

Article

Acupuncture as a Treatment Option in Treating Posttraumatic Stress Disorder–Related Tinnitus in War Veterans

A Case Presentation

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Although close associations between tinnitus and posttraumatic stress disorder (PTSD) among war veterans has been documented, there is limited research that explores evidence-based, efficacious interventions to treat the condition in this particular population. This article presents a case of three war veterans with PTSD symptoms who received a series of acupuncture treatments for tinnitus with positive outcomes. Even though the article presents cases of only three veterans and was based on self-reports, there were very clear trends on how veterans with tinnitus symptoms responded to acupuncture treatments. Information generated from this case presentation is a good starting place in exploring evidence-based approaches in treating tinnitus symptoms in war veterans with PTSD.

Keywords: *tinnitus; veterans; acupuncture*

Tinnitus is a common auditory condition defined as the perception of noise or a ringing in the ears (Brady, Killeen, Brewerton, & Lucerini, 2000). Risk factors for tinnitus include extended exposure to loud noise without protection, age (65 years and older), as well as posttraumatic stress disorder (PTSD; Cima et al., 2012). Clinically, tinnitus has been found to be associated with great distress as it triggers two types of tinnitus-related dysphoric networks: trauma association and catastrophic cognitions, which can be very distressing to the person experiencing the symptoms (Fagelson, 2007). The tinnitus condition on its own has been found to be associated with considerable psychological distress such as anxiety, depression, irritability, and sleep disturbances (Ramkumar & Rangasayee, 2010), symptoms that can compound the symptoms of

PTSD. Yet very few studies have examined tinnitus rates among war veterans with PTSD or the relationship of tinnitus severity to PTSD severity in this population. Furthermore, there is a dearth in the literature of treatment options for PTSD-related tinnitus in veteran populations.

This article presents the case of three war veterans who presented with symptoms of PTSD superimposed with tinnitus whose symptoms were effectively managed with acupuncture.

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Background

PTSD and Tinnitus in Veteran Populations

Recently, studies have documented close associations between tinnitus and PTSD among patients at U.S. Department of Veterans Affairs hospitals. Fagelson (2007), in his study of patient chart reviews, found that 34% of 300 patients enrolled in a Veteran Affairs Medical Center Tinnitus Clinic also carried a diagnosis of PTSD. Hinton, Chhean, Pich, Hofmann, and Barlow (2006) in a study demonstrated the association between tinnitus among Cambodian refugees and its relationship to PTSD severity. Their work suggested the possibility that traumatic episode recall could be linked to, or provoked by, tinnitus. The study's PTSD patients with tinnitus were rated as having more severe PTSD than those patients who did not experience tinnitus. However, assessing the severity of tinnitus in patients has been found to be difficult for a variety of reasons including symptom overlap and the presentation of a multidimensional clinical picture. In a recent study, a robust correlation between tinnitus and insomnia was found. This study also revealed an increased emotional distress associated with tinnitus (Miguel, Yaremchuck, Roth, & Peterson, 2014).

Treatment of Tinnitus

The projected cost to the Veteran Affairs for tinnitus disability compensation was \$418 million in 2005 and is expected to exceed \$1 billion in the near future (Engineer, Rosellini, & Tyler, 2012). Because tinnitus is often a symptom of an underlying problem, most existing treatment options target symptom relief of tinnitus or treatment of the underlying conditions. Treatments range from medical or surgical approaches, counseling, hearing aids, biofeedback, to tinnitus maskers (Orr, Lasko, & Pitman, 1997). Unfortunately, no therapy has been able to consistently reduce or eliminate tinnitus in a majority of those affected (Engineer et al., 2012), and attempts to develop evidence-based therapies have been challenged by a poor understanding of the pathophysiology (Schaaf, Eichenberg, Kastellis, & Hesse, 2010). In a recent study conducted by Tyler (2012), participants were surveyed about their willingness to pay for tinnitus treatments. To reduce tinnitus completely, participants most commonly selected to pay

at least \$5,000 and 20.3% were willing to pay as much as \$25,000. In this study, the ratings of tinnitus loudness and annoyance were positively correlated with the likelihood of using any treatment. Over the years, acupuncture has increasingly been used as a treatment option for tinnitus. Although, anecdotally, acupuncture has been cited as helpful in relieving tinnitus, there are no well-designed studies that show evidence of the efficacy and effectiveness of acupuncture in treating tinnitus (Kim et al., 2012).

Overview of Acupuncture and Korean Four-Needle Technique

In Asian medicine, it is believed that tinnitus is closely connected to the yin-yang imbalance of internal organs. The symptom of ringing in the ears is believed to be caused by channels originating from those organs flowing through the ear. Acupuncture is considered to be able to balance this skewed condition (Maciocia, 2008) and can generate immediate relief from both the loudness and disturbing quality of tinnitus, resulting in a significant improvement in the quality of life (Okada et al., 2006). According to Asian medicine, acupuncture meridians are pathways of energy and can be found throughout the body. There are many acupuncture points along these meridians that are energy reservoirs. These meridian points can be stimulated with needles, physical pressure, or tapping to release or redistribute energy (Longhurst, 2010). Acupoints located on both the adjacent and distal areas of the disease are needed to treat specific diseases (Shi et al., 2012). A review of the acupuncture literature reveals that Koreans developed one of the most significant techniques of balancing the meridians (Amaro, 1999). The technique requires the use of four specific acupuncture points for each meridian that is shown to be either too high or too low (Amaro, 1999). For those stubborn conditions including tinnitus that are difficult in establishing a balance, the Korean system is a better treatment option. In this study, the Korean four-needle technique was used to treat individuals with PTSD and reported symptoms of tinnitus. In his work, Gumenick (2001) found the Korean four-needle technique to bring much stronger and more powerful results than the traditional acupuncture. This technique involves a faster capability to adjust the balance on all the important organs directly and to

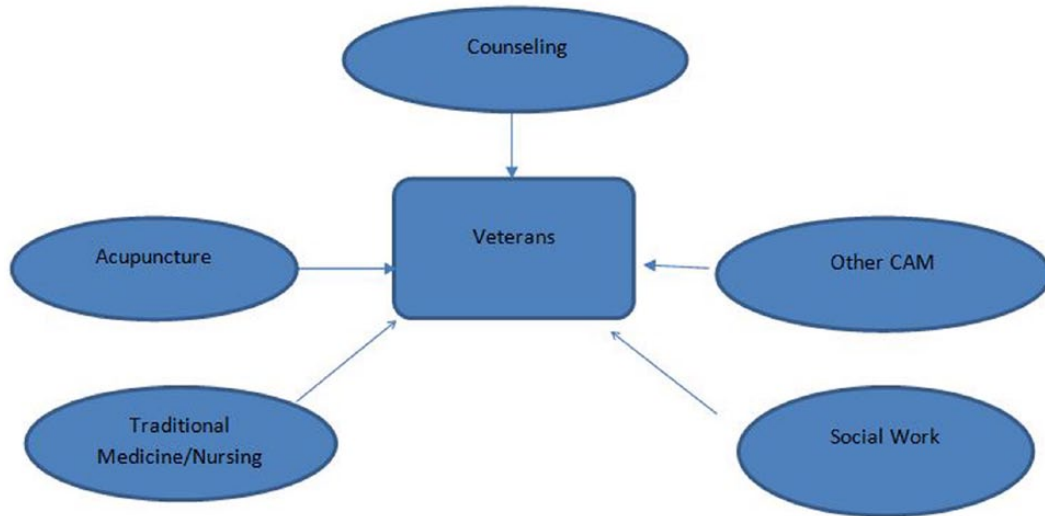


Figure 1. Holistic Framework

regulate the origin of the cause (Gumenick, 2001). All acupoints used in this technique are located below the elbows and knees (Gumenick, 2001).

Holistic Theoretical Framework

It is clearly documented in the nursing literature that complementary and alternative medicine (CAM) including massage therapy and acupuncture are increasingly included within mainstream health care services (Singer & Adams, 2012). It is also documented in the literature that CAM including acupuncture addresses therapeutic gaps in existing health care practices through the provision of a mind–body approach and treating the whole person, rather than just the physical symptoms of a disease (Templeman & Robinson, 2011). CAM has also been found to provide more effective multidisciplinary approaches to treating complex health problems. The Collaborative Institute of Inter-Professional Education and Practice (CIPEP) is a Health Resources Services Administration–funded interprofessional nurse-led institute that employs a collaborative, holistic approach to behavioral health. This approach includes CAM as treatment options for chronic pain, PTSD, and other comorbidities with a focus on military families and veterans. This busy twice a week practice is a collaboration of nursing, social work, counseling psychology, massage therapy, and acupuncture. PTSD and/or chronic pain clients are typical clients who seek care at the institute. Consequently acupuncture, individual and group counseling, as well as massage therapy are the most

common collaborative treatment modalities. The participants of this case presentation research received individual counseling after completion of acupuncture sessions. The guiding principle of this practice is the holistic framework that is schematically represented in Figure 1.

Method

Case Presentation

Case study research can be described as the collection and presentation of detailed, unstructured data obtained from various sources to better understand particular groups (Sangster-Gormley, 2013) and has been found to be a rigorous form of inquiry in the nursing literature (Cronin, 2014). Analysis in case study research allows researchers to study contextual detail and to provide rich, deep descriptions of findings. Explanations of phenomena emerge from the study as multiple data sources are analyzed (Yin, 2009). A distinguishing feature of case study research is that although the number of cases may be small, the number of variables involved is large. In using this design, the researcher can investigate “everything” in the situation in question (Cronin, 2014).

Case presentation was the most appropriate design in studying the participants of the study. Their treatment plan included counseling for the PTSD symptoms after a series of acupuncture treatments for tinnitus, which were carefully monitored and documented based on their progress. Their cases are presented after receiving institutional review board

Table 1. Description of Case Presentation Participants

	Case 1—MK	Case 2—AS	Case 3—BB
Demographics	59-year-old African American war veteran Operation Iraqi Freedom Persian Gulf War	58-year-old African American war veteran Operation Iraqi Freedom Persian Gulf War	41-year-old African American Operation Iraqi Freedom
Overview of health	History of hypertension (on medication), arthritis, ringing of ears in morning, denies insomnia	History of hypertension (on medication), night headaches, night sweats, insomnia, ringing of ears especially at night	Nightmares, night sweats, sleep terrors, night headaches, insomnia
Length of tinnitus symptoms	Since 2005	Since 1999	Since 2010
Length of PTSD diagnosis	Diagnosed in 2005	Diagnosed in 2013 Reports symptoms began in 1999	Diagnosed in 2010

Note: PTSD = posttraumatic stress disorder.

approval as well as their signed consents. To protect their anonymity, pseudonym initials are used throughout this case presentation.

Results

Case presentation reports indicated that an average of six biweekly acupuncture treatments provided significant results in managing tinnitus related to PTSD in three war veterans. Table 1 shows the description of the participants in the case presentation, and Table 2 shows the treatment pathway of the participants. The summary of their cases is presented.

Case 1

MK is a 59-year-old war veteran who has been diagnosed with PTSD since 2005. He has a history of hypertension and is on antihypertensive medication. He has complained of arthritis in his joints since 1990 and manages that pain with exercise and over-the-counter medication. He exercises 3 days a week and lives a healthy life style. He reports sleeping approximately 8 hours each night. He states he has never been sick in his life and wakes up at 5 a.m. each morning. He was self-referred to the Collaborative Institute and requested acupuncture services from the licensed acupuncturist for tinnitus. He complains of tinnitus since 2005, and the ringing in his ears is present each morning when he wakes up. MK reported that the ringing persists for about 4 hours before it subsides. Also, he stated that he is unable to be productive with the tinnitus, and although he wakes up

at 5 a.m. each morning, he does not head to his office until 9 a.m., after the symptoms subside. He states that biggest problem with the tinnitus is the way it adversely affects his productivity. MK reports he has tried a variety of treatments in the past including antianxiety medication and biofeedback yet the symptoms still persist.

Treatment Plan. After a thorough assessment by the interprofessional team, MK's treatment plan for the tinnitus was to receive monthly acupuncture treatments of the Korean four-needle technique until improvement was noted. MK was instructed on keeping a diary of all his tinnitus-related symptoms until his next treatment.

A month later, MK presented with no tinnitus symptoms for 2 full weeks since his last treatment. He received a second acupuncture treatment of the Korean four-needle technique. He was instructed to continue to keep a diary of all his tinnitus-related symptoms until his next treatment.

During the third month of treatment, MK reported the return of his tinnitus symptoms 2 weeks prior, but had symptoms 2 days a week instead of the daily complaints he had struggled with prior to acupuncture. He received his third treatment of acupuncture using the Korean four-needle technique.

MK returned for a fourth monthly acupuncture treatment. During this visit, he reported that he continued to struggle with mild but persistent tinnitus symptoms 1 to 2 days per week. At this point, the licensed acupuncturist adjusted the treatment plan to every 2-week treatments instead of monthly treatments.

Table 2. Treatment Pathway of Case Presentation Participants

	Case 1—MK	Case 2—AS	Case 3—BB
Assessment by interprofessional team	First visit	First visit	First visit
Treatment plan	Monthly acupuncture treatment for tinnitus and then individual counseling for PTSD	Monthly acupuncture treatment for tinnitus, modified to biweekly because of symptom recurrence, and then individual counseling for PTSD	Biweekly acupuncture treatment for tinnitus and then individual counseling for PTSD
Response to treatment	Minimal tinnitus symptoms after fourth acupuncture treatment Complete recovery after six treatments over 5 months	Minimal tinnitus symptoms after fourth acupuncture treatment Complete recovery after six treatments over 3 1/2 months	Minimal tinnitus symptoms after fourth acupuncture treatment Complete recovery after six treatments over 3 months

Note: PTSD = posttraumatic stress disorder.

MK returned 2 weeks later for another acupuncture treatment. At this visit he reported sporadic symptoms of tinnitus that are “on and off.” He reported feeling better and stated he felt “more productive than he had been in many years.”

MK returned for his sixth treatment and received acupuncture with the Korean four-needle technique. At this visit he reported total recovery from his tinnitus symptoms. He reported he felt “100% better” and believed he was cured. The new treatment plan for MK was to return for further acupuncture treatment only if needed.

At the current time, 3 months posttreatment, MK has not needed further treatment for tinnitus.

Case 2

AS is a 58-year-old retired war veteran. He had recently been diagnosed with PTSD although he stated he had experienced PTSD symptoms since 1999. He presented with the following complaints: constant tinnitus in left ear since 1975, high blood pressure which is controlled by antihypertensive medication since 1974, headaches behind left eye usually worse at nights since 1987, and insomnia as well as night sweats two to three times a week that soak night shirts since 1975. He reported the tinnitus symptoms to be associated with his night sweats and night headaches. He reported exercising three times a week and waking up at 3.30 a.m. each morning.

Treatment Plan. After a thorough assessment by the interprofessional team, AS’s treatment plan for the tinnitus was to receive monthly acupuncture treatments of the Korean four-needle technique until

improvement was noted. After his first acupuncture treatment, AS was instructed on keeping a diary of all his tinnitus-related symptoms.

A month later AS returned in great spirits. He reported that the tinnitus symptoms completely cleared a day after the acupuncture treatment. He reported sleeping better, waking up later, and being more rested. He received a Korean four-needle technique acupuncture treatment at this visit. Seven days after this visit, AS called with complaints of tinnitus returning. He reported waking up at 3 a.m. with night sweats, although the “sweats were 60% better.” He was immediately scheduled for a treatment and received another acupuncture treatment and was scheduled for a 2-week return visit.

AS returned for his fourth treatment. He reported improvement in his tinnitus symptoms with mild symptoms 1 to 2 days a week. He reported sleeping better but still received the usual acupuncture treatment of the Korean four-needle technique and scheduled to return 2 weeks later.

AS returned to CIPEP and received a fifth acupuncture treatment of the Korean four-needle technique. He reported feeling much better with mild infrequent tinnitus symptoms. He continued to be optimistic about his treatment but chose to stay on the recurring 2-week schedule.

AS returned for his sixth treatment. He reported no further tinnitus symptoms since his last visit. He described feeling much better, sleeping well, and stated “everything is going well.” He received the usual acupuncture treatment at this visit and was discharged with a new treatment plan of returning for further acupuncture treatment only when needed.

Case 3

BB is a 41-year-old war veteran who currently worked in the health care industry. He presented with chief complaints of severe tinnitus in both ears, insomnia, daily night sweats, nightmares, and sleep terrors. He believed the tinnitus symptoms, insomnia, night sweats, and nightmares are all interrelated. He has been diagnosed with PTSD since 2010.

Treatment Plan. After a thorough assessment by the interprofessional team, BB's treatment plan for the tinnitus was to receive biweekly acupuncture treatments of the Korean four-needle technique until improvement was noted. This treatment plan was informed by evidence generated by the first two patients discussed in the case presentation as well as the severity of his symptoms. After the first treatment of acupuncture using the Korean four-needle technique, BB was instructed on keeping a diary of all his tinnitus-related symptoms until his next treatment.

BB returned for his next treatment 3 weeks later instead of the planned 2 weeks because of conflicts in his schedule. At this visit, he reported no night sweats or nightmares the first week after treatment. He reported those symptoms returned after the first week but were less intense. He also reported the tinnitus symptoms had dramatically subsided. He receives an acupuncture treatment per his treatment plan at this visit.

Two weeks later BB returned for his scheduled treatment. He reported feeling great and denied tinnitus symptoms, night sweats, or nightmares. He received the usual acupuncture treatment and was scheduled for another appointment in 2 weeks.

BB returned 2 weeks later for his scheduled visit. He reported no further symptoms of tinnitus, night sweats, or nightmares. He appeared very animated and happy. He reported feeling the best he has been in years. He received an acupuncture treatment and was discharged from the practice with instructions to return for acupuncture when needed.

Conclusion

This article presents case presentation of only three war veterans and relies on self-reporting, but is a good starting place in exploring evidence-based approaches in treating tinnitus symptoms. These symptoms typically are underreported but remain a

pervasive problem in war veterans that can complicate PTSD symptoms. Acupuncture has been reported in the literature as a salient approach to treating PTSD symptoms, and these findings can add to the body of literature on alternative medicine as it affects improving wellness in war veterans. In this study, average six biweekly acupuncture treatments provided significant results in managing tinnitus symptoms. These cases underscore the need for more research in the area of CAM as treatment options for war veterans with PTSD and tinnitus. Thus, more case method studies like these are needed to make these findings more generalizable to a broader population.

Discussion

In meeting the multifaceted health needs of military veterans and their families, an interprofessional collaborative practice that uses a comprehensive holistic approach as a theoretical framework has been successful in meeting the various health needs of veterans including the treatment of PTSD-associated tinnitus. Even though the resolution of the tinnitus was correlated with acupuncture, individual counseling targeting the related PTSD conducted by a licensed psychologist was also included in the treatment plan of all the participants after the acupuncture treatment. In this practice, traditional medicine is also available as well as the coordination of Social Work referrals. In treating the whole person taking into account mental and social factors rather than just the physical symptoms, the tenets of holistic nursing have been found to be a good fit for the veteran population in this nurse-led practice and draws close parallels with interprofessional collaboration. Nursing working collaboratively with CAM, Psychology, and Social Work is a novel and effective holistic approach in meeting the varied needs of this important sector of the population.

Clinical Implications

Although this article presents a case presentation of only three war veterans and was based on self-reports, there were very clear trends on how patients with tinnitus symptoms responded to acupuncture treatments. The overarching treatment goal for these patients is to prevent the re-occurrences of tinnitus

symptoms; or at least lengthen periods of remission between episodes of the tinnitus symptoms. It is clear from the cases that acupuncture treatments appeared to be most effective for tinnitus symptoms if received biweekly and then tapering to longer intervals between visits. It is also apparent that patients reported significant relief of their tinnitus symptoms after a minimum of four biweekly treatment visits. All patients expressed gratitude about the availability of an institute that offered holistic care focusing on the needs of veterans.

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