

Integrative Care for Acute Combat-Induced PTSD

By Joe C. Chang, MAOM, DiplOM, LAc

Current trends for complementary and alternative medicine (CAM) have involved the integration of CAM modalities (i.e., acupuncture, reiki, yoga) into standard Western treatments through evidence-based research. This is evident in military medicine, where positive primary and secondary outcomes have enabled the integration of CAM modalities with standard treatment protocols (i.e., cognitive-behavioral therapy and pharmacotherapy) in the treatment of posttraumatic stress disorder. The integration of CAM into the military healthcare system has been a success mainly through evidence-based research and public relations exposure. But the key to integrative medicine will be the support of CAM through continued evidence-based research.

Acute combat induced posttraumatic stress disorder (PTSD) is an anxiety mental health disorder diagnosed in 24% of injured, active duty combat veterans serving in Iraq and Afghanistan (Hoge et al., 2008). Onset of PTSD directly relates to multiple and lengthy combat-related deployments and trauma (Seale et al., 2007). Approximately one in six soldiers shows signs of PTSD upon leaving Iraq and Afghanistan. Symptoms of PTSD include re-experiencing, avoidance behaviors, numbing responsiveness and hyperarousal, as well as anxiety and insomnia. Unresolved PTSD becomes chronic and symptoms may continue for life (Kovach 2007).

The initiatives at the Ft. Bliss & Ft. Hood Restoration & Resilience Center, Ft. Bliss, Texas, were developed through the strong advocacy of supervising psychologist, Dr. John E. Fortunato of the Department of Mental Health at William Beaumont Army Medical Center, El Paso, Texas, who supports an integrative approach in the treatment of PTSD in post-deployment soldiers. Dr. Fortunato saw a benefit in CAM modalities and believed that the use of CAM therapies in conjunction with standard Western protocols would provide the best treatment approach. He was inspired to develop the program by his frustration at seeing soldiers with PTSD who had difficulty coping forced out of the military against their wishes. Dr. Fortunato was convinced that the traditional methods of treating PTSD were not long enough in duration and were not intense or comprehensive enough. So he set his sights on creating a program that would address all

aspects of PTSD and treat the “whole soldier.” He pushed for an integrated treatment model and gained approval for his prototype program.

This integrative approach treats many of the symptoms of PTSD that are not addressed through standard mental health protocols that include cognitive-behavioral therapy and pharmacotherapy. Dr. Fortunato’s concept eventually led to the implementation of the Ft. Bliss Restoration & Resilience Center, incorporating massage therapy, pool therapy, expressive art therapy, meditation, yoga, acupuncture, marital/family therapy and reiki with the standard treatment protocols of cognitive-behavioral & cathartic psychotherapies and pharmacotherapy.

From an economic perspective, the cost of treating post-deployment soldiers at the Restoration Center is approximately between \$14,000 to \$20,000 each. This is actually more cost effective than either recruiting and training a new soldier or providing lifelong disability payments and medical care to a discharged soldier. In a study conducted by the RAND Corporation (Tanielian 2008), researchers estimate that PTSD and depression among returning service members will cost the nation as much as \$6.2 billion in the two years following deployment—an amount that includes both direct medical care and costs for lost productivity and suicide. For a typical service person returning from Iraq or Afghanistan (an E-5 with 5 to 7 years of service), baseline scenario predicts that two-year post-deployment costs range from \$5,635 to \$13,935 for PTSD. Therefore, investing initially in higher-quality treatment could save close to \$2 billion within two years by substantially reducing those indirect costs.

Public relations exposure at the Ft. Bliss Restoration & Resilience Center has built support for the integration of CAM, generated through scheduled visits to the facility by top military personnel including Secretary of Defense Robert Gates, and the Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen. This approach provided an environment where discussions focused on research outcomes on the effects of CAM (i.e., reiki, medical massage, acupuncture, expressive art therapy, yoga, meditation) on PTSD and the integration of the milieu concept (i.e., yoga, reiki, cognitive-behavioral therapy,

acupuncture) throughout the military. This open dialog has thus led to the support of the Restoration & Resilience Center within the military community and support for future integration of CAM throughout the military.

Evidence-based research was found to be the key component in the integration of CAM at William Beaumont Army Medical Center. Such research is a way to demonstrate the efficacy of a modality on a specific medical condition with quantitative and qualitative outcomes. Positive findings can then be utilized to facilitate support for a particular modality to be integrated into standard Western protocols. Currently, evidence-based research for military acupuncture has demonstrated positive quantitative and qualitative, primary and secondary outcomes. A randomized controlled trial by Hollifield et al. (2007) indicated that acupuncture may be efficacious for reducing symptoms of post-traumatic stress disorder (PTSD), depression, anxiety, and impairment in adults diagnosed with DSM-IV-TR PTSD.

People diagnosed with PTSD were randomized to either acupuncture treatment, a group integrated cognitive-behavioral therapy (iCBT), or a wait-list control (WLC). The primary outcome measure was self-reported PTSD symptoms at baseline, end-treatment, and three-month follow-up. Repeated measures MANOVA (multivariate analysis of variance) was used to detect predicted Group X Time effects. Compared to the WLC condition, acupuncture provided large treatment effects for PTSD ($F [1, 46] = 12.60; p < 0.01$); similar in magnitude to group iCBT ($F [1, 47] = 12.45; p < 0.01$). The secondary outcomes for depression, anxiety, and impairment in daily functioning were similar to the effects for PTSD, and both treatment groups improved significantly more than the WLC group. The Group X Time contrast from baseline to end treatment was significant for comparing acupuncture versus WLC for depression ($d's = 0.83$ vs. $0.12, p < 0.01$), anxiety ($d's = 1.28$ vs. $0.19, p < 0.01$), and global impairment scores ($d's = 0.75$ vs. $0.04, p = 0.01$). Similarly, CBT versus WLC for depression ($p < 0.01$), anxiety ($p < 0.01$), and global impairment scores ($p < 0.01$). Symptom reductions at end-treatment were maintained at 3-month follow-up for both interventions.

The therapeutic effects of acupuncture for disorders involving PTSD, anxiety, depression, and substance abuse are not surprising in view of the recent functional MRI studies. Clinical and experimental data indicate that most acupuncture clinical results are mediated by the central nervous system (Hui 2005). Functional MRI (fMRI) and PET studies on acupuncture at specific acupuncture points have demonstrated significant modulatory effects on the limbic system, paralimbic and subcortical gray structures (Hui 2005). In a recent fMRI study by Hui et al. (2005), acupuncture stimulation that produced deqi sensation at ST36 produced a reduction in neuronal activity; particularly the limbic/paralimbic structures and limbic cortices in the cerebrum (amygdala, hippocampus, cingulate, septal area, temporal pole, frontal pole, and ventromedial prefrontal cortex). Similarly, the fMRI study by Liu (2000) found that acupuncture modulates the limbic system and the subcortical gray structures of the human brain with acupuncture stimulation that produced deqi sensation at LI4.

Also, evidence-based research is currently underway to further evaluate the effects of CAM modalities on PTSD at the Ft. Bliss Restoration & Resilience Center. Studies will include the effects of massage therapy on traumatic brain injury, the effects of acupuncture on PTSD and the effects of a milieu approach in the treatment of PTSDs compared to the standard mental health protocol (i.e., cognitive-behavioral therapy and pharmacotherapy).

The integration of CAM into military medicine signifies a trend towards integrative healthcare practices through evidence-based research. This trend follows the research priorities of the National Center for Complementary and Alternative Medicine (NCCAM), an agency of the National Institutes of Health (NIH), that provides oversight and funding for CAM research. NCCAM has focused its efforts on research that will yield the greatest impact on the health and well-being of people at every stage of life.

One example of NCCAM-sponsored research involves the UCLA Center for Excellence in Pancreatic Diseases in a project that focuses on elucidating the mechanisms of action in plant-derived compounds found in a variety of dietary and herbal supplements and traditional herbal medicines, including antioxidants such as curcumin (a component of the spice turmeric) and lycopene (the component that gives tomatoes their color), and preparations of green tea and *Scutellaria baicalensis* (a plant used in traditional Chinese

medicine). Using animal models, the investigators will study the mechanisms and effects of these plant compounds on the prevention and/or treatment of pancreatic cancer and pancreatitis. Positive outcomes from these studies will then be used as evidence-based practices for the integration of traditional herbal medicines in the treatment of pancreatitis and pancreatic cancer. Similarly, the success of integrating CAM with military medicine lies in the practical application of evidence-based CAM research.

In summary, three key factors have led thus far to the successful integration of CAM in military medicine: evidence-based research, public relations exposure, and support in the integration of complementary and alternative medicine (CAM). All of these factors are important, but it is only with the support of evidence-based research that CAM modalities can be fully integrated within the current healthcare setting of military medicine.

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