Providing an Alternative Treatment Modality for Veterans: Establishing and Evaluating an Acupuncture Clinic in a VA Medical Center

Wei Huang, MD, PhD; Lesa Woodby, PhD, MPH; Laura Lee, MD, MBA; and Theodore M. Johnson II, MD, MPH

The work of the authors involved in the Atlanta VAMC Acupuncture Clinic proves how effective acupuncture can be for veterans with chronic pain who fail conventional therapies.

have had pain (nearly) all my life—for 42 years, and nothing has helped! I doubt acupuncture will help me."

This 66-year-old veteran presented to the acupuncture clinic in January 2009. He had sustained back and right knee injuries while in Vietnam and had been hospitalized for a month before being discharged. Two years after leaving the service, the pain worsened, affecting his entire right side, including neck, shoulder, back, and knee. The veteran had posttraumatic stress disorder (PTSD) with frequent flashbacks, nightmares, and hypervigilance, as well as severe depression. Imaging studies 20 years before had shown multiple levels of degenerative joint disease and spine spondylosis. He received various treatments over the years, including multiple courses of physical and occupational therapy; conservative topical treatments such as heat, cold, and creams; chiropractic treatments as often as twice weekly for several years; monthly massage therapies; and medications—ranging from over-the-counter drugs to prescribed opioids and 14 epidural steroid injections in the cervical and lumbar regions. Some of the narcotic medications had once led to an addiction problem. According to the veteran, none of these therapies were effective enough to make his "pain better and life easier."

In 2009, his primary care physician referred him to a trial of acupuncture. He was accompanied by his wife during his initial visit. He reported his pain level at 7 out of 10. He considered that a "good day" rating. He had mild thoracic scoliosis with abnormal pelvic rotation and abnormal gait. There were no acute neurologic signs.

Dr. Huang is a staff physician at the Atlanta VAMC and assistant professor of rehabilitation medicine at Emory University School of Medicine in Atlanta, Georgia. **Dr. Woodby** is the associate director for education and evaluation at the Birmingham/Atlanta Geriatric Research Education and Clinical Center (GRECC) and associate professor of medicine at the University of Alabama Birmingham School of Medicine. **Dr. Lee** is chief of Rehabilitation Services at the Atlanta VAMC and assistant professor of rehabilitation medicine at Emory University School of Medicine. **Dr. Johnson** is associate director and Atlanta site director of the Birmingham/Atlanta GRECC and professor of medicine and epidemiology at Emory University.

After 2 acupuncture treatments, he reported, "It was a miracle! I feel so much better that I am not going to complain." He rated his pain at 3 out of 10. He had been receiving maintenance treatments every 1 to 3 months, with a total 12 treatments by March 2011. He had continued to report "minimal pain" without the need for narcotic medications. Psychologically, he was also more stable and relaxed. He stated, "This [acupuncture] is one of the 2 best things [that] ever happened to me at the VA."

TREATMENT MODALITY

Acupuncture is a clinical treatment modality developed in the Eastern medical system, Traditional Chinese Medicine. Medical application of acupuncture has been traced back 4,000 years. Its theory and application were compiled and described systematically in one of the world's earliest medical textbooks, the Huangdi Neijing (also known as The Inner Canon of Huangdi, Yellow Emperor's Inner Canon, or Yellow Emperor's Classics of Internal Medicine), roughly 400 BC

to 260 BC. According to beliefs expressed in the *Neijing*, there are 12 major meridians and multiple connecting meridians in the human body. These meridians, or channels, guide the flow of bioenergy for maintaining health.

The basic acupuncture treatment technique is to insert thin metal needles (historically made of gold, currently made of stainless steel) into selected acupoints along meridians. Adjunct treatment techniques commonly applied in addition to, or in lieu of, body needles include electroacupuncture, auricular acupuncture, skull (scalp) acupuncture, moxibustion, bloodletting, plumblossom needle tapping, penetrating

China. During the 1971 trip, he experienced acute appendicitis, and his severe postappendectomy pain was successfully controlled by Dr. Changyuan Li using acupuncture and moxibustion. Reston's report of this experience in The New York Times July 26, 1971, article, "Now, About My Operation in Peking," exposed most Americans to the traditional Chinese medical practice and acupuncture for the first time. By 2007, more than 3 million adult Americans reported having used acupuncture.4 Almost half the individuals who sought acupuncture care reported nonresponse to conventional Western medical treatment.5

The World Health Organization

The World Health Organization published a review of controlled clinical trials on acupuncture in 2002, which listed the procedure as an effective treatment modality with minimal adverse effects (AEs) for a wide range of diseases and conditions.

needling, cupping therapy, Gua Sha, and acupressure massage (Table 1). Auricular and skull acupuncture represent acupuncture performed within some clinically established microsystems based on reflexology instead of on meridians. Other microsystems are also indicated in Korean hand acupuncture, mouth acupuncture, foot reflexology acupressure massage, and others.²

Although originating in China, acupuncture has been widely practiced and has evolved worldwide, particularly in Asia and Europe. In the 1970s, James Reston introduced acupuncture in the U.S.³ Reston, a 2-time Pulitzer prize winner, was a journalist who accompanied President Nixon to

published a review of controlled clinical trials on acupuncture in 2002, which listed the procedure as an effective treatment modality with minimal adverse effects (AEs) for a wide range of diseases and conditions. Included among the literature base was evidence of proven effectiveness by controlled clinical trials for 28 conditions and diseases, clinically observed effects for 63 conditions and diseases, and limited information on effectiveness for 16 conditions and diseases, but without evidence of harm.⁶

One of the main applications of acupuncture that is supported by a strong research evidence base is for the treatment of pain, including low back pain, knee osteoarthritis, neck pain, and headaches.5 Of the people surveyed, 74% who used acupuncture listed pain as the reason for seeking this treatment.7 Within the context of Western medicine, physicians and therapists discovered that pressing, stimulating, or injecting certain superficial body points not necessarily at the site of pain, called trigger points, can help with the relief of myofascial pain and its radiation. Three thousand years ago, Chinese physicians reported using trigger points for treatment of pain. "Ling Shu," a chapter on acupuncture in the Yellow Emperor's Inner Canon, summarized this approach, "in pain, puncture the tender point."1

Chronic pain related to musculoskeletal disorders is of significant concern in the U.S. Armed Forces and is the leading cause of hospitalization and disability in this population. The DoD pays more than \$1.5 billion per year in disability benefits to disabled service members, and musculoskeletal conditions account for 40% to 50% of this amount.8 Associated with military deployments in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), the rates of disability cases within the U.S. military have been increasing at an alarming rate, despite continuous advances in military medicine.8 This trend is also observed in the VHA system. Along with the evidence of its clinical effectiveness, the reduced cost of acupuncture makes it a good choice to include in veterans' care. For instance, community-based charges would average \$80 per session for acupuncture, compared with more than \$1,500 for each epidural injection.

Incorporating acupuncture with

| Table 1. Common acupuncture adjunct treatment techniques | | | |
|--|--|--|--|
| Adjunct acupuncture treatments | Techniques and history | | |
| Electroacupuncture | Electroacupuncture is the application of pulsating electricity current (usually of 1 Hz to 500 Hz, continuously or intermittently) through acupuncture needles to stimulate the acupoints. It was developed in China, around 1934, to extend or replace traditional needle manipulation by hand. This technique is most widely used now by acupuncturists practicing acupuncture energetics, founded by George Soulié de Morant. | | |
| Auricular acupuncture | With topographical representation observed clinically, health problems in different body parts or organs can be manifested on ear lobes and treated accordingly, using needles (temporary or semipermanent), and by using herbal or magnetic beads. Several maps of auricular acupoints have been published; the earliest map was created in 1957 by Dr. Paul Nogier. | | |
| Skull (scalp) acupuncture | According to cerebral topography rather than meridians, Dr. Xue-Long Huang, in 1934, used needles on the scalp to treat various neurologic diseases. This technique was later developed into a complete acupuncture microsystem in 1973 by Dr. Toshikatsu Yamamoto. | | |
| Moxibustion | In traditional practice, moxibustion is heating, directly or indirectly, of acupoints by burning mugwort herb, sometimes via needles, sometimes in contact with the skin with or without media. Now, practitioners can also heat acupoints using infrared lighting and instant heating discs. Controversies exist regarding the efficacy of different methods. | | |
| Bloodletting | A commonly referenced treatment method in <i>The Inner Canon of Yellow Emperor</i> , letting out blood was used to treat various conditions. Later, this method fell out of fashion and was limited only to certain conditions in acupuncture practice, such as severe blood stasis, excessive and acute pain, high fever, early onset of cold with congestion and sore throat, and loss of consciousness. | | |

conventional therapies for veterans is becoming an interest of many practitioners in the federal service. This article provides clinical guidelines and an example of how to establish an acupuncture clinic at a major VAMC. Data are also presented on the clinical effects after evaluating 136 patients who were first treated between January 2008 and February 2009 and were followed through February 2011. These results represent a case series of patients and are not intended to substitute for evidence from a controlled clinical trial.

CLINIC ESTABLISHMENT

The acupuncture clinic at the Atlanta VAMC in Georgia was established in January 2008 as a clinical demonstration project under the Birmingham/Atlanta Geriatric Research Education and Clinical Center (GRECC) to assist with management of older veterans with severe osteoarthritic conditions and to evaluate the acceptance of alternative medicine modalities. Likely due to initial positive reaction from patients and a need for additional treatment modalities, the clinic began to receive a broader

range of consultation requests from the Primary Care Clinic and the Physical Medicine and Rehabilitation (PM&R) Pain Clinic. To respond to the larger demand for alternative treatments, the pilot program was expanded to serve as a stand-alone PM&R clinic, focusing mainly on providing acupuncture for chronic pain patients who had failed other treatment modalities or experienced severe AEs to medications, had a documented history of substance abuse, or who were at high risk of polypharmacy. Patients who were receiving moderate-

| Table 1. (continued) | |
|--------------------------------|---|
| Adjunct acupuncture treatments | Techniques and history |
| Plum-blossom needle tapping | This technique uses superficial tapping with bundled needles of 5 ("plumblossom") or 7 ("seven-star"), which have slightly blunted tips and are attached perpendicularly to a usually foot-long handle. Tapping with plum-blossom needles has a history dating back 1,000 years, developed from a more ancient tapping therapy, used to stimulate blood flow at acupoints and along meridians. |
| Penetrating needling | One needle is used to penetrate multiple acupoints to increase stimulation intensity. Although this technique requires extreme skill with a long needle (6-9 inches) for multiple or distant acupoints, it can be done with a regular needle (2-3 inches) for 2 adjacent acupoints. |
| Cupping therapy | A healing method created in ancient China, cupping therapy creates negative pressure inside suction cups (ancient time: cattle horns or cross-sections of bamboo; today: glass cups). The cups are applied to the skin in such a way to exert deep suction at acupoints or meridians. |
| Gua Sha | Gua means scraping; Sha means an acute disease attributable to climatic pathogenic factors that could cause fever, upper respiratory symptoms, gastrointestinal sickness, or stiffness and pain in limbs. Literally, this technique uses tools (eg, a ceramic spoon or a stone with a sharp edge) to scrape the skin along meridians. Clinically, Gua Sha has been found to be useful not only in acute conditions, but also in certain subacute or chronic conditions. |
| Acupressure massage | Acupressure massage was first mentioned in <i>The Inner Canon of Yellow Emperor</i> and later became part of a wider Chinese medicinal massage system, Tui Na, with written records dating to 1700 BC. Acupressure massage uses massage techniques to manipulate acupoints in lieu of needles. |

to-high dosages of opioids and did not wish to taper these medications were excluded from the acupuncture clinic.

Prior to establishing the clinic, the infection control protocol was reviewed with the hospital officials to assure that the staff followed standard precautions, local sterilization, and disposal of sharp instruments (needles). An acupuncture-friendly examination table (with adjustable height, head tilt, knee support, and face cradle) was purchased for the patients' comfort and procedure convenience. Clinical support staff were trained to understand the basic

concepts of acupuncture, the referral process, and the main AEs. As in any other clinical setting, a crash cart was available in a nearby clinic station.

Patients in the acupuncture clinic followed the same check-in and triage process as patients in other clinics. A routine visit comprised a patient history, physical examination, and a 30- to 40-minute acupuncture session. The clinic was operated by a board-certified physiatrist who also holds an acupuncture practice license in Georgia and by the support staff from the Pain Clinic and the Geriatric Clinic.

PATIENT EDUCATION AND CONSENT

Patients admitted to the acupuncture clinic were required to verbally consent to the procedures. At the initial visit, detailed education was provided by the physician, followed by a question-and-answer period. The patient education module covers the basic theory and indications of acupuncture, the general process of the procedure, the duration of each visit, follow-up instructions, and any possible AEs of acupuncture.

Acupuncture carries minimal AEs. These may include minor

Table 2. Outcome of 136 patients admitted to an acupuncture clinic from January 2008 to February 2009

| Outcome | N (%) |
|--|-----------|
| Cured ^a | 17 (12.5) |
| Continue treatments ^b | 12 (8.8) |
| Acupuncture not recommended | 13 (9.6) |
| Discharging to other therapies ^c | 20 (14.7) |
| Other therapies recommended for possible longer treatment effects than 2 to 3 weeks | 8 |
| Received 12 or more acupuncture treatments with good response, but also responding to other treatment modalities | 12 |
| Not responsive ^d | 36 (26.5) |
| Discontinue due to intolerance to needles | 4 (2.9) |
| Loss to follow-up | 15 (11.0) |
| Worsened condition requiring surgery | 3 (2.2) |
| Other reasons ^e | 16 (11.8) |
| | |

^aPatients presented with no more problems after treatments, no records of visits to other clinics for the same pains, and followed up only as needed in the acupuncture clinic with longer than a 6-month interval.

bleeding at the time the needle is withdrawn, which is controllable by local pressure, and a persistent needle sensation lasting several hours to a few days after the needle is removed. On average, 10% of patients develop stronger reactions to needling or vasovagal responses. This reaction is called needle shock and can manifest as nausea, dizziness, sweating, or even loss of consciousness. Such reactions can be immediately controlled by withdrawal of all needles. There are no lingering AEs or life-threatening concerns that remain afterward. Most patients "wake up" with reports of complete resolution of pain symptoms. Others may develop exacerbated pain from 24 to 48 hours after the procedure, which usually abates to minimal pain. There has been no explanation for these phenomena by Western medicine findings except for possible regulation of autonomic activities by acupuncture. 9-18

Most patients experience relaxation after the treatment with a few reporting drowsiness. It is prudent to advise patients to nap and rest before resuming driving. Although some people might have immediate relief and feel very well following the treatment, strenuous activities should be avoided for 24 hours. Pa-

tients are encouraged to continue their regular activities, eat a healthy diet, and drink plenty of water. They are also instructed to avoid drinking alcohol or engaging in sexual activities for 24 hours.

PRACTITIONER CREDENTIALING

Although acupuncture is a minimally invasive procedure and generally regarded as one of the safest modalities among comparable treatments, serious cases of organ injuries, infections, and spinal cord injuries have been reported. 19,20 Pneumothorax is the most commonly reported organ injury and occurred when the practitioner inserted an acupuncture needle too deeply into the thoracic region or used embedded body needles that were not retrieved. Spinal cord injuries occurred mainly due to embedded body needles, which were used in a Japanese style of acupuncture. Infections could occur more frequently in high-risk patients, such as patients with diabetes and elderly patients. Therefore, proper credentialing processes for practitioners are required.

There are 2 groups of practitioners who can work in acupuncture clinics. One group includes physicians who practice in various medical fields; the other group includes licensed acupuncturists who receive 3 years of specialized training through accredited acupuncture schools. Each state may have different credentialing requirements and processes. Physicians practicing acupuncture as a complementary and alternative procedure have the advantage of possessing wider medical knowledge. Certified acupuncturists may, however, over time develop more experience with devoted acupuncture service. Depending on patients' needs, the complexity of the conditions to be treated,

^bPatients got relief only from acupuncture with either no response or with severe adverse effects from other conventional treatments.

^eThese parameters were designed to relieve the patient waiting list as a result of the limited resources at the VA acupuncture clinic.

^dDefined as reporting no change in their conditions after 3 sessions or with < 10 days of relief after 5 sessions. This is a much stricter criterion than regular acupuncture clinics in community settings.

^eOther reasons include moving from Georgia to another state, returning to active-duty tour, worsening medical or psychological conditions, or lack of transportation.

and patients' medical and surgical histories, the pros and cons of choosing a physician vs a certified acupuncturist varies from case to case.

Focused Professional Practice Evaluation is a requirement during initial physician credentialing and privileging at all VAMCs and can be applied to the initial acupuncture privilege application. This added layer of scrutiny provides additional protection for veterans when selecting acupuncture providers.

SAMPLE POPULATION

From January 2008 to February 2009, the PM&R acupuncture clinic saw patients for 2 half-day sessions per week. During this period, 136 new patients were admitted to the clinic. The mean age of the patients was 51 years (median 48 years, range 23-93). Out of the patients treated, 71.3% were men (n = 97), which represents a lower than expected percentage than the usual percentage of men seen (90%); 42.7% were white; 54.4% were African Americans; and 2.2% were Asian (one individual's race was not recorded).21 The sample population represented a larger percentage of acupuncture use among African Americans in the VA setting, compared with results of a prior conducted survey in a civilian medical setting and may support the idea that the lower acceptance of alternative medical therapies by African Americans might be related to financial affordability rather than to education status or cultural differences.7,22-24 Of the 136 patients, 88.2% reported no previous acupuncture experience.

CONDITIONS TREATED

The primary referred diagnosis was chronic pain (86.6%) followed by headaches (12.7%). One patient was

Table 3. Patients' chronic pain characteristics at first acupuncture visit (N = 136)

| | N (%) |
|---|------------|
| Taking over-the-counter pain medications | 9 (6.3) |
| Taking prescription pain medications | 120 (88.2) |
| Prior conservative treatments | 135 (99.3) |
| More than 3 treatment modalities ^a | 74 (54.3) |
| Invasive treatment procedures ^b | 78 (57.5) |
| Prior conventional treatments | 136 (100) |
| No response | 43 (31.5) |
| Minimal response or significant adverse effects | 73 (53.5) |
| Some response but not enough to control pain | 20 (15.0) |

^aThe treatment modalities included therapies, topical agents, transcutaneous electrical nerve stimulation, trigger point injections, traction, and chiropractic manipulations.

referred for severe gastrointestinal problems. At their initial presentation, 70.1% of the patients had 2 or more problems and 56.7% of the patients had multiple areas of body pain or headaches. While the patients remained in the acupuncture clinic, 87.0% were treated for more than 2 conditions, including different body pain, headaches, medical complaints, such as allergy, respiratory symptoms, gastrointestinal dysfunction, and poor sleep, and psychological complaints, such as anxiety, posttraumatic stress disorder (PTSD), and depression.

TREATMENTS

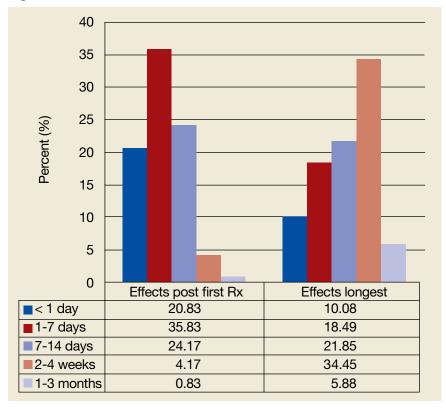
Acupuncture techniques used in the clinic included body needle acupuncture, electrical acupuncture, auricular therapy, skull acupuncture, moxibustion with smokeless moxa, infrared heating lamp or self-adhesive plasters (to avoid smoke in the clinic area), bloodletting (with only a few drops of blood excreted), and cupping. Other techniques were not

used either due to considerations of clinic setting, patients' tolerance, or limited evidence in practice. The regular body, auricular, or skull acupuncture needles used in the clinic are disposable, singleuse metal needles of 32 gauge to 40 gauge, 13 mm to 75 mm in length. The auricular semipermanent (ASP) needles used in the clinic are gold-plated and taped on with hypoallergenic adhesive plasters for added protection. Maximal 5 ASP needles are used for each ear, and they can be left in for up to 10 days. Bloodletting at ear tip, Fengmen (BL-12), or ting points are only performed for acute conditions, such as acute severe pain in which the patient cannot move, a pain area that cannot be touched, or new cold symptoms that developed within 24 hours.

In addition to acupuncture treatments, 86.5% of acupuncture clinic visits integrated other treatment recommendations, including patient education about exercise,

blinvasive treatment procedures included intra-articular injections, spinal procedures, nerve blocks, radiofrequency ablation, indwelling morphine pump, spinal stimulator, or surgery.

Figure 1.



The duration of pain relief effects (%) after the first treatment (n = 120) and the longest duration of pain relief effects (n = 119). "Not reported" or "not sure" not included in the figure.

diet, weight control, sleep hygiene, mood regulation, and the use of other conservative treatments, such as topical agents or modalities. Pertinent laboratory or imaging testing was ordered as needed. During their clinic visits, 21.6% of the patients had additional interventional procedures (14.4% with only 1 procedure), such as trigger-point injections, corticosteroid injections intra-articularly or intrabursal, or scar infiltration.

FOLLOW-UP AND DISCHARGE

The patients in the PM&R acupuncture clinic were scheduled for a second treatment 3 to 4 weeks after the first visit. The no-show rate for this visit was 7.3%. The follow-up intervals averaged between 1 and 3 months, mainly due to clinic availability. Between January 2008 and February 2011, the no-show rate was 6.7% compared with the 14.0% no-show rate at other PM&R pain clinics during the same period, indicating better compliance for acupuncture among the veteran population.

Average follow-up duration for the 136 patients was 42.4 weeks (standard deviation [SD] \pm 41.7) and an average 6.2 (SD \pm 5.0) acupuncture treatments per patient (range 0-26). At the end of February 2011, all

but 12 patients were discharged. The 12 patients were recommended to continue their acupuncture treatments, because they experienced severe AEs or no response from other conservative treatments.

Of the 136 patients, 124 completed therapy and were discharged from the clinic (Table 2). Among those discharged, 12.5% were cured, defined as no more pain after treatments, no records of visits to other clinics for the same pains, and follow-up in the acupuncture clinic only as needed with longer than 6-month intervals. This was considered a success, because these patients had failed prior conservative treatments. In addition, the patients received minimal acupuncture interventions with the majority receiving follow-up treatments every 2 months, as compared with once a week or even more frequent treatments in the community setting. The nonresponse rate was 26.5%, including those who presented with < 10 days of relief. Due to limited resources, patients were also discharged who would normally receive continued acupuncture treatments, such as those with good responses to acupuncture but also (may have) responded to other conservative treatments.

CLINICAL EFFECTS ASSESSMENT

To monitor the quality of acupuncture treatments and patients' progress, a simple 10-item self-report Intake Questionnaire was completed by each patient at every visit during check-in (see Intake Questionnaire on page 22). This questionnaire was designed to evaluate pain, emotions, sleep, and quality of life (QOL) at each clinic visit. Patients were also asked to rate the effectiveness of the acupuncture treatments, using

a visual analog scale (VAS). For those patient-reported measures, ratio-level scaling was made available with a VAS. The VAS has been widely adopted to measure constructs such as pain and functional assessments. 25 The key benefits of a VAS are the increased sensitivity to measured change as well as the decreased reliance on verbal skills for the understanding of response category alternatives.26 Using a VAS rather than a scoring system also decreases the chance of patients quoting certain customary numbers. All questions evaluated by the VAS are scored from 0 to 10 based on the position of the response mark on the 10-cm line.

Acupuncture Treatment Effect on Pain

At their initial presentation (Table 3), most patients were taking prescription pain medications. All patients had prior conventional treatments with different reported degrees of dissatisfaction. Their mean presenting pain score was 6.3 on the 0 to 10 VAS (n = 119). Immediately after the first acupuncture treatment, patients' self-reported pain score improvement averaged 3.6 (SD \pm 2.2) out of 10 (P < .001).

After the initial acupuncture treatment, most patients reported pain relief lasting < 1 week. Following all treatment sessions, more patients reported longer lasting pain relief (Figure 1), suggesting some cumulative effects from acupuncture treatments even with the infrequent treatments they received.

Acupuncture Treatment Effect on Sleep

Of the 136 patients, 75.6% presented with sleep difficulties. Their sleep

duration at initial presentation averaged 5.4 (SD \pm 1.7) hours, and their reported sleep quality averaged 3.3 (SD \pm 2.2) out of 10.0 (n = 94). Comparing the patients' final self-report on the Intake Questionnaire with their initial self-report, sleep duration improved by 0.3 hours (P = .08), and sleep quality improved by 0.86 out of 10.0 (P = .001).

Acupuncture Treatment Effect on Quality of Life

Comparing patients' final self-report on the Intake Questionnaire regarding aspects of QOL with their initial self-report, mobility difficulty, and general health rating improvements were significant (n = 91), with mobility difficulty improved by 0.84 point (P = .013), and general health rating improved by 0.71 point (P = .008). The score for activities of daily living improved by 0.5 point but was not statistically significant (P = .14).

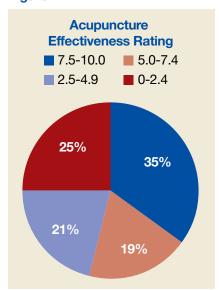
Other Effects of Acupuncture Treatment

Following the acupuncture clinic visits, 28.8% of the patients reported additional positive effects, such as improved vitality, improved mental status, and decreased anxiety. However, the self-reported scores for depression, anxiety, or vitality remained almost the same compared with their first vs final Intake Questionnaire (n = 95).

Adverse Effects

No major AEs were reported: 17.6% of patients had minor reactions to acupuncture (ie, minor bleeding at needle removal, persistent needle sensation, or feeling drowsiness after treatment); 5.6% had worsening pain after treatment for up to 3 days followed by significant pain decrease; and 4.8% had needle shock

Figure 2.



Patients' reported effectiveness of acupuncture on their last visit's questionnaire (n = 98). The scale is from 0 to 10, with 0 indicating acupuncture having no effects, and 10 indicating acupuncture being most effective in treating their conditions.

with transient vasovagal reaction but recovered after needle removal.

Overall Reported Acupuncture Effects

At initial presentation to the acupuncture clinic, 85% of patients reported poor responses to other treatments, either conservative or invasive. At the end of treatment, the patient self-reported overall acupuncture effectiveness averaged $6.0 \text{ (SD} \pm 2.6)$ out of 10.0 (n = 98).

In a 2002 National Health Interview Survey, when asked whether acupuncture helped with the primary condition being treated, the patients' responses were 46.3% "A great deal"; 25.8% "Some"; 14.6% "Only a little"; and 13.4% "Not at all." Results from the clinic suggest a similar moderate effectiveness

| Acupuncture Clini | |
|--|---|
| | |
| | Your Last 4: |
| X" or a " " along the line to indicate your res | sponses. The most extreme conditions are listed at the |
| er the following questions by putting a cros | ss along the line: |
| ur nain today? | |
| ar pain today. | Most excruciating pain |
| 0 | 10 |
| pain? | |
| ur headache today? | |
| | Most excruciating headache |
| 0 | 10 |
| es in the past week did you have headac | hes? |
| ed do you feel today? | |
| n <u> </u> | Extremely depressed |
| 0 | 10 |
| are you today? | |
| | Extremely anxious |
| operav level todav? | 10 |
| | Full of energy |
| 0 | 10 |
| OURS of sleep a night, on average, do yo | u think you are getting in the past month if this is your first |
| | |
| of along have you been nothing in the near | |
| | t month if this is your first visit or since last visit if you are |
|) | Best sleep |
| | |
| 0 | 10 |
| · | 10 |
| has acupuncture been to treat your cond | lition(s)? |
| has acupuncture been to treat your cond t all | lition(s)? Most helpful |
| has acupuncture been to treat your cond t all 0 s it for you to move about for the last mo | lition(s)? Most helpful |
| has acupuncture been to treat your cond t all 0 s it for you to move about for the last mon are here for follow-up? | lition(s)? Most helpful 10 nth if this is your first visit or since |
| has acupuncture been to treat your condition to all one of the last more about for the last more are here for follow-up? | lition(s)? Most helpful 10 nth if this is your first visit or since Extremely difficult |
| has acupuncture been to treat your condition to the last more are here for follow-up? | Ilition(s)? Most helpful 10 nth if this is your first visit or since Extremely difficult |
| has acupuncture been to treat your condition to the last more are here for follow-up? at all 0 sit for you to move about for the last more are here for follow-up? at all 0 sit for you to perform daily activities for | Ilition(s)? Most helpful 10 nth if this is your first visit or since Extremely difficult |
| has acupuncture been to treat your condition to the last more are here for follow-up? | Ilition(s)? Most helpful 10 Inth if this is your first visit or since Extremely difficult 10 the last month if this is your first visit or |
| has acupuncture been to treat your conditall s it for you to move about for the last more are here for follow-up? at all o s it for you to perform daily activities for if you are here for follow-up? at all o | lition(s)? Most helpful 10 Inth if this is your first visit or since Extremely difficult 10 the last month if this is your first visit or Extremely difficult 10 |
| has acupuncture been to treat your conditall s it for you to move about for the last more are here for follow-up? at all o s it for you to perform daily activities for if you are here for follow-up? at all | Ilition(s)? Most helpful 10 Inth if this is your first visit or since Extremely difficult 10 the last month if this is your first visit or Extremely difficult 10 Extremely difficult 10 of your age? |
| has acupuncture been to treat your conditall s it for you to move about for the last more are here for follow-up? at all o s it for you to perform daily activities for if you are here for follow-up? at all o | lition(s)? Most helpful 10 nth if this is your first visit or since Extremely difficult 10 the last month if this is your first visit or Extremely difficult 10 |
| has acupuncture been to treat your conditall os it for you to move about for the last more are here for follow-up? at all os it for you to perform daily activities for if you are here for follow-up? at all os urate your health compared with others | Ilition(s)? Most helpful 10 Inth if this is your first visit or since Extremely difficult 10 the last month if this is your first visit or Extremely difficult 10 of your age? Best |
| | X" or a " " along the line to indicate your result the following questions by putting a cross or the following questions by putting a cross or pain today? pain? pain? pain today? pain today? pain the past week did you have headacted do you feel today? pare you today? pare you today? purchase of sleep a night, on average, do you st visit if you are here for follow-up? purchase of sleep have you been getting in the past oup? |

rating of acupuncture treatment among the veteran population as well (Figure 2).

We examined the factors that could potentially influence the reported effects of acupuncture, including demographic characteristics, prior substance abuse history, childhood abuse history, disability application status, depression, PTSD, service connection, current opioid use (low-to-moderate dosages), fibromyalgia, and irritable bowel syndrome. Only 2 factors were found to be significant in affecting the patients' rating of acupuncture effectiveness: disability application status and depression.

Sixty-two patients had records regarding their disability application status; 41 were not actively applying while 21 were. Between these 2 groups, the final rating of acupuncture effectiveness (n = 54) varied significantly (P = .0059). Patients who were applying for disability reported less effectiveness of acupuncture, with a 2.2-point difference on a 10-point scale.

In reviewing the patients' final rating of acupuncture effectiveness as to who did (n = 58) and who did not (n = 39) carry a depression diagnosis, the patients with depression reported less effectiveness of acupuncture (P = .03), with a 1.1-point difference on a 10-point scale.

LIMITATIONS

The report is intended to illustrate the use of acupuncture in a veteran population, especially for those who failed both conservative and invasive treatments. The clinical observational data showed a moderate response rate among this group. Because the clinic is operated under the integrative medicine concept rather than using acupuncture alone, the success rate could reflect the multimodal approach. The clinical questionnaire is designed to quickly capture patients' problems and responses to acupuncture. It is not a standardized questionnaire. Data loss in the responses could potentially represent some bias due to patients' willingness or unwillingness to report. Robust clinical research studies using standardized outcome measures and controlled groups are needed to examine the true effectiveness of acupuncture in managing each single condition.

SUMMARY

Many practitioners in federal service want to know more about acupuncture, and some of them wish to establish an acupuncture clinic in their region. The intent of this study was to provide interested providers with the information gathered from the clinical demonstration project at the Atlanta VAMC. To protect veterans' safety, proper setup of the acupuncture clinic and accreditation of providers were required. The practice demonstrated that acupuncture was well accepted by the veteran population and had clinically exhibited effectiveness in pain, sleep, and QOL in patients with chronic pain who failed conventional therapies. Although this does not mitigate the necessity of future research, acupuncture may be a valuable treatment modality used with conventional therapies to provide better care for veterans.

Acknowledgements

This work is supported in part by the U.S. Department of Veterans Affairs Rehabilitation Research and Development Career Development Award Level II.

Authors disclosure

The authors report no actual or potential conflicts of interest with regard to this article.

Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of Federal Practitioner, Quadrant HealthCom Inc., a division of Frontline Medical Communications, Inc., the U.S. Government, or any of its agencies. This article may discuss unlabeled or investigational use of certain drugs. Please review complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.

REFERENCES

- Guo Aichun, editor-in-chief. Yellow Emperor's Inner Classic: Plain Questions—Critically Compared, Annotated and Translated. Tianjin, China: Tianjin Science and Technology Press; 1999:vi.
- Hecker H-U, Steveling A, Peuker ET. Microsystems Acupuncture: The Complete Guide: Ear-Scalp-Mouth-Hand. Stuttgart, Germany: Georg Thieme Verlag; 2005.
- Reston J. Now, about my operation in Peking. New York Times. July 26, 1971:1, 6.
- Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. Natl Health Stat Report. 2008;Dec 10(12):1-23.
- Mao JJ, Kapur R. Acupuncture in primary care. Prim Care. 2010;37(1):105-117.
- World Health Organization. Acupuncture: Review and Analysis of Reports on Controlled Clinical Trials: Geneva, Switzerland: World Health Organization; 2003.
- Burke A, Upchurch DM, Dye C, Chyu L. Acupuncture use in the United States: Findings from the National Health Interview Survey. J Altern Complement Med. 2006;12(7):639-648.
- Gatchel RJ, McGeary DD, Peterson A, et al. Preliminary findings of a randomized controlled trial of an interdisciplinary military pain program. *Mil Med.* 2009;174(3):270-277.
- Sugiyama Y, Xue YX, Mano T. Transient increase in human muscle sympathetic nerve activity during manual acupuncture. *Jpn J Physiol*. 1995;45(2): 337-345.
- Tam KC, Yiu HH. The effect of acupuncture on essential hypertension. Am J Chin Med (Gard City NY). 1975;3(4):369-375.
- Williams T, Mueller K, Cornwall MW. Effect of acupuncture-point stimulation on diastolic blood pressure in hypertensive subjects: A preliminary study. *Phys Ther.* 1991;71(7):523-529.

ACUPUNCTURE CLINIC

- Knardahl S, Elam M, Olausson B, Wallin BG. Sympathetic nerve activity after acupuncture in humans. *Pain*. 1998;75(1):19-25.
- Nishijo K, Mori H, Yosikawa K, Yazawa K. Decreased heart rate by acupuncture stimulation in humans via facilitation of cardiac vagal activity and suppression of cardiac sympathetic nerve. *Neurosci Lett.* 1997;227(3):165-168.
- Hsieh CL, Lin JG, Li TC, Chang QY. Changes of pulse rate and skin temperature evoked by electroacupuncture stimulation with different frequency on both Zusanli acupoints in humans. Am J Chin Med. 1999;27(1):11-18.
- Hsu CC, Weng CS, Liu TS, Tsai YS, Chang YH. Effects of electrical acupuncture on acupoint Bl.15 evaluated in terms of heart rate variability, pulse rate variability and skin conductance response. Am J Chin Med. 2006;34(1):23-36.
- 16. Haker E, Egekvist H, Bjerring P. Effect of sensory stimulation (acupuncture) on sympathetic and parasympathetic activities in healthy subjects. *J Auton Nerv Syst.* 2000;79(1):52-59.
- 17. Li Z, Jiao K, Chen M, Wang C. Effect of magni-

- topuncture on sympathetic and parasympathetic nerve activities in healthy drivers—assessment by power spectrum analysis of heart rate variability. *Eur J Appl Physiol.* 2003;88(4-5):404-410.
- Litscher G. Bioengineering assessment of acupuncture, Part 7: Heart rate variability. Crit Rev Biomed Eng. 2007;35(3-4):183-195.
- Zhang J, Shang H, Gao X, Ernst E. Acupuncturerelated adverse events: A systematic review of the Chinese literature. Bull World Health Organ. 2010:88(12):915-921C.
- Yamashita H, Tsukayama H, White AR, Tanno Y, Sugishita C, Ernst E. Systematic review of adverse events following acupuncture: The Japanese literature. Complement Ther Med. 2001;9(2): 98-104.
- National Center for Veterans Analysis and Statistics. Veteran population. U.S. Department of Veterans Affairs Website. http://www.va.gov/vetdata/Veteran _Population.asp. Updated March 26, 2013. Accessed March 28, 2013.
- **22.** U.S. Department of Health and Human Services. National Institutes of Health. The use of comple-

- mentary and alternative medicine in the United States. National Center for Complementary and Alternative Medicine Website. http://nccam.nih.gov/news/camstats/2007/camsurvey_fs1.htm. Updated February 20, 2013. Accessed March 28, 2013.
- Thomas K, Coleman P. Use of complementary or alternative medicine in a general population in Great Britain. Results from the National Omnibus survey. J Public Health (Oxf). 2004;26(2):152-157.
- Bücker B, Groenewold M, Schoefer Y, Schäfer T. The use of complementary alternative medicine (CAM) in 1 001 German adults: Results of a population-based telephone survey. Gesundheitswesen. 2008;70(8-9):e29-e36.
- Matheson LN, Melhorn JM, Mayer TG, Theodore BR, Gatchel RJ. Reliability of a visual analog version of the QuickDASH. J Bone Joint Surg Am. 2006;88(8):1782-1787.
- Von Korff M, Jensen MP, Karoly P. Assessing global pain severity by self-report in clinical and health services research. Spine (Phila Pa 1976). 2000:25(24):3140-3151.

