Expanding the Evidence-Base for Alternative and Complementary Health Practices: Advancing Treatment Options for Post-Traumatic Stress Disorder

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APHA’s Annual Meeting, Boston, MA
November 4, 2013

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Introduction

Post-traumatic stress disorder (PTSD) is among the most common Axis I disorders, with an estimated lifetime prevalence of 7% in the U.S. population, 10-20% among active duty service members and 35-40% among veterans. 1-3

Current evidence-based PTSD therapies have limited reach and impact: 4-5

- Stigma
- Transient mobility that limit time availability for therapy (e.g., military)
- High rates of co-occurring medical and psychosocial conditions that add complexity to treatment regimen and poor patient compliance
- Traditional side effects
- Patient preferences
- Perverse incentives (e.g., military and veterans)

Overall, existing evidence-based treatments have a <30% success rate, leading physicians to explore the potential benefits of alternative and complementary health practices (ACHP) for improved clinical management of PTSD.
Objectives

The objectives of this presentation are to:

1. Provide an overview of the expanding evidence-base of various ACHP modalities for the treatment of PTSD;
2. Describe differential patient-reported outcomes for stellate ganglion block, an emerging ACHP that has shown promise among military, veteran, and civilian patients with PTSD; and
3. Discuss future directions for research to address remaining questions about ACHP utility for PTSD including efficacy, comparative effectiveness, mechanism(s) of action, dosing, and differential responses among subgroups of patients with PTSD.

ACHP for PTSD

- Commonly used AHCP for PTSD include:
  - Virtual reality
  - Acupuncture
  - Animal-assisted therapy
  - Mindfulness-based cognitive therapy and meditation
- An emerging ACHP for PTSD is stellate ganglion block (SGB), a common treatment used to relieve facial and upper extremity pain.

Virtual Reality for PTSD

- Visualization, manipulation, and interaction with computers and complex data.
- Simulates naturalistic environments and presents ecologically relevant stimuli embedded in a meaningful and simulated context.
- Virtual reality exposure therapy (VRET) has the best documented therapeutic efficacy for PTSD.1,2,7,8

Virtual Reality for PTSD

- A systematic review of VRET studies in the treatment of PTSD suggests potential efficacy for different types of trauma, most notably among veterans.9
- However, the four randomized clinical trials included in the systematic review each trial had methodological limitations that introduced a substantial risk of bias, as noted by the authors of the studies.9


Virtual Reality for PTSD

- Nonetheless, the growing evidence suggests that VRET is efficacious in PTSD treatment, even in individuals who are resistant to traditional exposure therapy.9,10
- Further virtual reality therapy exploration is needed with more robust trials and results replication to evaluate VRET efficacy in PTSD symptom reduction.


Acupuncture for PTSD

- Various acupuncture techniques have shown promise for reducing trauma spectrum response (TSR), which includes some PTSD symptoms, but there is a lack of sufficient evidence for complex PTSD (e.g., refractory PTSD or PTSD with comorbid conditions).11,12
- In general, the current body of evidence indicates acupuncture benefits for treating headaches, anxiety, sleep disturbances, depression, and chronic pain.13

Source: AsianScientist. “Use of Acupuncture by the US Military to Treat Battlefield Injuries, PTSD.” www.asianscientist.com/health-medicine
**Acupuncture for PTSD**

- Several types of acupuncture have shown promise for use in combat situations as well as in clinical settings for PTSD.¹⁴-¹⁶
  - Combat-specific “battlefield acupuncture” involves needling 3 points that influence the cingulate cortex and thalamic nuclei.¹⁴,¹⁵
- In particular, auricular acupuncture has demonstrated efficacy in relieving acute pain symptoms and chronic pain symptoms.¹⁴


**Animal-Assisted Therapy for PTSD**

- Service dog training and equine-assisted therapy are being used as purpose-driven interventions for managing PTSD and mild TBI by facilitating psychological and social improvement and functional independence.¹⁷,¹₈
- Studies have shown optimization of social support can improve PTSD symptom treatment by increasing endogenous levels of oxytocin, and this desired effect may be achieved in the use of therapy animals like dogs and horses.¹⁹


**Anecdotal reports from clinician and program instructors indicate that the use of service dogs can lead to better health and quality of life outcomes including:²⁰

- Increase in patience, impulse control, and emotional regulation
- Improved ability to display affect
- Improved sleep
- Decreased depression
- Decrease in startle response
- Decrease in pain medication use
- Increased sense of belonging
- Improved family dynamics
- Lowered stress levels and increased sense of calm

Animal-Assisted Therapy for PTSD

• The growing anecdotal evidence-base including patient and clinician testimonials for animal-assisted therapy are compelling and indicate a need for greater accumulation of scientific data to more fully understand the use of this therapy modality.  

Source: US News. “Controversial Army policy makes it difficult for soldiers to get service dogs.” Usnews.ncbnews.com

Mindfulness-Based Cognitive Therapy for PTSD

• Yoga, relaxation techniques, and meditation approaches have been shown to facilitate patients’ engagement in care and to address hyperarousal symptoms and comorbid conditions.  

• Mindfulness therapy approaches aim to increase awareness of thoughts and feelings, facilitate emotional expression, discourage trying to control thoughts and engage in avoidance, and target improvements in quality of life.  

• These approaches support the patient-centered partnership model of care.  


Mindfulness-Based Cognitive Therapy for PTSD

• The evidence base for various mindfulness interventions is expanding, and applications of these approaches for anxiety-related conditions are hopeful.  

– Attention training mindfulness programs have been shown to reduce anxiety symptoms and alter cognitive processing.  

– Mindfulness meditative practices have been associated with reducing anxiety and negative affect.  

Mindfulness-Based Cognitive Therapy for PTSD

• Although previous studies of mindfulness have included anxiety disorders\(^1\),\(^2\)\(^4\), to date there is little evidence of mindfulness-based therapy application specifically for PTSD, indicating need for further exploratory research.

• Other considerations including access-related barriers to care as well as mitigating the financial burdens of care make mindfulness as an attractive option for PTSD management.

Source: University of Michigan Health System. “Mindfulness therapy might help veterans with PTSD.” www.uofmhealth.org

Stellate Ganglion Block for PTSD

• SGB, a well-established pain management procedure, is the first promising biologic treatment that is emerging in the literature for PTSD.\(^3\)\(^0\)–\(^3\)\(^2\)
  – A 5 to 10-minute procedure that involves injecting a local anesthetic at the right-sided C6/C7 cervical vertebrae

• Since 2008, numerous reports have documented SGB’s rapid effects on reducing PTSD severity among veterans, active duty service members and civilian populations.\(^3\)\(^1\)–\(^3\)\(^4\)


Stellate Ganglion Block for PTSD

• Growing number of successful case series of SGB treatment in PTSD:
  – 85 cases among veterans and civilians with refractory PTSD treated with SGB revealed significant reductions in PTSD symptoms clusters associated with re-experiencing and hyper-arousal (received, on average, 1.6 SGB injections)\(^3\)\(^1\)–\(^3\)\(^4\)
  – 6 cases among active duty service members with markedly reduced PTSD symptoms observed in Army cohort (received, on average 1.3 SGBs)\(^3\)\(^3\)
  – 9 cases among active duty Navy and Marine Corps service members with improvement in PTSD symptoms observed by Navy physicians (received 2 SGBs)\(^3\)\(^4\)

• A randomized placebo-controlled SGB trial is actively being conducted by Navy Medicine
Conclusions

• More rigorous future research is needed to address the many important remaining questions about ACHP for PTSD:
  – Efficacy
  – Comparative effectiveness
  – Mechanisms of action
  – Optimal dosing
  – Differential responses among subgroups of patients with PTSD

• Although the current ACHP evidence-base for PTSD precludes our ability to draw definitive conclusions to inform clinical practice or public policy, the available evidence points to a promising opportunity for a much needed paradigm shift in PTSD treatment.

References

References