Acupuncture in the Operational Environment

84th Annual AsMA Scientific Meeting

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Disclosure Information

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We have no financial relationships to disclose and we will not discuss off-label use or investigational use during our panel discussion.
Goals of the panel

- Report card for the A.F. Surgeon General’s office
- How is acupuncture being used within the military and its various environments?
- What research is currently under way?
- What is the patient impact?
- What is the operational impact?
- Conclusions and recommendation for our future efforts
Acupuncture in Operational Environment Part IV

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USAF Acupuncture Center
13 May 2013 AsMA
Disclosure Information
84th AsMA Annual Scientific Meeting
Acupuncture Panel

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Acknowledgment

• Col (Dr.) Richard Niemtzow is the tireless promoter of medical acupuncture in the USAF and DoD. Thanks to his ongoing efforts and clinical practice, acupuncture has been given a firm grounding as an emerging discipline in military medicine.

• Joseph Helms MD is the author of “Acupuncture Energetics”, Chairman of physician acupuncture training programs of the Office of Continuing Medical Education, University of California-Los Angeles School of Medicine, and the founding president of the American Academy of Medical Acupuncture, and creator/director of the Acupuncture for Military Physicians Course and Military Acupuncture Refresher Course.
History of Acupuncture

- **Huang Di Nei Jing** (Yellow Emperor's Inner Classic), 2nd century BC.
- “Bo Le Zhen Jing” (Bole’s Canon of Veterinary Acupuncture) 695 B.C to 621 B.C.
Fundamentals of Acupuncture

- Energy channels traverse the body
- Named for organs, realms of influence functional, energetic, and metaphorical qualities
- E.g. Kidney supervises bones, marrow, joints, hearing, head hair, will, and motivation
- E.g. Spleen oversees digestion, blood production, blood related functions, nurturing, introspection
- Pathways superficial to deep: tendinomuscular meridians, principal meridians, distinct meridians, curious meridians
- Principal meridians 3 bilaterally symmetrical plates, divide the body into six sagittal territories of influence, w/energy from organ
Fundamentals of Acupuncture

• Stimulation of a specific point via specific method
• Results in therapeutic homeostatic effect
• 361 human and 173 animal acupuncture (Shu-xu) points
• Points located in areas of high density free nerve endings, mast cells, arterioles, lymphatic vessels: THIS IS SIGNIFICANT!
• Stimulation releases beta-endorphin, serotonin, neurotransmitters
• Qi: life force, energy, 2 opposite forces Yin and Yang
• Flows through body nourishing meridians and organs
• Balance is health, in-balance is disease and pain
Diagnosis & Rx in Acupuncture

• Extensive history, hands on physical exam
• Palpate meridians and acupuncture points
• Recognize the level of manifestation of disturbance
• Recognize the energy meridians involved
• Insert needles along the channels of the involved organs
• Stimulate or sedate to increase or decrease energy via manipulation of the needles
Case 1: WP

• 49 Yr Old WF

• Western Medicine Diagnosis: PTSD, Chronic Pain, Fibromyalgia, Constipation

• PE: Unremarkable other than TTP bilateral trapezius muscles

• Acupuncture Diagnosis: Tai Yang/Shao Yin Dysfunction
Case 1: WP Treatment

• Initially weekly 8 treatments, then prn
• Step 1: Load body with energy: subsequent treatments effective
• Step 2: Energy balancing treatments: insomnia, PTSD, chronic pain
• Step 3: Specific Circuit
Case 1: WP Treatment

- Returned with Lt arm pain, elbow to wrist
- Distribution: Large Intestine Energy Meridian (Tai Yin/Yang Ming)
- Energized specific organs: Spleen, Lung, Large Intestine
Case 1: WP Treatment Theory

- Organs involved in Tai Yin/Yang Ming energy meridian include spleen, lung, large intestine, stomach.
- Same organs were individually targeted with different treatments.
- 1st treatment: affected the energy flow along the meridians that contact these organs.
- 2nd treatment: energized the organs themselves.
- Spleen: principal organ of digestion.
- Large Intestine: one of the few that is same for Chinese & Western Medicine, absorb water, form feces.
- Lung Qi responsible for evacuation of bowel.
Case 2: JP

• 29 yo wm
• Western Medicine Diagnosis: TBI, PTSD, Chronic Pain, Late Effects of Intracranial Injury, Contact Dermatitis Due To Poison Ivy
• CC: “The itching is driving me crazy, I can’t sleep”
• PE: Red, Weepy skin Lt Arm, Ear scan points reactive skin 1, 2, 3
• Acupuncture Diagnosis: Acute Heat Invasion
Case 2: JP Treatment Theory

- Key to diagnosis & treatment is recognize level of manifestation
- Insert needles along channel of involved organs, restore balance & function
- Most superficial energy pathway is the tendinomuscular meridian
- Interface between the organism & external environment
- First defense, body response to climatic conditions, external trauma
- Poison ivy distributed along Lung, Master of the Heart, Heart meridians
Case 2: JP, Energy Meridians
Case 2: JP Energy Meridians
Case 2: JP Treatment

- **Auriculotherapy:** Serin needles inserted in ear to skin 1, 2, 3
- **Tendinomuscular Meridian:**
  - Ting points LU-11, MH-9, HT-9
  - Gathering Point GB-22
  - Surround the lesion with needles, applied isopropryl alcohol to needles, 45 minutes
- **TBI/PTSD Protocol:** ASP needles applied to ear points shen men, point zero, master cerebral, amygdala, hypocampus, hypothalmus
Case 2: JP, Superficial Energy Circuit (TMM)
Case 2: JP, Superficial Energy Circuit (TMM)
Case 2: JP, Superficial Energy Circuit (TMM)
Before and 45 Minutes After RX
Case 2: JP Treatment

- Itching stopped within 1-2 minutes of needle insertion
- Relief continued, lesions dry within 24 hours
- At 7 day follow up lesions gone, minor skin discoloration
- Return to TBI/PTSD chronic pain protocol
- Weekly treatments, challenged by meds (Amytriptlyine, tramadol)
Results Summary

• Most common problems: pain, musculoskeletal, EENT, headaches, other functional/organic problems, PTSD, TBI

• Average 75% improvement

• Patient and provider satisfaction

• Reduction in symptomatic medication

• Operational impact: faster RTD, fewer man-hours lost

• Side effects/complications: none
Next Steps

- Learn other modalities: laser techniques, alternate electrical stim techniques
- Perfect more complex energy circuit techniques
- Research studies
Questions

• www.hmieducation.com
• www.tcvm.com
• www.medicalacupuncture.org
Research Question

Does the use of auricular acupuncture (like BFA) with retained ASPs cause adverse effects while in a high G environment (up to 9 Gz)?
Acupuncture has been anecdotally used in the operational environment with success to further mission completion

Current AFI is prohibitive and vague

More studies needed especially for aviators

Need to evaluate effect of auricular acupuncture on G-tolerance
Acupuncture is permitted for aircrew, ground-based controllers, SMOD, and special duty personnel within the following guidelines:

• No flying/SOD with retained needles
• No self-referrals (must have referral from flight surgeon and note in medical record)
• Treatment must be done by DoD providers or civilian practitioners within DoD MTFs who are credentialed in acupuncture treatment
• Used for short-term treatments only
Acupuncture requires 12 hours post-treatment DNIF/DNIC and evaluation by flight surgeon prior to RTFS (no automatic RTFS).

• Flight surgeons must consider the patient’s underlying condition and whether or not the condition itself requires DNIF or waiver.
Hypothesis

Auricular acupuncture applied to the Battlefield Acupuncture points will not have a negative effect on rapid G-tolerance 2 hours post insertion
Study Design

- Repeated measure design
- Human subject centrifuge panel
- “Treat” with auricular acupuncture (BFA protocol)
- Monitor for side effects and document as appropriate over two hour period
- Rapid onset in the centrifuge up to 9 Gz wearing aviator attire using SACM protocol (7 G, 9 G)
- Reevaluate for side effects and compare G-tolerance to baseline SACM without acupuncture
Study Design

BFA points for bilateral ears  (adapted from Richard C. Niemtzow, MD, BFA protocol & drawing with funds from the SG office and contracted with Samueli Institute staff in Alexandria, VA)
Selection Criteria

• DoD military personnel only
• Volunteer test subjects
• Each volunteer obtained written permission from his/her supervisor to participate in the research protocol

Entrance Criteria:
1. Age: 18 – 50 years of age
   • Gender: male or female
   • Height: 152.5 – 195.5 cm (60-77”)
   • Weight: 40 – 135 kg (88-297 lbs)
   • Health Status: low risk stratification, signed 1042

• Test subjects met minimal health retention standards IAW AFI 48-123.
Methods

• SACM protocol without acupuncture
• SACM protocol with acupuncture
• BFA protocol placed upon arrival and subjects wait two hours till centrifuge spin
• Endpoint will be fatigue
• Subjects served as their own controls
• Order of SACM protocol randomized
Conclusion

• No statistically significant effect on G-tolerance
• For majority saw a small but statistically insignificant increase in G-tolerance
  – Exception were those who were acupuncture naïve and completed 20-minute cohort (instead of 2-hour cohort 1st)
• Subjects noted spin with acupuncture felt easier
• Coriolis side effects diminished with acupuncture
• Aviators should not be treated operationally if they are acupuncture naïve (need 2 hours)
Study Limitations

• Not possible to blind subjects to acupuncture
  – No true sham sites on the ear (all sites are active)
  – People know if they are being needled
  – Subjects unable to see their spin results but know how many cycles they have done

• Investigator not blinded

• Study cannot distinguish physiologic vs placebo

• Protocol does not exceed 15 cycles of 7,9 +Gz
Next Step and Future Goals

• Finalize results for rapid onset +Gz
• Ability to expand study to bases providing acupuncture to aviators
• Allowing aviators to perform their assigned duties as appropriate
• Continue to gather data
• Reevaluate acupuncture AFI for aviators and reevaluate policy as appropriate based on results (Aircrew Standards Working Group and Corporate Board)


Medical Acupuncture for Aviators and Non Aviators in a deployed setting

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56th AMDS SQ/CC
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13 May 2013
I have no financial relationships to disclose and I will not discuss off-label use and/or investigational use in my presentation.
Background

- While deployed from June – December 2010 served as the Deputy Med Group Commander/Chief Aerospace Medicine at “undisclosed location”
- Introduced acupuncture as a stand alone and adjunctive therapy into the small MDG clinic
- Over 400 acupuncture patient encounters in 6 months
- Majority reported complete pain resolution or significant improvement
Multiple General Practice-type Conditions Treated

• Musculoskeletal (acute and chronic):
  – Neck, back, shoulder, knee, ankle, foot
• Headaches
• Fatigue
• Anxiety / Stress / Addiction?
A look at 3 Patients

40 y.o. White Male, U2 pilot being followed by the U2 Squadron Flight Docs for 10 months of intermittent headaches, 2-4 times per week, gradual onset, no aura, no scotomata, usually began in the morning and worsened throughout the day. Happening more frequently since arriving to theater. Good response to ibuprofen or massage/chiropractor in past. Not during flights or after flights, but mostly on admin days and prior to flights, but can happen “any time.” Typically 6/10 pain

Headache is bilateral frontal, parietal, temporal, dull/ache in nature. No known precipitators. Not made worse by noise or light. No parasthesias, no weakness, no fever, chills, sweats, although sore/stiff trapezius muscles.
U2 Pilot with intermittent headaches

PMHx: Left knee meniscus injury o/w neg

PSHx: Left knee arthroscopy, meniscus debridement, microfracture lateral femoral condyle

Social: Smokeless Tobacco

Meds: None

Physical Exam: 132/85, 76, 16, 97.8, 98%, 72” 230 lbs, BMI 31.19

Well appearing, alert oriented, pleasant, big guy

Suffice to say physical exam is completely normal to include, Head, HEENT, Neck, Lungs, Cardio, Abdomen, Neuro exam. No temporal artery pain. Trapezius muscles solid, somewhat hard/woody and sore “definitely carry stress in my neck”

MRI read as normal
U2 Pilot with intermittent headaches

Without going into the Differential Dx of headaches in a U2 pilot, (DCS, Sinusitis, Migraine, etc.) U2 Flight Surgeon added Cyclobenzaprine to Ibuprofen, but DNIF. Pt referred to me for trial of acupuncture for headaches: Working Dx “Stress/Tension type headache.” Wears heavy space suit helmet for 10-12 hour sorties; remember big guy in a space suit in a single seat cockpit.

Introductory Mega Mu Shu (MMS) every other day X 3 treatments, ASP needles in Cingulate Gyrus, Omega 2 bilaterally. Initially pt reports headaches less frequently and less intense. Comes off Flexeril, Returns to Fly Status.
U2 Pilot with intermittent headaches

Over the next 4 months implemented Gua Sha over bilateral trapezius muscles intermixed with MMS. Headaches well controlled to 1 per week 1-2/10 at most.

Pt very pleased that he can continue mission, stay in theater, off DNIF’ing meds. Reports his headaches are minimal and infrequent and trapezius muscles less tight/sore.
26 y.o. white female with 1 year of smoldering low back pain, bilateral lower myofascial area lumbar region. Aggravated with lifting and doing “Insanity” workouts. Some days worse than others. No radiation into buttocks or legs. No bowel or bladder incontinence. No fevers. No other medical complaints. Wants to keep doing her job and working out. Pain is 5-6/10

PMHx: Negative

PSHx: Negative

Social: No tobacco or alcohol

Meds: tylenol or motrin prn – “helps a little”
Back Pain

Physical Exam: Normal vital signs, Well appearing, No distress
Back exam: range of motion – forward flexion to fingers to floor easily. Lateral rotation and lateral bend both full with some moderate discomfort. Palpation over L-Spine reveals no midline tenderness, and moderate pain paraspinal muscles bilaterally L2-S1. Remainder of exam including reflexes and strength is normal.

Working Dx: Mild to moderate lower lumbar chronic sprain

Pt does not desire to take medicine and would like trial of acupuncture
1\textsuperscript{st} session attempt at scalp acupuncture over area corresponding to lower back bilaterally.

Pt passes out secondary to “needle shock” with threading of 2\textsuperscript{nd} needle. Needles removed and 10 seconds later she wakes up. Over the next 15 minutes patient is observed, vital signs normal and stable. Color comes back into her face, reports “My back pain is gone.” Hmmm Hmmm Awesome, but not ideal!

Pt reports back to clinic saying that her back pain stayed away for 2 weeks but as she has continued to do Insanity work outs and her job, slowly starting to return and now 4/10. Pt did not want to stop working out
Back Pain

Opted to trial N, N+1 energy movement technique on Shao Yin, Tai Yang axis. 20 minute treatment 4Hz at tolerated intensity

Pt once again reports that her 4/10 pain is now 0/10.

Able to do her job and continue her workouts. Discussed proper form, lifting techniques, core strengthening, stretching post workout. Returned 2-3 more times during the remainder of her 6 month deployment for occasional flares, but said first time in a year total pain resolution lasting weeks at a time.
20 years of headaches, list of diagnoses 1.3 AHLTA pages long, to include but not limited to anxiety, depression, seasonal allergies, ADHD, and so many more. Lack of energy, ROS positive. Sent to me from Mental Health clinic to see if I could help with his headaches. Tried antidepressants before without success.

Reports lots of stress at home base. Has been in trouble a couple of times for disagreements with supervisors. Headaches have been constant and at times debilitating for years. Has seen several physicians but reports never seen Neurology or had an MRI. Headaches are set off by several types of food and “roller coaster type movements.” No parasthesias, no weakness, passes PT test and able to do job
38 y.o. White Man with........

He did not wish to discuss his mental health or childhood history (thank Heavens) and in the month that he had been in theater, prior to seeing me, had proven to be good at his job, but lacked energy and headaches were “Killing me.”

He reports that he does not carry stress well and internalizes much of his difficulties.
38 y.o. White Man with........

What is this guy doing in the deployed setting? Great question... but those of you have deployed know that they show up.

PMHx: TNTL (Too numerous to list)

PSHx: None

All: NKDA (no kidding)

Meds: 16 tables a day of a self directed regimen of a mix or Extra Strength Excedrin (acetaminophen, aspirin, caffeine) and Percogesic (acetaminophen, phenyltoloxamine—antihistamine) which he was certain that he had to continue as he had 20 years of experience with these headaches.

4 tabs in the morning, 4 late morning, 4 afternoon and 4 evening
Physical Exam:
Vital Signs normal and stable, Ht 66” Wt 175 lbs. BMI 27.44
Well developed / well nourished, alert and oriented, pleasant
Remainder of physical exam normal, including normal neuro exam
Mental Health started him on SSRI (again) and psychotherapy and asked that I implement adjunctive acupuncture to which the patient agreed.

After lengthy discussion of taking too large a dose of acetaminophen and his likely caffeine withdrawal headaches, we decided to work together and help him “wean” himself off of his medications. He was extremely fearful that headaches would return and his OCD was strong about taking every last pill.

By the way, he has a “Phobia of needles” – Great! 😞
Started with introductory anxiety treatment with GV 20 and GV 24.5 combined with “4 windows” LI4 and LR3 bilaterally for 20 minutes without electrical.

Gradually worked him up to Mega Mu Shu low frequency low intensity for 10 minutes and combined Auricular acupuncture Omega-2 and Shen Men bilaterally starting 2 times per week and diminished eventually to 1 time per week.

Over the next 2.5 months weaned off his 4 pills 4 times per day to 1 percogesic in the evening. His daily headaches decreased to 1 headache every other week at about 1-1.5/10 and were easily managed. His energy returned, he thrived in his work on base and reported feeling happy, accomplished and successful for the first time in his life.
I used acupuncture in a small overseas medical clinic in support of Operation Enduring Freedom for a variety of common outpatient acute and chronic needs. In over 400 pt encounters, more than 90% reported improvement in their symptoms.

Acupuncture also allowed me to return several aviators back to flying duty and mission accomplishment by avoiding medications that would otherwise require DNIF.

Acupuncture in a deployed setting is an excellent tool in a provider’s armamentarium to be used as stand alone, adjunctive, or coordinated therapy with other specialties to alleviate pain, stress, and fatigue.
OEF Treatment of Wounded Warriors With Acupuncture

84th Annual AsMA Scientific Meeting

Tim “Blade” Duffy, D.O.
LtCol, USAF, MC, SFS
Flight Commander
Hill AFB, UT

13 May 2013
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Background

• While deployed in 2012, I was introduced to the “Wounded Warriors” unit in Kandahar, Afghanistan.

• Injured soldiers that could return to the battlefield stayed here for a few weeks.

• Typical patient was involved in a vehicular IED explosion with no visible wounds.
Hypothesis

• The majority of vehicular IED trauma patient’s suffered from a triad:
  – Headaches
  – Insomnia/anxiety
  – Musculoskeletal complaints

• Would a single medical acupuncture protocol be effective for all patients suffering from this constellation of symptoms?
Study design

- The protocol integrated three forms of medical acupuncture:
  - Scalp
  - Auricular
  - Traditional Chinese acupuncture

- Specific points included:
  - Governor vessel 20, liver 3, large intestine 4
  - Battlefield auricular acupuncture protocol
Selection

• Goal: treat all patients who had been involved in the same trauma together

• “Wounded Warrior” staff identified qualifying patient’s who suffered from the IED triad:
  – Headache
  – Insomnia/anxiety
  – Musculoskeletal complaints
Treatment protocol

• After verbal and written consent, patients were treated together in a quiet dark room for 45 minutes
• A 0-10 pain scale was performed pre-and post treatment
• Treatment order:
  – Governor vessel 20, liver 3, large intestine 4
  – Battlefield auricular acupuncture protocol
Battlefield Auricular Acupuncture

ALL POINTS

Omega 2

Shen Men

Point Zero

Cingulate Gyrus

Thalamus
Treatment outcomes

• 47 patients were treated with this protocol
• All 47 patient’s reported decreased symptoms
• Initial pain scores averaged 7/10
• Post treatment scores averaged 2/10
• Pain reduction remained in effect at 72 hour follow up
• No negative side effects (lots of positive ones)
Conclusion

• Medical acupuncture is a safe and effective treatment modality

• For patient’s suffering from the triad of headache, insomnia/anxiety and musculoskeletal complaints the simple treatment protocol as described was noted to be effective
Questions?