MRI Shows That Acupuncture Treatments Reduce Pain

Dec. 1, 1999 (Chicago) -- Sticking an acupuncture needle into a point in the hand greatly diminishes the amount of brain activity associated with pain impulses, doctors report at the 85th Annual Meeting of the Radiological Society of North America.

In a series of experiments, researchers tell WebMD, the proper placement of the fine acupuncture needle in the area between the thumb and forefinger, called the Hegu point, allowed subjects to tolerate greater amounts of pain. And pictures of the brain before and after acupuncture treatment show dramatic decreases in brain activity -- up to 70%.

"It is important for Western medicine to recognize that these acupoints really mean something in regard to pain relief," says Huey-Jen Lee, MD, associate professor of clinical radiology and director of neuroradiology at the University of Medicine and Dentistry of New Jersey in Newark. Acupoints are certain points on the body that, when pressed or punctured, have beneficial effects for certain ailments.

Lee reported on studies in which healthy subjects, men and women between the ages of 25 and 54, received pain stimuli while they were undergoing magnetic resonance imaging (MRI). The simultaneous procedures allowed doctors to view how and where brain activity occurred without acupuncture and during acupuncture treatments.

When the experiments were repeated after insertion of the acupuncture needle at the commonly used Hegu point, pain levels as seen with the MRI were decreased. Of 12 subjects who underwent the procedure, nine experienced pain relief.

The data is pretty impressive," Elvira Lang, MD, associate professor of radiology and medicine at Harvard Medical School, Boston, tells WebMD. She says the MRI pictures clearly show a reduction in pain activation. "This shows there really is something going on here." Lee says that because the MRI definitively shows brain activity, it was likely the increased tolerance to pain was real and not just an artifact of treatment, known as a placebo effect.

"The brain actually shows differences," Lee says, "and that is convincing."

Wen-Ching Liu, PhD, a co-author of the study, says, "We found activity subsided in 60-70% of the entire brain."

The use of acupuncture for pain relief is gaining acceptance in the U.S., Lee says. "So many people with pain, whether from cancer, headache, or a chronic, unexplained condition, rely on medications, such as morphine, which can become addicting. Acupuncture has no side effects, and other studies have shown the pain relief it provides can last for months." Liu said there are more than 400 commonly used acupuncture points, or acupoints, on the body, although other practitioners of acupuncture will sometime cite more than 1,000 points.

Lee noted that the FDA has removed the acupuncture needle from its list of experimental devices and now considers it as an accepted medical device.

The study, Lee says, shows that "using a new technology can help us understand how this 2,500-year-old technique works. We still need more tests to understand this. Right now, we still really don't know how this works."
The World Health Organization report

According to the World Health Organization report on the efficacy of acupuncture, scientific research studies and clinical experience have shown the mechanisms involved and how acupuncture works. The World Health Organization of the United Nations from these worldwide studies have identified over 40 medical conditions effectively treated with acupuncture:

**Musculoskeletal:** Arthritis, Tendonitis, Bursitis, Back/Neck Pain, Frozen Shoulder, Carpal Tunnel

**Neurology:** Headaches, Sciatica, Numbness, Muscle Spasms, Tremors, Bell’s Palsy, Paralysis, Post-Stroke, Parkinson, MS, Alzheimer’s, Adult ADHD, OCD

**Gynecology:** PMS, Menopause, Morning Sickness, Endometriosis, Painful or Irregular Periods, Infertility, Fibrocystic Breast

**Emotional:** Stress, Depression, Anxiety, Insomnia, Irritability, Mood Disorders, Stress

**Ear, Nose, Throat/Respiratory:** Allergies, Sinusitis, Vision Problems, Asthma, Cough, Colds/Flu, Emphysema, Meniere’s Disease, Sore Throats, Ear Infections, Ringing in the Ears

**Digestive Disorders:** Constipation, Diarrhea, Crohns, Colitis, Hemorrhoids, Food Poisoning, Abdominal Pain, IBS, Acid Reflux

**Dermatology:** Acne, Eczema, Psoriasis, Painful Scars, Facial Rejuvenation, Acupuncture Face Lift, Acne

**Urology:** Bladder Infections, Urinary Incontinence, Prostatitis, Sexual Dysfunction Bladder Infections

**Pediatrics:** Ear Infections, Colds, Flu, Sore throat, Cough, ADHD, Autistic Syndrome

**Miscellaneous:** Smoking Cessation, Addiction Control, Chronic Fatigue Syndrome, Fibromyalgia, Lupus
Neural Acupuncture Unit: A New Concept for Interpreting Effects and Mechanisms of Acupuncture

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Abstract

When an acupuncture needle is inserted into a designated point on the body and mechanical or electrical stimulation is delivered, various neural and neuroactive components are activated. The collection of the activated neural and neuroactive components distributed in the skin, muscle, and connective tissues surrounding the inserted needle is defined as a neural acupuncture unit (NAU). The traditionally defined acupoints represent an anatomical landmark system that indicates local sites where NAUs may contain relatively dense and concentrated neural and neuroactive components, upon which acupuncture stimulation would elicit a more efficient therapeutic response. The NAU-based local mechanisms of biochemical and biophysical reactions play an important role in acupuncture-induced analgesia. Different properties of NAUs are associated with different components of needling sensation. There exist several central pathways to convey NAU-induced acupuncture signals, Electroacupuncture (EA) frequency-specific neurochemical effects are related to different peripheral and central pathways transmitting afferent signals from different frequency of NAU stimulation. More widespread and intense neuroimaging responses of brain regions to acupuncture may be a consequence of more efficient NAU stimulation modes. The introduction of the conception of NAU provides a new theoretical approach to interpreting effects and mechanisms of acupuncture in modern biomedical knowledge framework.

http://www.hindawi.com/journals/ecam/2012/429412/
THE NEUROBIOLOGICAL SCIENCE OF ACUPUNCTURE

Neurobiological Mechanisms of Acupuncture

The Neurobiological Mechanisms of Acupuncture was published in the November 2013 issue of “Evidence-Based Complementary and Alternative Medicine”. It compiles 32 exciting papers into 21 studies totaling 200 pages.

Please note that three of the six authors of the Editorial are from the USA; Harvard Medical School’s Dept of Psychiatry, Harvard Medical School Martinos Center of Biomedical Imaging, and University of Michigan’s Dept of Anesthesiology. There are 276 participants on the editorial board.

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