Use of Auricular Acupuncture in Opioid Use Disorder

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Objectives

- Review Opioid Use Disorder and Opioid Abstinence Syndrome - discuss treatment options
- Explore the history, Mechanism Of Action (MOA), and uses of acupuncture
- Evaluate literature describing use of auricular acupuncture for OUD and OAS
Outline

Opioid Use Disorder/Withdrawals
- Diagnosis
- Treatment

Acupuncture
- History
- Proposed MOA
- Use
- NADA Protocol

Literature Review

Summary and Conclusions
Assessment Question #1

What is acupuncture used for?

a) Chemotherapy induced nausea and vomiting
b) Postoperative pain
c) Migraine prevention
d) Smoking Cessation
e) All of the above
Opioid Use Disorder
### DSM V Diagnostic Criteria - OUD

A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

<table>
<thead>
<tr>
<th>Opioids taken often and large amounts</th>
<th>Desire or unsuccessful efforts to cut down or control use</th>
<th>Time spent to obtain/use opioids</th>
<th>Cravings or strong desire to use</th>
<th>Opioid use causing trouble at work/school/home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causing social/interpersonal problems</td>
<td>Giving up social, occupational or recreational activities</td>
<td>Recurrent use while physically hazardous</td>
<td>Continued use despite knowledge of having a problem</td>
<td>Tolerance or withdrawal</td>
</tr>
</tbody>
</table>

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# Opioid Receptors

Widely distributed in the brain, also found in the spinal cord and digestive tract

## 3 major families:

<table>
<thead>
<tr>
<th>delta (δ)</th>
<th>kappa (κ)</th>
<th>mu (μ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Brain, peripheral sensory neurons</td>
<td>• Brain, spinal cord, peripheral sensory neurons</td>
<td>• Brain, spinal cord, peripheral sensory neurons, intestinal tract</td>
</tr>
<tr>
<td>• Analgesia, physical dependence</td>
<td>• Analgesia, dissociative/hallucinogenic effects, dysphoria</td>
<td>• Analgesia, physical dependence, respiratory depression, sedation, reduced GI motility, euphoria</td>
</tr>
</tbody>
</table>
Opioid Withdrawals

- Rarely life threatening
- Severity varies based on dose and pharmacological properties of the used opioid
  - Morphine withdrawal usually peaks at 36-72 hours after last dose, lasts 5 days
  - Methadone withdrawal usually peaks at 4-6 days, lasts 10-12 days
- Opioid antagonists may be safely prescribed within 1 week of cessation of short-acting opioids, 10-14 days after cessation of methadone
Assessment of Opioid Withdrawal

Subjective Opiate Withdrawal Scale – SOWS
- Patient assesses their symptoms right now on a 0-4 scale

Objective Opiate Withdrawal Scale – OOWS
- 5 minute patient observation, assess symptoms on 0-1 scale

Clinical Opiate Withdrawal Scale – COWS
- Clinician rated scale based on signs and symptoms related to opiate withdrawals, score 0-4 per item
  - Score 5-12 = mild
  - Score 13-24 = moderate
  - Score 25-36 = moderately severe
  - Score >36 = severe
Medication Assisted Therapy (MAT)

Tapered oral methadone
- Greatest risk of over-sedating, less expensive, sustainable in pregnancy

Tapered sublingual buprenorphine
- Sustainable, once daily administration, less severe withdrawals, higher rates of completion compared to alpha-2 agonists

Naltrexone
- Opioid antagonist, available in tablet form and monthly LAI, used to prevent relapse

Tapered oral alpha-2 agonists
- Shorter duration of withdrawal symptoms, shorter time to commencement of naltrexone
Medical Management of Withdrawal Symptoms

Autonomic symptoms (sweating, tachycardia, myoclonus)
- **Clonidine** 0.1 to 0.2mg every 6 to 8 hours
- Baclofen 5mg three times daily, may increase to 40mg
- Gabapentin start at 100 to 300mg titrate to 1800 to 2100mg divided in 2 to 3 doses

Anxiety
- Hydroxyzine 25 to 50mg three times daily as needed
- Diphenhydramine 25mg every 6 hours as needed

Sleep disturbances
- Trazodone 25 to 300mg at bedtime

Abdominal cramping
- Dicyclomine 20mg every 6 to 8 hours as needed
Medical Management of Withdrawal Symptoms

**Myalgias**
- NSAIDs
- Acetaminophen 650mg every 6 hours as needed
- Topical medications (menthol, lidocaine etc.)

**Nausea**
- Prochlorperazine 5 to 10mg every 4 hours as needed
- Promethazine 25mg orally or rectally every 6 hours as needed
- Ondansetron 4mg every 6 hours as needed

**Diarrhea**
- Loperamide 4mg orally initially, then 2mg with each loose stool (max 16mg/day)
- Bismuth subsalicylate 524mg every 0.5 to 1 hour (max 4192mg/day)
Assessment Question #2

What can be used to treat restlessness, sweating, tachycardia and myoclonus due to opioid withdrawals?

a) Alprazolam
b) Cyclobenzaprine
c) Clonidine
d) Propranolol
e) Hydroxyzine
Acupuncture
Acupuncture - History

Technique of inserting and manipulating fine needles in specific points on the body to achieve therapeutic purposes.

Widely practiced in China for more than 4000 years
- Illness and diseases caused by imbalance or interruption of Qi
- Acupuncture reintroduces balanced flow of Qi

• Gained popularity in 1971 in the United States
  - Reporter wrote about his experience

• In 2007 an estimated 3.1 million US adults had acupuncture in the previous year
Acupuncture – Mechanism of action

**GATE CONTROL THEORY OF PAIN**
- Stimulates the inhibitory nerve fibers for a short period of time, reducing transmission of the pain signal to the brain

**ENDORPHIN MODEL**
- Inserting acupuncture needle into specific points stimulates production of endorphins in CSF

**NEUROTRANSMITTER MODEL**
- Modulation of serotonin and norepinephrine can make acupuncture efficacious for treatment of depression and anxiety
# Acupuncture – Use

<table>
<thead>
<tr>
<th>Evidence of positive effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergic rhinitis</td>
</tr>
<tr>
<td>Chronic low back pain</td>
</tr>
</tbody>
</table>
## Acupuncture – Use

<table>
<thead>
<tr>
<th>Evidence of potential positive effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute low back pain</td>
</tr>
<tr>
<td>Ambulatory anesthesia</td>
</tr>
<tr>
<td>Cancer pain</td>
</tr>
<tr>
<td>Prostatitis pain/chronic pelvic pain</td>
</tr>
<tr>
<td>Schizophrenia</td>
</tr>
<tr>
<td>Shoulder pain</td>
</tr>
</tbody>
</table>
Auricular Acupuncture

Body structures and functions are "mapped" on the outer surface of the ear. It can be defined as the stimulation of the skin of the ear for diagnosing and treating health problems in other parts of the body.

Original approach:
- Dates back to ancient China
- Based on traditional notion related to the flow of energy (Qi)

Modern approach:
- Discovered in 1950s by Paul Nogier – French neurologist
- Body surface and internal organs are represented on the ear in a pattern that resembles an inverted fetus
National Acupuncture Detoxification Association

Not-for-profit training and advocacy organization

Established in 1985 to provide more uniform approach to training of practitioners using “The Lincoln Model”

Auricular acupuncture technique originated at Lincoln Hospital in the 1970s in response to the opiate epidemic

Encourages community wellness through the use of a standardized auricular acupuncture protocol for behavioral health (addictions, mental health, disaster and emotional trauma)
NADA Protocol

Standardized training provided by NADA registered trainers
  Using the NADA Training Resource Manual

Simple, standardized 1- to 5-point auricular protocol

Used by >500 state addiction programs across the United Stated, and >1500 worldwide

NADA protocol has “immediate calming effect” that improves patients involvement in the treatment
NADA Protocol

The 5 points have been shown to produce various effects including:

❖ Neurophysiologic
❖ Biochemical
❖ Endocrine
❖ Emotional
❖ Cognitive

Found to improve engagement, retention, decrease drug craving, anxiety and lessen physical symptoms of withdrawal

**NOT A STAND ALONE TREATMENT**

- Designed to be used in a comprehensive integrated substance abuse program
Assessment Question #3

How many auricular acupuncture points does the NADA protocol have?

a) 1-3
b) 2-5
c) 3-4
d) 1-5
e) 1-7
Acupuncture Heroin Detoxification: A Single-Blind Clinical Trial
**Design** Washburn et al (1993)

**Objective**
- Test whether the standard acupuncture protocol for addiction would have an effect on treatment retention and on opiate use when compared to placebo ("sham" treatment)

**Design**
- Single-blind clinical trial
- 100 heroin addicted adults in the San Francisco area

**Intervention**
- Standard (4 points based on NADA protocol) acupuncture
- "Sham" acupuncture
### Design

**Washburn et al (1993)**

<table>
<thead>
<tr>
<th><strong>Inclusion</strong></th>
<th><strong>Exclusion</strong></th>
<th><strong>Endpoints</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reported a history of IV heroin use confirmed by a physical exam</td>
<td>• Pregnancy</td>
<td>• Total number of days received treatment</td>
</tr>
<tr>
<td>• Not currently enrolled in a methadone detoxification program</td>
<td>• Parole or probation</td>
<td>• Last day in treatment of the 21-day period</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mean number of days in treatment and self-reported frequency of heroin use</td>
</tr>
</tbody>
</table>

**WASHBURN AM, FULLILOVE RE, FULLILOVE MT, ET AL. ACUPUNCTURE HEROIN DETOXIFICATION: A SINGLE-BLIND CLINICAL TRIAL. J SUBST ABUSE TREAT. 1993; 10:345–351.**
Results Washburn et al (1993)
Results Washburn et al (1993)

![Table 2: Length-of-Stay for Acupuncture Trial Participants]

<table>
<thead>
<tr>
<th></th>
<th>Sham treatment (n = 45)</th>
<th>Standard treatment (n = 55)</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median number of days</td>
<td>1</td>
<td>2*</td>
<td>—</td>
</tr>
<tr>
<td>Median last day (of 21)</td>
<td>1</td>
<td>2*</td>
<td>—</td>
</tr>
<tr>
<td>Number staying beyond 21 days</td>
<td>4 (.09)</td>
<td>16* (.29)</td>
<td>.06 .34</td>
</tr>
</tbody>
</table>

*Confidence intervals cannot be computed for the median values compared by the Mann-Whitney U test if the n’s are unequal.

*p < .05.
Results  Washburn et al (1993)

<table>
<thead>
<tr>
<th>Treatment condition</th>
<th>Standard acupuncture (n = 55)</th>
<th>Sham acupuncture (n = 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light (n = 31)</td>
<td>M 6.11 SD 6.02</td>
<td>M 3.08 SD 3.82</td>
</tr>
<tr>
<td>Medium (n = 52)</td>
<td>M 3.92 SD 4.10</td>
<td>M 1.75 SD 1.96</td>
</tr>
<tr>
<td>Heavy (n = 17)</td>
<td>M 2.23 SD 3.30</td>
<td>M 1.25 SD 0.50</td>
</tr>
</tbody>
</table>

Note: Main effects for both treatment condition and frequency of use were significant at p < .01.

- Standard acupuncture increased treatment retention when compared to sham treatment
- Lighter heroin users attended acupuncture clinic more days and over a longer period of time compared to medium and high users
- Subjects receiving standard acupuncture were more likely to return for treatment beyond the 21-day period compared to sham group
Limitations and Critique Washburn et al (1993)

- Focus on 21-day acute detoxification time period
- Participants were reimbursed for participation with most of the money paid on day 1
- Lack of long term outcomes
- Lack of comparison to standard of care (21-day methadone detoxification)

- NADA protocol was intended to be used in combination with other modalities (MAT, counseling)
- Unable to determine long term retention and abstinence
- No reports on withdrawals, side effects, need for additional treatment
Auricular acupuncture as an adjunct to opiate detoxification treatment: Effects on withdrawal symptoms

Bearn et al (2009)
Design  Bearn et al (2009)

**Objective**
- To determine if auricular acupuncture would lead to reduced severity of opiate withdrawal symptoms and cravings when provided as an adjunct to methadone detoxification

**Design**
- Randomized, single-blind, placebo-controlled
- 83 drug misusers meeting DSM IV criteria for OUD in London

**Intervention**
- Auricular acupuncture 5 days per week in addition to daily methadone
- Placebo oil treatment in additional to daily methadone
**Design** Bearn et al (2009)

### Inclusion
- Meeting the DSM IV diagnosis of opioid dependence
- Referral to inpatient detoxification treatment program

### Exclusion
- Major physical or psychiatric comorbidity
- Concurrent treatment with antidepressants or neuroleptic drugs
- Pregnancy
- Ear infection or eczema

### Endpoints
- Daily SOWS
- Daily 8-item craving questionnaire (Maudsley Craving Scale)
Results  Bearn et al (2009)

Fig. 1. Mean opiate withdrawal scores. There were no statistically significant differences between the treatment groups on any day.
Results Bearn et al (2009)

Fig. 2. Mean craving scale scores. There were no statistically significant differences between the treatment groups on any day.
Summary  Bearn et al (2009)

- Auricular acupuncture was not found to affect withdrawal responses during opioid detoxification
- Levels of opioid withdrawal as well as cravings were comparable in both treatment groups
- Of note – Acupuncture group was stabilized on average of 53.1mg of methadone (initial 60mg), where the control was stabilized on 55.2mg (initial 53mg)
Limitations and Critique Bearn et al (2009)

- Patients that were using benzodiazepines were receiving unknown doses of diazepam
- Small number of participants
- Polysubstance abuse
- Lack of long term outcomes

• Not part of the endpoints, however, important to note the decreased dose of methadone needed in the acupuncture group compared to the control (initial and stabilized)

• Inpatient acute detox program is not realistic for most facilities, cannot predict retention in program and abstinence
Acupuncture as an Adjunct to Methadone Treatment Services

## Objective
- To determine if participants receiving acupuncture would:
  - Demonstrate better clinic attendance
  - Stabilize at lower methadone doses
  - Exhibit less licit and illicit drug-taking
  - Report fewer withdrawal symptoms

## Design
- Single-blind, longitudinal, 3 armed study with historical comparison
- 78 patients between the Evergreen Treatment Services and VAMC in Seattle

## Intervention
- Specific AA 5 days per week in addition to methadone treatment
- Non specific AA 5 days per week in addition to methadone treatment
- No placebo (use of “historical comparison”) in addition to methadone treatment
Inclusion

- New admission to the methadone treatment program
- Opioids being the primary drug
- Federal requirements to enter a methadone treatment program

Exclusion

- Pregnancy
- Readmission to the methadone treatment study

Endpoints

- Methadone dose at 4, 12 and 26 weeks
- Voluntary questionnaire to assess cravings and withdrawals
- Attendance and retention

## Results


**Methadone dose**

- Median dose 55.9mg

<table>
<thead>
<tr>
<th>Time</th>
<th>Specific AA</th>
<th>Non-specific AA</th>
<th>Historical</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td>60.28 +/- 11.31</td>
<td>60.94 +/- 10.36</td>
<td>54.35 +/- 8.98</td>
</tr>
<tr>
<td>6 months</td>
<td>53 +/- 15.13</td>
<td>64.23 +/- 10.96</td>
<td>54.64 +/- 9.9</td>
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Results  Wells et al (1995)

Methadone dose
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<td></td>
<td>Mean Methadone Dose (mg)</td>
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<td>54.64 +/- 9.9</td>
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</table>
Results  Wells et al (1995)

FIGURE 1. Strength of desire for heroin: median ratings

![Graph showing median ratings of desire for heroin over weeks from treatment entry.](image-url)
Results Wells et al (1995)

Withdrawal symptoms

- Specific group reported:
  - Fewer days of nausea and vomiting during weeks 4-7 (P <0.05)
  - More days of muscle aches during weeks 20-26 (P <0.05)
  - More days of poor sleep during weeks 20-26 (P <0.05)
### Results


<table>
<thead>
<tr>
<th>Endpoint (attendance)</th>
<th>Specific AA</th>
<th>Non-specific AA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sessions attended</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Median number of weeks attended</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Weeks participating in project</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Percent of clients that dropped out or discharged before 6 months</td>
<td>25.8%</td>
<td>34.5%</td>
</tr>
</tbody>
</table>

- No statistical difference in methadone dose between Specific and Non-specific acupuncture group at 3 and 6 months, however, less methadone was used in the Specific group at 6 months
  - Statistical difference in mean methadone dose between “historical comparison” and Non-specific acupuncture was noted at 6 months

- Statistically higher craving rates were reported in the Specific group between weeks 12 and 26

- Specific group experienced less nausea and vomiting during weeks 4-7 but more muscle aches and poor sleep during weeks 20-26 compared to Non-specific group

- Attendance and retention did not differ between groups
Limitations and Critique Wells et al (1995)

- Lack of full results reported in study
- Removal of the “minimally treated” group
- Self-reported withdrawal/craving symptoms
- Polysubstance abuse
- Use of “historical comparison”

- Multidisciplinary team approach to treatment (MAT, Acupuncture, counseling, medical treatment)
- Patients actively using cocaine during treatment may not be representative
- Maintenance therapy included (6 months)
Auricular Acupuncture for Drug Dependence: An Open-label Randomized Investigation on Clinical Outcomes, Health-related Quality of Life and Patient Acceptability
Lua et al (2013)
**Design** Lua et al (2013)

**Objective**
- Compare clinical outcomes of methadone maintenance therapy alone and in combination with auricular acupuncture

**Design**
- Open-label, randomized investigation
- 97 eligible males in Malaysia

**Intervention**
- Auricular acupuncture 3 times per week in addition to methadone maintenance therapy
- Methadone maintenance therapy
**Inclusion**
- Participants enrolled in one of the 3 prespecified MMT centers
- Opiate dependency established by physical exam
- 18 years of age
- Understand, read, speak and write in Malay language

**Exclusion**
- Violent behaviors, suicidal tendencies, psychotic profiles
- HIV or Hep B infection
- Allergic to metal
- Exhibited rude behaviors or involved in criminal action

**Endpoints**
- Daily methadone dose
- Number of cigarettes smoked/week
- Withdrawal symptoms
- Health-related quality of life pre- and postintervention

 Lua et al (2013)
## Results Lua et al (2013)

<table>
<thead>
<tr>
<th>Variables</th>
<th>MMT (n = 40)</th>
<th>MMT+AA (n = 29)</th>
<th>P Value(^{a})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Methadone Dose (mg)</td>
<td>60.00; 20.00 (59.44 ± 19.34)</td>
<td>50.00; 23.80 (50.60 ± 23.70)</td>
<td>.044</td>
</tr>
<tr>
<td>No. of Cigarettes (per wk)</td>
<td>70.00; 35.00 (71.50 ± 30.65)</td>
<td>35.00; 50.00 (47.57 ± 36.12)</td>
<td>.003</td>
</tr>
</tbody>
</table>
### Results

Lua et al. (2013)

<table>
<thead>
<tr>
<th>Variables</th>
<th>MMT (n = 40)</th>
<th>MMT+AA (n = 29)</th>
<th>P Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Withdrawal Symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yawning/sneezing</td>
<td>2.00; 1.00</td>
<td>2.00; 1.50</td>
<td>.135</td>
</tr>
<tr>
<td></td>
<td>(1.83 ± 0.98)</td>
<td>(2.03 ± 0.73)</td>
<td></td>
</tr>
<tr>
<td>Muscle cramp</td>
<td>2.00; 2.00</td>
<td>2.00; 2.00</td>
<td>.788</td>
</tr>
<tr>
<td></td>
<td>(1.95 ± 0.93)</td>
<td>(2.03 ± 1.02)</td>
<td></td>
</tr>
<tr>
<td>Craving</td>
<td>1.00; 1.00</td>
<td>2.00; 1.00</td>
<td>.494</td>
</tr>
<tr>
<td></td>
<td>(1.70 ± 0.94)</td>
<td>(1.79 ± 0.86)</td>
<td></td>
</tr>
<tr>
<td>Sleeping problem</td>
<td>2.00; 1.00</td>
<td>3.00; 1.00</td>
<td>.299</td>
</tr>
<tr>
<td></td>
<td>(2.40 ± 0.98)</td>
<td>(2.66 ± 1.01)</td>
<td></td>
</tr>
<tr>
<td>Sweating/runny nose</td>
<td>2.00; 2.00</td>
<td>2.00; 2.75</td>
<td>.826</td>
</tr>
<tr>
<td></td>
<td>(2.35 ± 1.10)</td>
<td>(2.41 ± 1.15)</td>
<td></td>
</tr>
</tbody>
</table>
## Results Lua et al (2013)

<table>
<thead>
<tr>
<th>Variables</th>
<th>MMT (n=40)</th>
<th>MMT+AA (n=29)</th>
<th>P Valuea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>1.00; 1.00</td>
<td>1.00; 1.00</td>
<td>.330</td>
</tr>
<tr>
<td></td>
<td>(1.36 ± 0.58)</td>
<td>(1.52 ± 0.69)</td>
<td></td>
</tr>
<tr>
<td>Lethargy</td>
<td>2.00; 2.00</td>
<td>2.00; 2.00</td>
<td>.799</td>
</tr>
<tr>
<td></td>
<td>(2.23 ± 0.95)</td>
<td>(2.17 ± 0.97)</td>
<td></td>
</tr>
<tr>
<td>Chills</td>
<td>1.00; 1.00</td>
<td>1.00; 1.00</td>
<td>.984</td>
</tr>
<tr>
<td></td>
<td>(1.63 ± 0.77)</td>
<td>(1.62 ± 0.78)</td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td>1.00; 0.01</td>
<td>1.00; 1.00</td>
<td>.434</td>
</tr>
<tr>
<td></td>
<td>(1.30 ± 0.61)</td>
<td>(1.41 ± 0.68)</td>
<td></td>
</tr>
<tr>
<td>Joint pain</td>
<td>2.00; 2.00</td>
<td>2.00; 2.00</td>
<td>.874</td>
</tr>
<tr>
<td></td>
<td>(2.13 ± 0.94)</td>
<td>(2.17 ± 1.00)</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2.00; 0.90</td>
<td>1.90; 0.85</td>
<td>.807</td>
</tr>
<tr>
<td></td>
<td>(1.89 ± 0.57)</td>
<td>(1.98 ± 0.66)</td>
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Results Lua et al (2013)

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<tr>
<th>Variables</th>
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<th>P Value&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall HRQoL&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.00; 1.00 (3.80 ± 0.85)</td>
<td>4.00; 0.50 (4.07 ± 0.70)</td>
<td>.163</td>
</tr>
<tr>
<td>General health&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.00; 1.00 (3.70 ± 0.76)</td>
<td>4.00; 1.00 (3.83 ± 0.66)</td>
<td>.624</td>
</tr>
<tr>
<td>Physical</td>
<td>14.29; 2.86 (14.70 ± 2.19)</td>
<td>14.86; 2.00 (14.80 ± 2.38)</td>
<td>.893</td>
</tr>
<tr>
<td>Psychological</td>
<td>14.33; 3.33 (14.30 ± 2.15)</td>
<td>14.67; 3.67 (14.62 ± 2.53)</td>
<td>.494</td>
</tr>
<tr>
<td>Social relationships</td>
<td>13.33; 4.00 (13.72 ± 3.28)</td>
<td>13.33; 4.00 (13.65 ± 2.83)</td>
<td>.816</td>
</tr>
<tr>
<td>Environment</td>
<td>13.75; 3.50 (13.81 ± 2.04)</td>
<td>13.50; 2.75 (13.76 ± 2.44)</td>
<td>.647</td>
</tr>
<tr>
<td>Total HRQoL</td>
<td>14.15; 2.99 (14.13 ± 2.06)</td>
<td>14.28; 2.68 (14.21 ± 2.18)</td>
<td>.947</td>
</tr>
</tbody>
</table>
Summary Lua et al (2013)

- MMT + AA group had lower methadone doses and number of cigarettes smoked per week versus MMT alone
- No significant difference in withdrawal symptoms was reported between groups at 2 months, however, a decrease over time in the MTT+AA group was noted
- No significant difference was noted between groups in self-reported Health Related Quality of Life
Limitations and Critique Lua et al (2013)

- Only males included
- Small sample size
- Polysubstance abuse

- Not generalizable to our patient population
- Better outcomes in smoking cessation than OUD
- Design introduces bias, perception of placebo effect on patients with AA
- No data for acute detox time period, only focused on maintenance therapy
Summary and Conclusion
## Literature Summary

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Outpatient n = 100</strong></td>
<td><strong>Inpatient n = 83</strong></td>
<td><strong>Outpatient n = 78</strong></td>
<td><strong>Outpatient n = 97</strong></td>
</tr>
<tr>
<td>AA vs sham (no MAT)</td>
<td>MAT+ AA vs MAT (oil/ear clips)</td>
<td>MAT + AA vs MAT + sham *historical control (MAT)</td>
<td>MAT + AA vs MAT</td>
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<tr>
<td>21 days</td>
<td>14 days</td>
<td>6 months</td>
<td>8 weeks</td>
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<tr>
<td>Acute detox</td>
<td>Acute detox</td>
<td>Acute detox and maintenance</td>
<td>Maintenance</td>
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<tr>
<td>Retention rates Δ</td>
<td>Withdrawal X</td>
<td>Attendance X</td>
<td>Methadone dose Δ</td>
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<tr>
<td></td>
<td>Cravings X</td>
<td>Methadone dose X (↓)</td>
<td>Cigarettes use Δ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Withdrawals X (↑)</td>
<td>Withdrawal symptoms X (↓)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cravings X (↑)</td>
<td>HRQoL X</td>
</tr>
</tbody>
</table>

Δ - statistical difference
X – no difference
↑ or ↓ - trend up or down
Conclusion

• Auricular acupuncture was shown to be beneficial in decreasing the methadone dose in patients treated for OUD with MAT, as well as increasing the retention rate in the programs
  • Use as intended by NADA protocol – in conjunction with other therapies

• Lack of strong data supporting use of NADA protocol for treatment of Opioid Abstinence Syndrome (decreasing cravings or withdrawal management)

• Use of sham/non-specific AA may be problematic, as areas in proximity of the active point may still have an effect similar to the active point
Future Direction

- Higher-quality trials providing data on relapse rates in patients using AA as part of their recovery treatment
- Need to explore use of AA in conjunction with naltrexone and buprenorphine treatment
- Comorbidity between chronic pain disorders and OUD is well known
  - Strong data supports efficacy of AA for treatment of chronic pain
  - Investigating if AA can lower chronic opioid use and therefore decrease mortality and morbidity
- Evidence for treatment of nausea, vomiting, depression, anxiety, insomnia using AA is available – use in symptom control related to OUD
References


7) Department of Veterans Affairs. Opioid Taper Decision Tool. Washington, DC: Dept of Veterans Affairs; 2017

8) Department of Veterans Affairs and Department of Defense. Tapering and Discontinuing Opioids. Washington, DC: Dept of Veterans Affairs; October 2016


Acknowledgment

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Use of Auricular Acupuncture in Opioid Use Disorder

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