanie C. "Reduction of Blood Pressure by Electro Acupuncture in Mild to Moderate Hypertensive Patients: Randomized Controlled Trial." Journal of Intensive and Critical Care 3, no. 1 (2017): 2, pg.1.
2. Ibid.
3. Ibid.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid, 2.
8. Ibid, 1.
9. Tjen-A-Looi SC, Li P, Longhurst JC (2004) Medullary substrate and differential cardiovascular responses during stimulation of specific acupoints. Am J Physiol Regul Integr Comp Physiol 287: R852-R862.
10. Ibid.
11. Ibid.
12. Ibid.
13. Li P, Tjen-A-Looi SC, Guo ZL, Longhurst JC (2010) An arcuateventrolateral periaqueductal gray reciprocal circuit participates in electro acupuncture cardiovascular inhibition. Auton Neurosci 158: 13-23.
14. Ibid.
15. Tjen-A-Looi SC, Li P, Longhurst JC (2009) Processing cardiovascular information in the vlPAG during electroacupuncture in rats: roles of endocannabinoids and GABA. J Appl Physiol 106: 1793-1799.
16. Ibid.
17. Moazzami A, Tjen-A-Looi SC, Guo ZL, Longhurst JC (2010) Serotonergic projection from nucleus raphe pallidus to rostral ventrolateral medulla modulates cardiovascular reflex responses during acupuncture. J Appl Physiol 108: 1336-1346.
18. Ibid.
19. Tjen-A-Looi SC, Li P, Longhurst JC (2007) Role of medullary GABA, opioids and nociceptin in prolonged inhibition of

cardiovascular sympathoexcitatory reflexes during electro acupuncture in cats. Am J Physiol Heart Circ Physiol 293: H3627-H3635.
20. Ibid.
21. Zhou W, Fu LW, Tjen-A-Looi SC, Li P, Longhurst JC (2005) Afferent mechanisms underlying stimulation modality-related modulation of acupuncture-related cardiovascular responses. J Appl Physiol 98: 872-880.
22. Ibid.
23. Ibid.

Research #2



Researchers conclude that acupuncture reduces hypertension and prevents brain damage due to chronic high blood pressure. A controlled laboratory investigation finds acupuncture effective for the regulation of blood pressure while simultaneously preventing excessive cell death in the brain. In a quantification of acupuncture's effective mechanisms, researchers identified important biological responses elicited by acupuncture responsible for producing therapeutic benefits.

The research team of Lu et al. identified biochemical responses elicited by the application of three acupuncture techniques. Reinforcing twirling, reducing twirling, and needle retention techniques resulted in reduced blood pressure and downregulation of cell death in the brain when compared with a control group. All three manual acupuncture techniques prevented "target

organ damage by increasing the Bcl-2/Bax ratio and inhibiting apoptosis of hippocampal neurons."

Liver Yang

According to Traditional Chinese Medicine (TCM) principles, the laboratory rats in this investigation had hypertension due to excessive liver yang uprising. Selective breeding produced this type of laboratory rat. Consistent with the diagnosis of liver yang uprising, all rats were aggressive, easily irritated, and had red and protruding eyes, dry stools, and excessively yellow urine. According to TCM theory, reducing techniques applied to acupoint LV3 (Taichong) are indicated for liver yang uprising type hypertension. Although reinforcing twirling produced positive outcomes, reducing twirling produced the most significant results. The researchers note, "Reducing twirling significantly increased the mRNA and protein Bcl-2/Bax ratio compared with reinforcing twirling." This is consistent with TCM principles indicating that reducing twirling is the correct needling method for this clinical scenario.

Neuroprotection

The hippocampus is a part of the brain active in memory, emotions, and it plays an important role in the regulation of the autonomic nervous system. Acupuncture successfully inhibited pathological cell death (apoptosis) in the hippocampus caused by hypertension by regulating the ratio of Bcl-2 (an apoptosis inhibitor) to Bax (an apoptosis promoter). The researchers note "that reinforcing twirling, reducing twirling, and needle retaining methods all improve blood pressure and prevent target organ damage by increasing the hippocampal Bcl-2/Bax ratio and inhibiting cell apoptosis in the hippocampus." The researchers add, "Bax and Bcl-2 promote or inhibit neuronal apoptosis by transducing the apoptosis signal," and the "ratio of Bcl-2/Bax is regarded as an index of the overall trend of cell apoptosis." In addition, "the reducing twirling group, reinforcing twirling group, and needle retaining group showed a significant decrease in Bax mRNA expression ($P < 0.01$) and a marked increase in the Bcl-2/Bax mRNA ratio ($P < 0.01$)."

The researchers provide insight into the importance of their findings. They note that the hippocampus is active in blood pressure regulation and hypertension "induces apoptosis in the brain neurons during the early stages of hypertension." Consequently, hypertension may lead to cerebrovascular disease by activating excessive cell death in the brain. Notably, chronic hypertension is correlated with a gradual shrinking of the following areas of the brain: the hippocampal external capsule, dentate gyrus, corpus callosum, CA1, and CA3. This occurs, at least in part, because chronic hypertension increases Bax (an apoptosis promoter) expression thereby disturbing the homeostatic Bcl-2/Bax ratio.

Yin and Yang

The researchers note that the balance inherent in the Bcl-2/Bax ratio reflects basic yin and yang theory. The dynamic and ongoing regulatory balance between pro-apoptosis and suppressor apoptosis genes is bidirectional, wherein Bcl-2 and Bax mutually oppose the function of each other to maintain a healthy balance of cell death, preservation, and growth. In TCM terms, this experiment finds acupuncture effective in harmonizing yin and yang; the balance of mutually interdependent opposites is restored. Acupuncture restores a normal Bcl-2/Bax ratio thereby preventing hippocampal damage due to hypertension. Results were verified by western blot assay, reverse transcription-polymerase chain reaction, and terminal deoxynucleotidyl transferase dUTP nick end labeling assay.

Independent Investigations

The researchers cite independent investigations demonstrating that acupuncture causes neuroprotective effects resulting in reductions of pathological forms of apoptosis in the hippocampus. For example, Zhang et al. demonstrate that acupuncture regulates BDNF and GDNF expression in the hippocampus following hypoxia-ischemia. BDNF (brain-derived neurotrophic factor) assists in the growth and differentiation of new neurons and synapses. BDNF is active in the hippocampus, cortex, and other areas of the brain. BDNF is important in the retention of long-term memories and neurogenesis. GDNF (glial cell-derived neurotrophic factor) is important for

nerve function. GDNF improves the overall recovery of neurons and neuroglia by inhibiting cell death caused by injuries.

The researchers selected acupoint LV3 for their investigation based on the results of prior investigations finding LV3 effective for the alleviation of hypertension. Several anti-hypertensive mechanisms were identified across multiple studies. Lu et al. note that acupuncture activates "the hypothalamic arcuate nucleus and periaqueductal gray in the anterior ventral region, as well as inhibition of expression of cardiovascular sympathetic neurons and Apelin (multifunctional peptide that regulates blood pressure and heart function) in the rostral ventrolateral medulla."

Claunch et al. (Department of Radiology, Massachusetts General Hospital, Charlestown) independently find LV3 active in hippocampal regulation, "Acupuncture at the three classical acupoints of Hegu (LI4), ST36 and Taichong (LV3) produced extensive deactivation of the limbic-paralimbic-neocortical brain network as well as activation of its anti-correlated activation network." Differentiation between the points was documented, "LI4 was predominant in the pregenual cingulated and hippocampal formation, ST36 response was predominant in the subgenual cingulate, and LV3 in the posterior hippocampus and posterior cingulate." The results demonstrate that individual acupoints exhibit relative specificity as evidenced by fMRI.

Related Research

In related research, Liu et al. combined LV3 with two additional acupoints and successfully alleviated hypertension in human subjects. Acupuncture was determined to be equally effective for the treatment of hypertension as nifedipine (a calcium channel blocker). In a randomized-controlled clinical trial, both acupuncture and nifedipine successfully reduced blood pressure by 30 – 40 mm Hg for human patients with hypertension.

Acupuncture regulated blood pressure according to the patients' needs. For extremely high blood pressure, acupuncture significantly reduced systolic and diastolic pressures. For moderate levels of high blood pressure, acupuncture moderately reduced systolic and diastolic pressures. Three

acupoints were used for all patients:

- **LV3 (Taichong)**
- **LI4 (Hegu)**
- **SP10 (Xuehai)**

A reducing manual acupuncture technique was applied to the acupuncture points after elicitation of a deqi response. Needle retention time was 20 minutes per acupuncture session. Needles were rotated, lifted, and thrust at 5 – 10 minute intervals.

Results

The results of the aforementioned research indicates that acupuncture is a safe and effective treatment modality for the alleviation of hypertension, a disorder affecting approximately 25% of the worldwide adult population. Long-term damage caused by hypertension includes morphological destruction of the hippocampus. Researchers demonstrate that acupuncture alleviates hypertension while simultaneously regulating pathways responsible for providing neuroprotective effects to the hippocampus.

References

Lu, Juan, Yan Guo, Chang-qing Guo, Xue-min Shi, Ning-yu Du, Rui-li Zhao, Wen-ping Du, Jing-rong Liang, Shi-peng Zhu, and Huan Chen. "Acupuncture with reinforcing and reducing twirling manipulation inhibits hippocampal neuronal apoptosis in spontaneously hypertensive rats." Neural Regeneration Research 12, no. 5 (2017): 770.

Zhang Y, Lan R, Wang J, Li XY, Zhu DN, Ma YZ, Wu JT, Liu ZH (2015). Acupuncture reduced apoptosis and up-regulated BDNF and GDNF expression in hippocampus following hypoxia-ischemia in neonatal rats. J Ethnopharmacol 172:124-132.

He, Tian, Wen Zhu, Si-Qi Du, Jing-Wen Yang, Fang Li, Bo-Feng Yang, Guang-Xia Shi, and Cun-Zhi Liu. "Neural mechanisms of acupuncture as revealed by fMRI studies." Autonomic Neuroscience (2015).

Claunch JD, Chan ST, Nixon EE, Qiu WQ, Sporko T, Dunn JP, Kwong KK, Hui KK. (2012). Commonality and specificity of acupuncture action at three acupoints as evidenced by FMRI. Am J Chin Med. 40(4):695-712.

Liu XS. Observation on the Immediate Buck Effect of the Siguan and Xuehai Points Needling [J]. Clinical Journal of Chinese Medicine, 2014(4):61—63.

2. Cardiac Arrhythmias

Acupuncture Prescription

HT7 (Shenmen), HT5 (Tongli)
PC6 (Neiguan), PC7 (Daling)
GV20 (Baihui)

This acupoint combination nourishes the heart and shen (spirit). This is a great treatment for insomnia, palpitations, or heart arrhythmias (including atrial fibrillation). This acupoint prescription is beneficial to patients wherein qi and blood deficiency creates insufficient nourishment to the heart. It is also beneficial to patients wherein sudden fright causes these indications.

Indications

- palpitations
- insomnia
- arrhythmias
- dizziness
- diminished vision
- dyspnea
- poor memory
- pale complexion
- excess worrying or anxiety
- fatigue
- weak pulse

The following research confirms the efficacy of employing HT7 (Shenmen) and PC6 (Neiguan) for the treatment of cardiac arrhythmias, as mentioned above. Note the addition of either CV17 (Danzhong) or BL15 (Xinshu) in the following research.

Research #1

University of Minnesota (Minneapolis) researchers find acupuncture effective for the treatment of cardiac arrhythmias. In a meta-analysis of eight independent investigations, acupuncture had an 87% – 100% success rate for converting patients to a "normal sinus rhythm after acupuncture." Based on the findings, the University of Minnesota researchers recommend additional studies, including those with long-term follow-up examinations, to confirm the results. [1]

Beijing University researchers produced similar findings. They concluded that "CA [conventional acupuncture] may be a useful and safe alternative or additive approach to AADs [anti-arrhythmia drugs] for cardiac arrhythmia, especially in VPB [ventricular premature beat] and Af [atrial fibrillation] patients, which mainly based on a pooled estimate and result from 1 study with higher methodological quality." [2] The Beijing University researchers note that additional studies are required to confirm the results in order to produce a more "robust conclusion."

Additional research supports the aforementioned evidence. In an independent investigation, researchers conclude, "Acupuncture is a safe and effective therapy for conversion of paroxysmal atrial fibrillation and atrial flutter." [3] In the study, a comparison between acupuncture and amiodarone (an antiarrhythmic medication) was made. One group received acupuncture at the following acupoints:

- **Neiguan (PC6)**
- **Shenmen (HT7)**
- **Danzhong (CV17)**

Another group received intravenous injections of amiodarone. The group receiving acupuncture had an 85% total effective rate. The drug group had a 67.5% total effective rate. Conversion times were significantly faster in the acupuncture group than the drug group. Acupuncture produced a 39.6 (±13.7) minute average conversion time and amiodarone produced a 50.1 (±14.8) minute conversion time. [4]

There are several tools available to physicians for the purposes of restoring a normal rhythm to the heart. Synchronized electrical cardioversion,

defibrillation, and chemical cardioversion are standard therapeutic measures for the treatment of cardiac arrhythmias including atrial fibrillation, atrial flutter, and ventricular tachycardia. The aforementioned research indicates that acupuncture is another useful tool for restoring a healthy heart rhythm.

Acupuncture has also been found effective for the prevention of abnormal heart rhythms. Zhu et al. determined that acupuncture applied to acupoint Neiguan (PC6) prevents atrial fibrillation and exerts an anti-arrhythmia effect. In a groundbreaking laboratory experiment, the researchers proved that acupuncture prevents atrial fibrillation through restoration and remodeling of the right atrial appendage. [5] Zhu et al. add that acupuncture at PC6 "could effectively prevent the onset of arrhythmia and restore the sinus rhythm in AF [atrial fibrillation] rats."

Zhu et al. conclude that acupuncture reduces the severity of "focal interrupted cardiomyocytes, myolysis, interstitial edema and increased extracellular space." Results were confirmed with electrocardiograms, histological examinations, and ultrastructure analyses. Zhu et al. concluded, "Considering that acupuncture was safe, effective, without any pro-arrhythmic effect compared with the classical pharmacological therapy, this traditional Chinese medicine had a potential to become a more mainstream complementary intervention in the treatment of atrial fibrillation." [6]

The importance of the findings cannot be underestimated. In a report produced by the Heart Rhythm Society, researchers note that over 33 million people have atrial fibrillation worldwide and there are approximately 5 million new cases every year. [7] In another report by the Heart Rhythm Society, the authors note, "Recent small studies suggest that neuromodulation through skin or subcutaneous tissues may also help to control AF using either a transcutaneous approach or acupuncture." [8] The Heart Rhythm Society authors include Dr. Robert M. Califf (former US FDA Commissioner) and doctors from Harvard Medical School, Johns Hopkins University School of Medicine, Duke University, and University of California.

The Heart Rhythm Journal publication cites the work of Lomuscio et al. that was published in the *Journal of Cardiovascular Electrophysiology*. The study concludes, "Our data indicate that acupuncture treatment prevents arrhythmic recurrences after cardioversion in patients with persistent AF. This minimally invasive procedure was safe and well tolerated." [9] The results were baed on a highly controlled clinical investigation. Lomuscio et al.

applied identical acupuncture points to all patients in the acupuncture treatment group:

- **Neiguan (PC6)**
- **Shenmen (HT7)**
- **Xinshu (BL15)**

Acupuncture was applied once per week for a total of 10 acupuncture sessions per patient. Results were compared with patients in a sham acupuncture group, a control group (neither acupuncture nor antiarrhythmic therapy), and a group receiving amiodarone treatment. In a 12 month follow-up examination, amiodarone patients had a 27% recurrence rate of atrial fibrillation. Patients receiving true acupuncture had a 35% recurrence rate, sham acupuncture patients had a 69% recurrence rate, and the control group had a 54% recurrence rate.

A dosage dependent investigation may highlight superior clinical protocols for the application of acupuncture. For example, instead of limiting patients to weekly acupuncture visits capped at 10 total visits, a more realistic dosage of 15 – 30 acupuncture visits over a shorter period of time may produce superior patient outcomes. Additional investigations including large sample sizes across diverse populations is warranted given the existing evidence and medical necessity for finding a solution to cardiac arrhythmias.

References

1. VanWormer, Arin M., Ruth Lindquist, and Susan E. Sendelbach. "The effects of acupuncture on cardiac arrhythmias: a literature review." Heart & Lung: The Journal of Acute and Critical Care 37, no. 6 (2008): 425-431.

2. Liu, Jing, Si-nai Li, Lu Liu, Kun Zhou, Yan Li, Xiao-yun Cui, Jie Wan et al. "Conventional acupuncture for cardiac arrhythmia: A systematic review of randomized controlled trials." Chinese Journal of Integrative Medicine (2017): 1-9.

3. Xu, Hong-Ke, and Yue-Feng Zhang. "Comparison between therapeutic effects of acupuncture and intravenous injection of amiodarone in the treatment of paroxymal atrial fibrillation and atrial flutter." Zhongguo zhen

jiu= Chinese acupuncture & moxibustion 27, no. 2 (2007): 96-98.

4. Ibid. Xu, Hong-Ke, and Yue-Feng Zhang.

5. Zhu P, Zhang M, Yang M, Puji D, Guo Y. Acupuncture Prevents the Atrial Fibrillation through Improving Remodeling of Atrial Appendage in Rats. J Tradi Med Clin Natur. 2016;5(186):2.

6. Ibid. Zhu et al.

7. Van Wagoner, David R., Jonathan P. Piccini, Christine M. Albert, Mark E. Anderson, Emelia J. Benjamin, Bianca Brundel, Robert M. Califf et al. "Progress toward the prevention and treatment of atrial fibrillation: a summary of the Heart Rhythm Society Research Forum on the Treatment and Prevention of Atrial Fibrillation, Washington, DC, December 9–10, 2013." Heart rhythm: the official journal of the Heart Rhythm Society 12, no. 1 (2015): e5.

8. Van Wagoner DR, Piccini JP, Albert CM, Anderson ME, Benjamin EJ, Brundel B, Califf RM, Calkins H, Chen PS, Chiamvimonvat N, Darbar D. Progress toward the prevention and treatment of atrial fibrillation: A summary of the Heart Rhythm Society Research Forum on the Treatment and Prevention of Atrial Fibrillation, Washington, DC, December 9–10, 2013. Heart rhythm: the official journal of the Heart Rhythm Society. 2015 Jan; 12(1):e5.

9. Lomuscio, Alberto, Sebastiano Belletti, PIER BATTEZZATI, and Federico Lombardi. "Efficacy of acupuncture in preventing atrial fibrillation recurrences after electrical cardioversion." Journal of cardiovascular electrophysiology 22, no. 3 (2011): 241-247.

Research #2

Acupuncture plus herbal medicine regulates heart beats and improves patient outcomes for patients taking drugs. Researchers from the Tianjing University of Chinese Medicine tested the efficacy of combining acupuncture and herbs with drug therapy. The addition of the Traditional Chinese Medicine (TCM) therapies increased positive patient outcomes by 28% for patients with tachycardia, arrhythmias, and palpitations.

The researchers tested the drug metoprolol tartrate (brand name Lopressor) in combination with acupuncture and herbs. Drug therapy, as a standalone treatment, produced a 64% total effective rate. Adding acupuncture and herbs to the treatment regimen increased the total effective rate to 92%.

Metoprolol tartrate is a beta-adrenergic blocking agent used for the treatment of high blood pressure, chest pain, and heart attack prevention. Statistically, this medication reduces the risk of death due to heart disorders for patients that have already suffered a heart attack. Metoprolol tartrate is

also used to treat tachycardia (abnormally rapid heart beats) and arrhythmias (irregular heart beats). Acupuncture plus herbs with metoprolol tartrate produced a 92.0% total treatment effective rate. Metoprolol tartrate, as a standalone therapy, produced a 64.0% total effective rate.

Patients with arrhythmias and tachycardia tend to present with rapid and irregular pulses. Symptoms and signs often include palpitations, chest oppression, angina, irritability, insomnia or poor quality sleep, fatigue, or dizziness. Notably, emotional factors exacerbate arrhythmias and tachycardia, including both panic attacks and generalized anxiety.

The scientists in the study tested the efficacy of combining an acupuncture point prescription and a classic Chinese medicine herbal formula with drug therapy. We'll take a close look at how the researchers achieved improvements in patient outcomes. Next, we'll present the acupuncture points used, a modified version of a classic TCM herbal formula, and the results.

The study design was as follows. A total of 50 patients were randomly divided into a treatment group and a control group, each consisting of 25 patients. The treatment group consisted of 16 males and 9 females. The age range was between 18 and 65, with an average age of 42.20 years. The course of disease was between 5 months and 4 years. The control group consisted of 14 males and 11 females. The age range was between 19 and 64, with an average age of 41.08 years. The course of disease was between 6 months and 5 years. There were no significant statistical differences in terms of gender, age, and disease duration between the two groups.

The treatment group received acupuncture, herbs, and drug therapy. The control group received only drug therapy. Both groups received identical drug therapies. Metoprolol tartrate was orally administered once per day. Acupuncture points were identical for all patients in the treatment group. No variation for differential diagnostics were allowed. The acupoints for acupuncture therapy were as follows:

- **PC6 (Neiguan)**
- **HT7 (Shenmen)**
- **PC4 (Ximen)**
- **BL14 (Jueyinshu)**
- **CV14 (Juque)**

The acupoints were needled with manual stimulation techniques to achieve a deqi sensation. Next, PC6 and HT7 were rotated, lifted, and thrust rapidly for one minute. Needle retention time was 30 minutes per session. Acupuncture was administered once per day.

The following herbal medicine is presented for your personal clinical information but is not included in the quiz and is not required for CEUs.

A modified version of the herbal formula Zhi Gan Cao Tang was administered for 30 days. It was prepared once daily and served in two portions, once in the morning and the other portion at night. The ingredients of the modified herbal formula were as follows:

- **Tai Zi Shen 30g**
- **Gui Zhi 12g**
- **Sheng Jiang 15g**
- **Zhi Gan Cao 15g**
- **Ma Zi Ren (Huo Ma Ren) 10g**
- **Da Zao 10 pieces**
- **Suan Zao Ren 30g**
- **He Huan Pi 30g**
- **Wu Wei Zi 14g**
- **Mo Han Lian 20g**
- **Mai Dong 10g**
- **Gan Song 6g**

Before and after treatments, the electrocardiogram (ECG) changes of the patients were observed and compared. The treatment efficacy for each patient was evaluated and categorized into one of three tiers:

- *Recovery: Complete elimination of accompanied symptoms. Normal ECG results.*
- *Effective: Improvement in accompanied symptoms and ECG results.*
- *Not effective: No improvement in symptoms and ECG results.*

For the treatment group, the total effective rate was 92.0% with the following

breakdown of improvement tiers: 17 recovered, 6 effective, 2 no effect. The control group had a 64.0% total effective rate with the following breakdown of improvement tiers: 11 recovered, 5 effective, 9 no effect. The researchers conclude that the results show that acupuncture combined with herbs is effective and increases the efficacy of metoprolol tartrate by a significant margin. Here, the integrative model of TCM with drug therapy significantly outperforms using only medications as an isolated therapeutic approach to patient care.

Combining acupuncture with herbal medicine into a treatment protocol has deep historical roots. Sun Si-miao, a famous traditional Chinese medicine doctor of the Sui and Tang dynasty, once noted that acupuncture, moxibustion, and herbs may all be combined in a therapeutic treatment regimen. Sun Si-miao clearly indicated that an integrative model of patient care is an appropriate treatment protocol. The herbal formula Zhi Gan Cao Tang has historically been used for heart beat disorders. Modern science also confirms the ancient applications. Zhen et al. find Zhi Gan Cao Tang effective for the treatment of arrhythmias. Yuan el al. find Zhi Gan Cao Tang effective for repairing some forms of myocardial damage. The herbs in Zhi Gan Cao are the following:

- Zhi Gan Cao 12 grams
- Ren Shen 6g
- Sheng Di Huang 24 g
- E Jiao 6 g
- Mai Men Dong 9 g
- Huo Ma Ren 9 g
- Da Zao 5–10 pieces
- Gui Zhi 9 g
- Sheng Jiang 9 g

Variations on other formulas are often used to calm the shen (spirit) and stabilize the heart beat. For example, the following variation on Chai Hu Jia Long Gu Mu Li Tang sedates shen and helps to restore or maintain a normal sinus rhythm for many patients:

- Suan Zao Ren 9 grams
- Long Chi (use Long Gu if unavailable) 12 g

- Mu Li 9 g
- Zhi Mu 9
- Zhi Gan Cao 2
- Fu Shen 12
- Gui Zhi 9
- Dan Shen 9
- Mai Men Dong 6
- Sheng Di Huang 9
- Ren Shen 9
- Chen pi 6

Acupuncture

The acupuncture points chosen for the study are classically indicated for heart disorders. Acupoint PC6 (Neiguan) has been traditionally indicated for heart rhythm disorders, angina, chest oppression, palpitations, and heart rate disorders. This acupoint is also indicated for the treatment of insomnia, nausea, vomiting, and fever with the absence of sweating.

Acupoint HT7 (Shenmen) is another classic acupuncture point chosen for the study. It is classically indicated for the treatment of angina and palpitations. Like PC6, it is also indicated for the treatment of insomnia. The other acupoints used in the heart study are also traditionally indicated for the treatment of heart disorders. PC4 (Ximen) is indicated for the treatment of angina, chest pain, and insomnia. BL14 (Jueyinshu) is indicated for the treatment of angina, chest pain, mental restlessness, and chest oppression. CV14 (Juque) is indicated for angina, chest pain radiating to the back, shortness of breath, and mental restlessness.

Research confirms that the traditional indications are correct for the acupuncture points and the herbal formula. Heart arrhythmias, palpitations, and tachycardia can be life threatening and alarming. Drug therapy is an effective approach to patient care; however, research demonstrates that a combination of TCM therapy plus drug therapy is a superior treatment protocol to using only drug therapy.

References:

1. Fu WX. Acupuncture combined with Zhi Gan Cao Decoction on the Treatment of Palpitations: An Observation Based on 25 Cases. Henan Traditional Chinese Medicine, 2014, 34(3):392—393.

2. En.m.wikipedia.org/wiki/Palpitations

3. State Administration of Traditional Chinese Medicine. Standards for diagnosis and curative effect of Chinese medical symptom. Nanjing: Nanjing University Publishing House, 1994:19.

4. Zhen YH, Deng QH. Experimental Research on Antagonism of Honey-Fried Licorice Decoction on Ventricular Premature Beat of Rats [J]. Journal of Practical Traditional Chinese Medicine, 2009, 25(5): 280—281.

5. Yuan J. The Effects of Zhi Gan Cao Decoction on the Left Cardiac Function and Antioxidative Enzymes in Ischemia-Reperfusion Injured Rats [J]. Lishizhen Medicine and Materia Medica Reseach. 2008, 19(2) :411—412.

6. Li XG, Chen Q. Effect of Active Components of Zhi Gancao Decoction and Their Combination on Triggered Activity and Myocardial Damage in Isolated Ischemia- reperfusion Rat Heart [J]. Traditional Chinese Drug Research & Clinical Pharmacology, 2003, 14(1):6—9.

Coronary Heart Disease Risk

Researchers conclude that acupuncture reduces the risk of coronary heart disease in patients diagnosed with fibromyalgia. A massive sample size of over 158,420 patients with fibromyalgia were included in the study. A total of 81,843 patients received acupuncture treatments and 76,582 patients never received acupuncture. A total of 12,522 patients developed coronary heart disease during the follow-up period. Only 4,389 patients receiving acupuncture developed coronary heart disease but 8,133 patients that did not receive acupuncture developed coronary heart disease. The researchers conclude that acupuncture "significantly decreased the risk of CHD [coronary heart disease] in patients with fibromyalgia with or without comorbidities."

The researchers note that acupuncture decreased the risk of coronary heart disease equally for both men and women. The risk of coronary heart disease increased with the age of patients; however, acupuncture decreased risks across all age groups. In addition, acupuncture decreased the risk of coronary heart disease regardless of whether or not patients took steroid medications, NSAIDs (nonsteroidal anti-inflammatory drugs), or statins.

Patients receiving acupuncture averaged a total of 7.45 acupuncture sessions. A total of 85% of patients received manual acupuncture, 3.6% received electroacupuncture, and 10.7% received both manual acupuncture and electroacupuncture treatments. The duration of needle retention time averaged between 20 – 30 minutes per acupuncture session. The elicitation of deqi was a basic requirement by the TCM (Traditional Chinese Medicine) doctors.

Most TCM doctors applying acupuncture in the study had a baccalaureate degree from a 7 – 8 year medical doctor program of study. A smaller number of TCM doctors had a post-baccalaureate TCM degree from a 5 year medical doctor program. Acupuncture point selection was individualized based upon differential diagnostics. The researchers note that this differs from the majority of research wherein there is a protocolized, fixed set of acupuncture points assigned to all patients.

The researchers note that prior independent investigations demonstrate that acupuncture is effective for the treatment of fibromyalgia. This study did not

investigate clinical efficacy towards alleviation of fibromyalgia itself, but rather investigated whether or not acupuncture prevents coronary heart disease in patients diagnosed with fibromyalgia. The researchers conclude that "the incidence of CHD was significantly lower in the acupuncture cohort than in the no-acupuncture cohort."

The researchers provided several prior investigative findings concerning the effects of acupuncture to provide insight into its possible mechanisms of therapeutic action for the prevention of coronary heart disease in fibromyalgia patients. Prior research demonstrates that acupuncture prevents cardiac injury for patients with acute myocardial infarction. They add, "Acupuncture also decreased myocardial infarct areas and preserved cardiac function through heat shock protein 20 (HSP20) and HSP27 in an animal study." Both studies indicate that acupuncture is effective in protecting the heart from ischemia.

The researchers cite this interest in acupuncture's ability to protect the heart from damage because pregabalin was the first FDA approved medication for the treatment of fibromyalgia. Pregabalin has been proven to reduce pain, improve sleep, and reduce fatigue in patients with fibromyalgia. The researchers note that "pregabalin has cardiac adverse effects because it may induce heart failure" and acupuncture attenuates "both ischemic injury of the heart and heart failure." Based on these findings, the researchers recommend a study to determine if acupuncture ameliorates the adverse effects of pregabalin in an effort to reduce risks associated with drug therapy.

The researchers note that the prevention of coronary heart disease may be due to acupuncture's ability to improve sleep quality. The research team cited prior research demonstrating acupuncture's ability to alleviate insomnia. They add that insomnia is "highly associated with fibromyalgia and CHD."

Common fibromyalgia comorbidities (e.g., hypertension, diabetes, heart disease) are associated with elevated levels of systemic inflammation. The researchers note that the prevention of coronary heart disease may be due to acupuncture's ability to reduce inflammation. The researchers note, "Many previous studies of acupuncture were focused on the analgesic effect of acupuncture, but additional studies in recent years demonstrated that acupuncture attenuated inflammation. Acupuncture attenuated inflammation

through the vagus nerve mediated by dopamine."

At the Healthcare Medicine Institute, we have reported the results of many prior studies demonstrating the effectiveness of acupuncture and herbal medicine for benefitting cardiac health. University of Minnesota researchers demonstrate that acupuncture is effective for the treatment of cardiac arrhythmias. The researchers note that acupuncture has an 87% – 100% success rate for converting patients to a "normal sinus rhythm after acupuncture."

Beijing University researchers produced similar findings. They concluded that "CA [conventional acupuncture] may be a useful and safe alternative or additive approach to AADs [anti-arrhythmia drugs] for cardiac arrhythmia, especially in VPB [ventricular premature beat] and Af [atrial fibrillation] patients, which mainly based on a pooled estimate and result from 1 study with higher methodological quality." Zhu et al. demonstrated that acupuncture prevents damage to the heart in laboratory studies. They conclude that acupuncture reduces the severity of "focal interrupted cardiomyocytes, myolysis, interstitial edema and increased extracellular space."

UCLA (University of California, Los Angeles) researchers conclude that acupuncture protects the heart. Electroacupuncture applied to acupuncture points PC6 and PC5 in anesthetized rabbits with coronary artery occlusion resulted in less ventricular arrhythmias. Electroacupuncture also decreased heart infarct size. Additionally, the UCLA researchers demonstrated that electroacupuncture stimulation causes a decrease in left ventricle dysfunction. Furthermore, a decrease in harmful ST segment elevation was demonstrated.

According to the US Centers for Disease Control and Prevention, approximately 610,000 people die from heart disease in the USA annually. This accounts for 25% of all deaths. It is the leading cause of death for both men and women. Coronary heart disease is the most common form of heart disease and is responsible for 370,000 deaths annually in the USA. Given the results of research demonstrating that acupuncture exerts cardioprotective effects, further research is warranted based on the needs of the population and the existing clinical and laboratory evidence.

References

Wu, Mei-Yao, Ming-Cheng Huang, Jen-Huai Chiang, Mao-Feng Sun, Yu-Chen Lee, and Hung-Rong Yen. "Acupuncture decreased the risk of coronary heart disease in patients with fibromyalgia in Taiwan: a nationwide matched cohort study." Arthritis research & therapy 19, no. 1 (2017): 37.

Shergis JL, Ni X, Jackson ML, Zhang AL, Guo X, Li Y, et al. A systematic review of acupuncture for sleep quality in people with insomnia. Complement Ther Med. 2016;26:11–20.

Tobaldini E, Costantino G, Solbiati M, Cogliati C, Kara T, Nobili L, et al. Sleep, sleep deprivation, autonomic nervous system and cardiovascular diseases. Neurosci Biobehav Rev. doi:10.1016/j.neubiorev.2016.07.004.

Markkula RA, Kalso EA, Kaprio JA. Predictors of fibromyalgia: a population-based twin cohort study. BMC Musculoskelet Disord. 2016;17:29.

VanWormer, Arin M., Ruth Lindquist, and Susan E. Sendelbach. "The effects of acupuncture on cardiac arrhythmias: a literature review." Heart & Lung: The Journal of Acute and Critical Care 37, no. 6 (2008): 425-431.

Liu, Jing, Si-nai Li, Lu Liu, Kun Zhou, Yan Li, Xiao-yun Cui, Jie Wan et al. "Conventional acupuncture for cardiac arrhythmia: A systematic review of randomized controlled trials." Chinese Journal of Integrative Medicine (2017): 1-9.

Zhu P, Zhang M, Yang M, Puji D, Guo Y. Acupuncture Prevents the Atrial Fibrillation through Improving Remodeling of Atrial Appendage in Rats. J Tradi Med Clin Natur. 2016;5(186):2.

Am J Physiol Heart Circ Physiol. 2012 May;302(9):H1818-25. Epub 2012 Feb 24. Cardioprotection of electroacupuncture against myocardial ischemia-reperfusion injury by modulation of cardiac norepinephrine release. Zhou W, Ko Y, Benharash P, Yamakawa K, Patel S, Ajijola OA, Mahajan A. Department of Anesthesiology, UCLA - University of California, Los Angeles.

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