

Acupuncture Lowers Stress Response in Heart Patients

Researcher Says Trial "Represents A Promising First Step"

By Michael Devitt

The sympathetic nervous system (SNS) is a large group of nerves responsible for the maintenance and regulation a number of involuntary yet vital muscle and organ functions in the body.

Among its primary functions, the SNS regulates a person's heartbeat. It is also responsible for the "fight-or-flight" response. In an emergency or otherwise stressful situation, the SNS is usually called into action, transmitting messages that get the heart to pump faster, increasing blood pressure and delivering oxygenated blood to the parts of the body needed to fight or escape a threat.

Although the fight-or-flight response is an invaluable survival tool, repeated stress can undermine the sympathetic nervous system and cause it to malfunction. In patients with advanced heart failure, SNS activity is two to three times greater than normal; the greater the activity, the worse the prognosis is for the patient. This disorder can put an even greater strain on an already-weakened heart, leading to a host of ailments such as chest pain, breathing problems, fatigue and, eventually, death.

Traditionally, a class of drugs known as beta blockers has been used to regulate heart rate and blood pressure. However, some heart patients do not respond well to beta blockers; other people cannot take them at all because of the side-effects they can produce.

While animal studies indicate that acupuncture works quite well in extreme cases of elevated SNS activity, human trials in this area - especially trials conducted in the United States - are virtually nonexistent. Dr. Holly Middlekauff, an associate professor of medicine at UCLA, and a team of investigators decided to expand on the amount of research on this subject by examining the use of acupuncture in blocking sympathetic nerve activity in a group of people with advanced heart failure. Their research, presented at the American Heart Association's 2001 Scientific Sessions conference in Anaheim, California, found that

acupuncture can effectively inhibit SNS activity, and that with further study, it could be used as a complement to (or replacement for) traditional drug therapy.

"There is an ever-increasing interest in alternative medicine," exclaimed Middlekauff. "But until now, no one had looked at acupuncture's effect on the very sickest heart failure patients."

Twenty-two advanced heart failure patients (both men and women, average age 43) were used in the study. Before receiving treatment, all of the patients were tested to determine how their heart would respond to stress. They were subjected to four minutes of anxiety-producing situations, which included solving mathematical problems that had to be answered verbally, and a color/word conflict test in which they had to correctly identify a color while ignoring an incorrect written cue.

"We chastised them when they were wrong," Middlekauff said.

Blood pressure, heart rate and sympathetic nerve activity were measured in each patient immediately after taking the test. Results showed that SNS activity increased approximately 25% as a result of the mental stress.

After the test, the researchers divided the patients into three groups. The patients received either authentic acupuncture delivered for 20 minutes at established acupuncture points; sham acupuncture delivered at non-acupuncture points; or no-needle acupuncture, in which the patients were told they'd receive acupuncture, but were in fact only tapped by a needle holder on the back of the neck.

The mental stress test was repeated after the acupuncture treatments, with the same measurements taken at the conclusion of the second test. While patients in the sham and no-needle group experienced the same increases in heart rate, blood pressure and SNS activity after taking the second test as they had after taking the test the first time, patients in the authentic acupuncture group showed no increase in SNS activity.

"Blood pressure and heart rate were unaffected by the acupuncture, and both increased after mental stress testing in all groups, but sympathetic nerve activation was significantly reduced in the (authentic) acupuncture group," stated Middlekauff.

This result, the researchers believe, showed that there was no placebo effect in occurrence. Thus, they concluded that acupuncture "is sympatho-inhibitory in patients with advanced heart failure."

The researchers admitted that it is far too early to determine whether acupuncture treatments could alter the course of heart failure, or to recommend it as a routine treatment for patients with the condition. Still, Middlekauff hailed the research as "a promising first step" and called for larger, longer trials to determine acupuncture's effectiveness.

"We need to do more studies in large patient populations and repeat the acupuncture procedures over a period of weeks, rather than just once, as we did in our study," she said. "But in clinical experience, acupuncture has been used successfully and with long-range results in improving hypertension, and it may also be beneficial in lowering sympathetic nerve activity."

"Real acupuncture essentially eliminated the sympathetic response in heart failure patients after only one session. Now I would like to see what a full course would do."

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