

Acupuncture Shows Promise in Treating Osteoarthritis of the Knee

Editorial Staff

In one of the largest trials of its kind published to date, researchers in Maryland have found that acupuncture applied to specific points on the leg can provide significant pain relief and improve function in patients who have osteoarthritis of the knee. The results of the trial, published in the Dec. 21, 2004 issue of the *Annals of Internal Medicine*, suggest that acupuncture may be a safe, effective therapy that can be used in conjunction with other forms of care in the treatment of osteoarthritis, and that it has the potential to improve the quality of life for millions of people who suffer from the condition.

Osteoarthritis is the most common form of arthritis in the United States. It is associated with a breakdown of cartilage in the joints and can occur in almost any joint in the body. According to the American College of Rheumatology, approximately 21 million Americans are afflicted with some form of osteoarthritis. In addition to the knees, osteoarthritis commonly occurs in the fingers, hips and spine. To treat the condition, health care providers may recommend analgesics, nonsteroidal anti-inflammatory drugs, topical creams, or a combination of agents. However, these therapies are often ineffective, and may cause unwanted or potentially dangerous side-effects.

In the trial, investigators from the University of Maryland School of Medicine recruited 570 people, all at least age 50, who had already been diagnosed with knee osteoarthritis. None of the study participants had ever experienced acupuncture, had not had knee surgery in the previous six months, and had not used steroids or similar injections.

The patients were randomized into three groups. One group received 23 "true acupuncture" sessions over a 26-week period, using a tapered treatment schedule. Points were selected using traditional Chinese medicine meridian theory, and consisted of nine points - five local (GB 34, Sp 9, St 36, St 35, and extra point *xiyan*) and four distal (UB 60, GB 39, Sp 6, K 3). The same points were treated for each affected leg. If both knees were affected, needles were inserted in each leg. All of the patients in the true acupuncture group achieved *de qi*, and electrical stimulation was applied to the *xiyan* point for 20 minutes.

The remaining groups received one of two control treatments. The first control group received sham acupuncture, using a combination of needles inserted into sham points on the abdomen, along with needle tubes tapped on the surface of the nine true acupuncture points. Patients in the second control group participated in six group education sessions on the self-management of arthritis and received printed materials on arthritis in the mail. Subjects in all three groups continued to receive medical care from their primary care physicians during the study, and were allowed to receive their usual medications.

To measure the effects of acupuncture on pain and stiffness in the knee, the scientists employed a device called the Western Ontario and McMaster Universities Osteoarthritis Index, or WOMAC. WOMAC scores were taken at baseline, and at four, eight, 14 and 26 weeks after the start of the

trial. Patients in all three groups also completed a short form health survey (to measure improvements in physical functioning) and a walking test, and were asked to report any adverse events that could have been related to treatment.

Results: While pain scores decreased among participants in all three groups, the most significant reduction was seen in patients receiving true acupuncture approximately midway through the study period. According to the researchers, "by week 14, the mean WOMAC pain score had decreased by 3.6 units in the acupuncture group (a 40 percent decrease from baseline) compared with -2.7 in the sham group." Pain scores continued to decrease in the acupuncture group; by the end of the study, average pain scores among acupuncture patients had decreased more than twice as much as patients in the education group.

| Mean Change in WOMAC Pain Scores, Baseline-26 Weeks | | | | | |
|---|----------|---------|---------|----------|----------|
| Group | Baseline | 4 weeks | 8 weeks | 14 weeks | 26 weeks |
| True acupuncture | 8.92 | - 2.22 | - 3.15 | - 3.63 | - 3.79 |
| Sham acupuncture | 8.90 | - 1.98 | - 2.66 | - 2.68 | - 2.92 |
| Education | 9.01 | - 0.84 | - 1.25 | - 1.54 | - 1.69 |

Patients receiving acupuncture also showed dramatic improvements in knee function. Compared to baseline, average WOMAC function scores for acupuncture patients were 12.18 points lower at the 14 th week of the trial, and 12.42 points lower at the 26 th week of the trial. The investigators stated that "the true acupuncture group's improvement in function from baseline was significantly greater than that of the sham control group at weeks 8, 14, and 26. A change of more than 12 units by 14 weeks is an almost 40 percent improvement from baseline."

| Mean Change in WOMAC Function Scores, Baseline-26 Weeks | | | | | |
|---|----------|---------|---------|----------|----------|
| Group | Baseline | 4 weeks | 8 weeks | 14 weeks | 26 weeks |
| True acupuncture | 31.31 | - 7.56 | - 10.77 | - 12.18 | - 12.42 |
| Sham acupuncture | 31.29 | - 5.90 | - 7.84 | - 9.40 | - 9.88 |
| Education | 32.48 | - 4.65 | - 5.30 | - 5.62 | - 7.17 |

Less significant results were seen when the scientists compared the short form health survey and the walking test among groups. Regarding the health survey, "changes in overall physical component score did not statistically significantly differ between the true versus sham acupuncture groups." As for the walking test, the scientists "observed no statistically significant differences at any time point" during the trial.

A total of 26 adverse events were reported among the participants, more than half of which occurred in the true acupuncture group. However, the authors noted that "of the 14 adverse events observed in the true acupuncture group, none was interpreted as treatment-related, and the differences among groups did not reach statistical significance."

Based on the differences in WOMAC scores between groups, the scientists stated that their results "demonstrate that true traditional Chinese acupuncture is safe and effective for reducing pain and improving physical function in patients with symptomatic knee osteoarthritis who have moderate or greater pain despite background therapy with analgesic or anti-inflammatory therapy." They added that if future trials validate their research, "acupuncture may have an important role in adjunctive therapy as part of a multidisciplinary integrative approach to treating symptoms related to knee osteoarthritis."

NCCAM, NIAMS Comment on Trial On Dec. 20, 2004, the day before the study was published, representatives from the National Center for Complementary and Alternative Medicine (NCCAM) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) held a press conference to announce the trial's findings to the public. The NCCAM and NIAMS both helped to fund the trial.

"More than 20 million Americans have osteoarthritis," said NIAMS Director Dr. Stephen Katz. "Thus, seeking an effective means of decreasing osteoarthritis pain and increasing function is of critical importance."

"For the first time, a clinical trial with sufficient rigor, size, and duration has shown that acupuncture reduces the pain and functional impairment of osteoarthritis of the knee," added NCCAM Director Dr. Stephen E. Straus. "These results also indicate that acupuncture can serve as an effective addition to a standard regiment of care and improve quality of life for knee osteoarthritis sufferers."

The complete study, "Effectiveness of Acupuncture as Adjunctive Therapy in Osteoarthritis of the Knee: A Randomized, Controlled Trial," can be ordered from the *Annals of Internal Medicine* Web site (www.annals.org).

References

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