Acupuncture and Clinical Hypnosis for Facial and Head and Neck Pain: A Single Crossover Comparison

Dominic P. Lu
University of Pennsylvania School of Dental Medicine

Gabriel P. Lu
Albert Einstein College of Medicine

Lawrence Kleinman
Penn State College of Medicine

Despite their long histories, acupuncture and hypnosis have only recently been acknowledged as valuable by the medical establishment in the U.S. Few studies have used rigorous prospective measurement to evaluate the individual or relative merits of hypnosis and acupuncture in specific clinical settings.

In this study, 25 patients with various head and neck pain were studied. Each had an initial assessment of their pain, as well as of their attitudes and expectations. All patients received acupuncture, followed by a reassessment of their pain. After a washout period they received another assessment of pain before and after hypnosis therapy. Preferences for therapy were sought following the hypnotic intervention.

Both acupuncture and hypnosis were effective at relieving pain under these conditions. The average relief in pain reported was 4.2 units on a ten point scale, with hypnosis reducing pain by a mean of 4.8 units, compared to 3.7 for acupuncture ($p = 0.26$). Patient characteristics appeared to impact the effectiveness of treatment: patients with acute pain benefited most from acupuncture treatment, whereas patients with psychogenic pain were more likely to benefit from hypnosis. Patients with chronic pain had more variation in their results. Patients who received healing suggestions from a tape during a hypnotic trance benefited more than those who received no such suggestion, and acupuncture patients who were needle phobic benefited less than those who were not fearful of needles.

This study demonstrates the benefits of well designed studies of the effectiveness of these alternative modalities. More work is needed to help practitioners identify which patients are most likely to benefit from these complementary therapies.

Request reprints from:
Dominic P. Lu, DDS
1810 Blue Barn Road
Orefield, PA 18069
**Introduction**

**Purpose**

Head and neck pain syndromes are a heterogeneous group of disorders that represent a clinical challenge for dentists and physicians. We report a crossover trial of acupuncture and clinical hypnosis on 25 patients referred to an acupuncture clinic at a university medical center for management of these syndromes.

**Background**

Acupressure/acupuncture was the earliest medicine practiced in China. It began with the serendipitous discovery that pressure on specific anatomic locations could provide pain relief, even remote from the area of pressure. Development of copper needles 3500 years ago allowed the practice of acupressure to evolve into acupuncture. The earliest surviving written account of acupuncture was written more than 2300 years ago. Accounts of acupuncture in Europe date to Napoleonic times. Widespread American interest in acupuncture was stimulated initially by President Nixon’s trip to China in 1972, abetted by an article in the July 1972 issue of Reader’s Digest, entitled, “I Watched Acupuncture Work” (Track, 1972). The National Institute of Health formally acknowledged the value of acupuncture for its pain relief value in 1997, claiming that it is effective for nausea, headache, asthma, stroke rehabilitation, and fibromyalgia. The NIH panel declared that there is sufficient evidence of acupuncture’s value to expand its use into conventional medicine (National Insitutes of Health, 1998).

Acupuncture, the ancient Chinese art of healing and pain relief, is performed by placing fine needles in the body at certain well-defined points, called acupuncture points. This technique is based on the theory that the body consists of 14 main channels, including 12 paired “meridians” and two “vessel” systems that contain 700 to 800 acupuncture points. The channels are hypothesized to be invisible networks in which energy flows from organ to organ, intercommunicating along meridian and vessel systems. The specific points of impeded impulse are called acupuncture points. The nervous system is stimulated or sedated by placing needles at these acupuncture points. About half of these points correspond with nerve pathways, while the remainder do not. The therapeutic relief and the effects of acupuncture are believed to originate both in the central nervous system and in various organs. Acupuncture also has an indirect influence on the endocrine and reticuloendothelial systems.

Acupuncture points have a low electrical resistance that can be located by a piece of equipment called an “acupuncture point detector.” In traditional acupuncture techniques, needles are inserted into these points and either manually twirled or electrically stimulated to take effect.

In the 1960’s, dentists in China successfully extracted teeth without any local anesthetic by inserting an acupuncture needle into an acupuncture point on the hand commonly used for toothache relief, which established acupuncture analgesia as a clinical entity (Chisholm, 1972). In China, acupuncture analgesia is used in oral surgery, neck surgery, ear, nose and throat procedures, neurosurgery, abdominal and thoracic surgery, as well as obstetric and gynecologic procedures and open heart surgery. It is reported to be successful in 80% to 90% of cases (Track, 1972; “Acupuncture Anesthesia,” 1971). Researchers have explored a number of potential mechanisms of action for acupuncture analgesia (Elliot, 1964; Lu & Lu, 1993; Ikezono, 1983).
Whereas acupuncture’s effect on pain control is well researched and documented in the west, the hypnotic control of pain is less understood. Hypnosis has long been used to treat pain, despite a lack of consensus on its mechanism of action. Indeed, disputes exist as to whether hypnosis decreases both the physiological (perception) and psychological (apperception) aspects of pain, or just the psychological aspects (Barber, 1998; Alden & Heap, 1998; Champman & Nakanura, 1998).

**Head and Neck Pain Syndromes**

Head and neck pain syndromes represent a heterogeneous group of disorders that may be acute or chronic and that may have orthopedic, neurological, or psychogenic origins. Most well known among these disorders are temporomandibular disorders (TMD). The temporomandibular joint (TMJ) is the main joint of the jaw. Pain in the area of the TMJ is common and its origins have not been well characterized until recently. Two sub-classifications of temporomandibular disorders (TMD) are arthralgia and myalgia, or myofascial pain. Arthralgia represents a group of disorders arising directly from the TMJ. Myofacial pain comes from the surrounding facial muscles and has recently been termed temporomandibular pain (TMP) (Sessle, Bryant, & Dionne, 1995). TMD has been found in all ages with a tendency to increase with age (Sharav & Benoliel, 1993). Bilateral TMP is thought to be associated with underlying psychogenic factors. Studies suggest that TMP may be a psycho-physiological response to emotional and physical stress. Indeed, TMP patients have been found to suffer from more stress than non-TMP patients (Sharav & Benoliel, 1993). The purpose of our study was to compare effectiveness of acupuncture and hypnosis in the treatment of head and neck pain, including TMD pain.

**Material and Methods**

Twenty-five patients who had experienced pain in various parts of the head and neck were selected for this study. All patients had been treated by their physicians or dentists with medications and/or dental appliances. They were referred to the acupuncture clinic of the university hospital because of insufficient improvement with conventional treatment, or patient concerns about side effects of long-term medication.

Patients were grouped into those with acute pain, chronic pain (who had been treated by their doctors for at least six months) and psychogenic pain (whose pain could not be traced to any organic origin). Pain was assessed by a visual analog instrument generating a score from 0 to 10, with more pain associated with a higher number.

Patients were treated by a certified acupuncturist three times at one-week intervals, and their pain level was recorded before and after a series of treatments. The patients’ anxiety levels were also recorded preoperatively and postoperatively using the Corah anxiety scale (Corah, 1969). The predominant anxiety in this context is the fear of needles or their consequent pain. Their attitude toward the treatment method, reflecting their belief and faith in their treatment choice, was also recorded. The patients were assigned to undergo hypnosis treatment two or three weeks after the last acupuncture treatment.

All patients received three hypnotic treatments per session. Their anxiety levels (felt to be dominated by a fear of losing self-control during the hypnotic trance) were recorded preoperatively and postoperatively using the Corah anxiety scale (Corah,
Each patient’s attitude regarding hypnosis was also recorded, to determine whether attitude affects the treatment outcome. To determine hypnotizability, an eye-roll test, postural sway test, and finger-lock test were conducted on each patient (Zack, 1990; Hartland, 1975; Wallace, 1981; Dill, et al, 1988; Barber, 1998; Wheeler et al, 1974). The correlations of the hypnotizability tests used in this study were also examined. There was no particular sequence to the tests. Patients who passed all three tests were considered the most hypnotizable group and those who did not pass any of the three tests were assumed to be the least hypnotizable group. A low score on these tests does not preclude all chances of hypnotism, but it does greatly reduce the chances of successful hypnotic induction (Wallace, 1981).

Before the hypnotic session, the nature of hypnosis was explained to each patient, to allay any anxiety due to common misunderstandings of hypnosis. Hypnotic induction was conducted by a practitioner certified in clinical hypnosis. To facilitate induction, the patient was instructed to stare at a pattern design until the patient’s eyes felt dizzy, and wanted to close. The patient was then told to close his/her eyes and not open them anymore.

Each patient then received three hypnotic treatments. Patients were divided into two subgroups, where one subgroup listened to a prerecorded tape while under hypnosis, while the other subgroup did not. Those who listened to the prerecorded tape were led to a relaxed state through guided imagery, while the tape suggested that their symptoms and disease were being lessened and healed to a predisease state. In addition, the tape suggested that the patient’s blood circulation had improved, that vital energy flowed into the diseased part of the body, and that deep breathing would carry the harmful substance away, until the patient would be able to enjoy the symptom-free life he/she once had, free of strain and tension from the affected area. Those who received no healing tape suggestion were led to a relaxed state through guided imagery to forgo pain during their trance. After three sessions of hypnosis, the outcome assessment of each patient was recorded and compared with the outcome assessment of the acupuncture treatment.

### Table 1: Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>55.3 years</td>
<td>32-80 years</td>
</tr>
<tr>
<td>Gender</td>
<td>44% male</td>
<td></td>
</tr>
<tr>
<td>Acute pain</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>Chronic pain</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Psychogenic pain</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Initial pain score</td>
<td>8.3</td>
<td></td>
</tr>
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</table>
Analysis includes summary statistics, as well as general and stratified analysis using a paired t-test for before and after comparisons, as well as for comparing the differences between acupuncture and hypnosis. The data sets were also analyzed after being stratified for pain type.

**Results**

Table 1 describes the patient characteristics. Table 2 and Figure 1 demonstrate the general effectiveness of these modalities in this context. Acupuncture treatment proved successful for those patients with acute pain (Table 2), but not those with psychogenic pain of no organic origin, who in some cases experienced worsened symptoms. Patients in chronic pain had mixed results with acupuncture treatment. In

**Table 2:** Unadjusted and stratified results, demonstrating the effectiveness of acupuncture (ACUPUN) and hypnosis (HYPNO) for the entire sample (ALL), and stratified for patients with acute, chronic, and psychogenic (PSYCH) pain. All p values reflect a paired t-test, run on Microsoft Excel or SAS software. *P* values of less than 0.05 are shown in bold type.

<table>
<thead>
<tr>
<th>Pain Type</th>
<th>Treatment type</th>
<th>Pain before treatment ± SD</th>
<th>Pain after treatment ± SD</th>
<th>Difference</th>
<th>n</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>EITHER</td>
<td>8.1 ± 1.5</td>
<td>3.8 ± 2.7</td>
<td>4.3</td>
<td>50</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>ALL</td>
<td>ACUPUN</td>
<td>8.3 ± 1.5</td>
<td>4.6 ± 2.7</td>
<td>3.7</td>
<td>25</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>HYPNOS</td>
<td>7.8 ± 1.5</td>
<td>3.0 ± 2.6</td>
<td>4.8</td>
<td>25</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Acupuncture vs. hypnosis  *p* = 0.21

<table>
<thead>
<tr>
<th>Pain Type</th>
<th>Treatment type</th>
<th>Pain before treatment ± SD</th>
<th>Pain after treatment ± SD</th>
<th>Difference</th>
<th>n</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE</td>
<td>ACUPUN</td>
<td>9.5 ± 0.5</td>
<td>3.6 ± 2.5</td>
<td>5.9</td>
<td>8</td>
<td>.0002</td>
</tr>
<tr>
<td>ACUTE</td>
<td>HYPNOS</td>
<td>8.6 ± 0.9</td>
<td>4.4 ± 2.9</td>
<td>4.3</td>
<td>8</td>
<td>.005</td>
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Acupuncture vs. hypnosis  *p* = 0.33

<table>
<thead>
<tr>
<th>Pain Type</th>
<th>Treatment type</th>
<th>Pain before treatment ± SD</th>
<th>Pain after treatment ± SD</th>
<th>Difference</th>
<th>n</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHRONIC</td>
<td>ACUPUN</td>
<td>7.2 ± 1.3</td>
<td>3.4 ± 1.6</td>
<td>3.8</td>
<td>11</td>
<td>&lt;.0001</td>
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<tr>
<td>CHRONIC</td>
<td>HYPNOS</td>
<td>6.8 ± 1.5</td>
<td>2.3 ± 2.2</td>
<td>4.5</td>
<td>11</td>
<td>.0004</td>
</tr>
</tbody>
</table>

Acupuncture vs. hypnosis  *p* = 0.46

<table>
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<th>Pain Type</th>
<th>Treatment type</th>
<th>Pain before treatment ± SD</th>
<th>Pain after treatment ± SD</th>
<th>Difference</th>
<th>n</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH</td>
<td>ACUPUN</td>
<td>8.7 ± 1.2</td>
<td>8.2 ± 1.3</td>
<td>0.5</td>
<td>6</td>
<td>0.42</td>
</tr>
<tr>
<td>PSYCH</td>
<td>HYPNOS</td>
<td>8.7 ± 1.2</td>
<td>2.5 ± 2.3</td>
<td>6.2</td>
<td>6</td>
<td>.003</td>
</tr>
</tbody>
</table>

Acupuncture vs. hypnosis  *p* = 0.02
fact, many patients whose pain was of psychogenic and nonorganic origin were best served with hypnosis (Table 2). Patients in acute pain who were needle phobic usually fared less favorably with acupuncture treatment than those who were not fearful of needles, but such a result, interestingly, was not as obvious in patients whose pain was either chronic or psychogenic in nature. Patients who put their faith and belief in their particular treatment method seemed to fare better than those who expressed doubts about the treatment method.

**Discussion**

There is very little research comparing the effects of acupuncture and hypnosis. Dunninger (1998) compared the analgesic effects of acupuncture and hypnosis, and found hypnosis more effective. Our findings differ from Dunninger’s in that, while hypnosis seems to be more effective in treating acute pain for some types of patients, acupuncture was more effective in other cases. Previous studies seldom grouped patients according to the nature and duration of pain, or according to the patient’s attitude toward the treatment method, as this study did.

Needle-phobic patients in acute pain did not seem to experience a reduction in pain after acupuncture treatment, possibly because patients were in distress, in addition to being in acute pain. The fear of needles may intensify a preexisting state of anxiety for patients who are already in acute pain. Hypnosis also seemed to have better muscle relaxant effects than acupuncture.
Unlike patients in acupuncture sessions, who were apprehensive due to a fear of needles, apprehension in patients during hypnotic sessions seemed to be caused by a fear of losing self-control during the trance. This fear was due to misinformation and myth about hypnosis derived from movies, television, or stage hypnosis. Patients who were better informed about hypnosis and had better faith in hypnosis as a treatment method seemed to experience greater pain relief.

One criticism of this study is that all patients underwent acupuncture treatment prior to receiving hypnosis. Since acupuncture sessions were conducted two weeks earlier and some of the patients’ original pain may have lessened, the final assessment of pain (and thus the analgesic effect of hypnosis) was not compared to the degree of pain prior to the patients’ acupuncture session, but rather the patients’ level of pain prior to hypnosis. Consequently, the outcome assessment in hypnotic sessions was to survey each patient’s improvement before and after hypnotic treatment. Although the hypnotic outcome assessment was not affected by the patient’s prior acupuncture therapy, future studies should consider the use of an additional group for comparison purposes, who first receive hypnosis, and then acupuncture treatment.

Each patient’s mean score of hypnotic outcome assessment was compared to the acupuncture assessment score, and the patient was asked to state their preferred choice of treatment based on his or her experience with each method. We found that each patient’s preference reflected his or her outcome assessment. None of the experimental subjects in this study had acupuncture or hypnosis prior to their treatment with us. Therefore, patients were relatively open-minded regarding the treatments, and were not influenced by previous experiences of hypnosis or acupuncture treatment.

Conclusion

Acupuncture and hypnosis deserve recognition and attention in the health profession. Both have unique merits and when used properly, can have good results. Patients with psychogenic pain of non-organic cause benefit little from acupuncture treatment, but have better results with hypnosis. Patients with acute pain seem to have better results with acupuncture than hypnosis, while patients with chronic pain are more variable in their outcomes, although as a group they may benefit from either treatment.

References


