



# HEADACHE

## NEWSLETTER OF THE AHS COMMITTEE FOR HEADACHE EDUCATION

Dear Warriors, Families, Public and Members of the American Headache Society@:

The American Headache Society believes it is high time to focus on the complex issues and challenges of headache in our service men and women. These warriors have given of themselves to our country and sacrificed so much. This newsletter and the section of our website to come is a token of our appreciation. Thanks to the many involved in these efforts. We hope that the information will be helpful to all concerned parties.

In this Veteran's Day Edition of the Second Volume of the American Headache Society Committee on Headache Education (ACHE) Online Newsletter we focus our attention on blast-related traumatic head injury, post-traumatic headache and post-traumatic stress disorder. Our intent is to provide timely, practical, and cutting edge up to date information for everyone in need, whatever that need may be. We ask those warriors, their loved ones, military and civilian medical providers and the public to copy this Newsletter to distribute to those in need for whatever purpose. Please encourage everyone in need of reliable information to access this online via achenet.org under ACHE News 2010 Newsletters. Individual topics are available separately under Articles alphabetically by title.

In this installment experts of the Special Interest Section on Post-traumatic headache tell us about critical to know issues for our Veterans with headache. Also find directives for future directions from guest author Alex Quade, imbedded with our troops for a time. Good Reading!

### Military Post-Traumatic Headache:

- A Hidden Injury of War by Alan Finkel, MD
- Epidemiology by Ann I. Scher, PhD, past co-chair, PTH SIS
- Vicious Blasts and Vicious Cycles by Anne Calhoun, MD
- The state of the science and what is being done to find more answers by Andrew H. Ahn, MD PhD
- What are we doing about it: Government? by Teshamae Monteith, MD
- Tele-Headache Clinic for Service Members by Katharine Ambrose, DPT and Philip Girard, MS
- "It's A War Zone Out There: The View Of 'Un-Seen Injuries' From The Field." by Guest Author, Alex Quade

ACHE is grateful to these experts for their time, dedication to our Warriors and excellent ACHE articles. In the near future find our Warrior's Post-traumatic Headache Link on achenet.org. As this is just a start we ask that you let us know whether we are meeting your needs. Please let us know what we can do to respond to whatever topics or needs you feel are important to you. Please contact us at achenet.org.

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### Military Post-Traumatic Headache

#### A Hidden Injury of War

Alan Finkel, MD, FAHS

#### Key Points

1. Mild Traumatic Brain Injury (TBI) is a very common injury of the Global War on Terrorism
2. Because of improvements in protective gear, more soldiers are surviving blasts; they are developing symptoms including headache which are just beginning to be understood. Military agencies are continuing to develop guidelines to try to reduce more injuries.
3. Headaches result from concussions to the head from both direct impact and blasts; treating the headaches as if they were primary headaches such as migraine is the current standard of care.
4. Post-Traumatic Stress Disorder (PTSD) and mild TBI have many symptoms in common including sleep, mood, cognitive and balance problems.
5. The long term goals of all efforts should be to return injured warriors to an active and productive life.

#### Mild TBI and Post-traumatic Headache:

##### What, where, when, how and why

They were horse soldiers and foot soldiers and soldiers blown up and shot down. They were jumping from planes and breaching buildings. They were driving their cars or fighting in bars. They were men and women in the prime of life.

His first war related injury was in Iraq, February 2007. He was walking outside of his vehicle when a 40 lb land mine exploded. It ripped off his helmet cover, breaking off a piece. He didn't remember anything after the "flash". He awoke in

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the helicopter with dizziness, headache, and gagging. He was hospitalized for 3 days and went back to the fighting 10 days later. For a month he had terrible headaches. In March he sustained 3 injuries in 36 hours. In the first an IED exploded beneath the Humvee he was driving. He lurched forward, smashing his helmeted head on the steering wheel. During the blast he first experienced a "vacuum" feeling and then a "crisp smack" in the face, chest and stomach followed by "energy passing through" like a "ghost inside". Some others were mortally wounded. One hour later his vehicle was hit with mortar and his headache and left ear ringing worsened. The following day an antitank mine went off below his Humvee which was thrown and rolled. He immediately had sharp, shooting neck pain, dizziness, vomiting and dramatic worsening of the headache from the day before. May 2007 another Humvee and another IED flipped the truck on its side. June and July brought 2 more blasts and with the last he was medically evacuated to his American base. His headaches, initially extreme and continuous, eventually became exactly like a left sided cluster headache. He took Topamax and triptans and improved, and eventually was medically discharged.

Traumatic brain injury (TBI) in civilians accounts for over 1.3 million emergency room visits, 275,000 hospitalizations and 52,000 deaths per year. Most of these are car wrecks or falls and accidents. Post-traumatic Stress Disorder (PTSD) in civilians is most often after assault, rape or accident.

In the military at war, other things happen. Bullets happen. Massive explosions sending people, and shrapnel and multi-ton vehicles flying into the air happen. These were the daily norms in the early to middle days of the Global Wars on Terrorism in Iraq and Afghanistan. Advances in armor helped to deflect blasts away from vehicles; scientifically designed helmets absorbed more and more of the forces

that otherwise would have killed. Concussions without something hard smacking the head became another daily norm. And still our soldiers survived. They returned with invisible injuries. They were not understood by their pals or their families. And their doctors and other medical personnel often didn't know what was wrong or how to fix it.

The Defense and Veterans Brain Injury Centers (DVBIC) estimates that in the wars of the last 10 years, there have been more than 178 thousand mild traumatic brain injuries. To date, the Veteran's Administration has screened over 426,000 soldiers where one in five claim some concussion and 7.5% had confirmed TBI. According to Defense data, in 2009 there were 22,684 active duty soldiers with mild TBI. Compared to the 3,690 moderate to severe injuries, soldiers with invisible injuries made up 75-80% of all TBI. In response to these statistics, agencies inside the military have been increasingly aggressive to make sure that command decisions do not put soldiers at greater risk. The most recent guideline for concussion forces the soldier to rest for 24 hours after first concussion. A second concussion in the next 12 months results in limited duty. This includes the avoidance of contact sports until one week after symptom resolution and medical clearance. A third concussion will mandate a comprehensive evaluation and clearance by a neurologist or certified practitioner prior to return to full duty or contact sports. Sadly, the guidelines for how headache is assessed are vague; DVBIC and DOD require evidence, and for headache that evidence is just becoming available.

We don't know exactly what happens to the brain when blows to the head occur. More mysterious is the impact that being blasted by explosives has upon the brain, nerves, skin, muscles, and bones of the head. Whereas most think of concussion as the head hitting something or vice versa, blasts add new complications. The wave, called an *overpressure*, coming off some bombs is travelling at twice the speed of sound,

smashing or compressing everything in its wake. Most of the injuries these cause are called mild because no bones are breached or tissue scraped or bloodied.

All the studies of returning soldiers detail how common headache really is. About a third of soldiers returning say they have migraine type pain in the first months after being home. Most of those get better. But, amongst those with significant injuries headaches abound. About 90% of those who were blasted by explosives have headaches lasting more than 3 months after injury. Those who have many injuries are more likely to have more headaches. On the ground they say the headaches are constant and they may rage severe. They may be like migraine with vomiting, or like cluster with unbearable pain. They may want to disappear when the headaches are so severe; they say they want to beat their heads; they fear the pain and how it makes them feel. They say they are always there, or come at times like exercise or making love. They make their lives an unpredictable misery or a constant struggle to feel normal. Combining this with the other symptoms after concussion such as balance and hearing problems it becomes hard to think straight or feel safe and calm. Yet even with that, many choose to go back to duty and keep their families and love their service to country. Then some are not so lucky or able to dedicate themselves, remaining in wounded warrior battalions.

Why do they get headaches? The simple answer is that we don't exactly know, but there may be subtle brain damage after having your bell rung and head rocked. Damage to the parts of nerves called axons occurs because of twisting and shearing. This is not routinely seen on brain scans. Like a wire stripped of insulation, sparks may fly and "brown outs" of the brain are experienced as problems of memory or pain.

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Getting annoyed or even violent over usual stress can come from this “just missing”. Headaches may come from waves of “wrong messages” as the brain struggles to get the point of what is going on in life.

In order to understand particular headaches and their treatment, specialists will *classify* them with such names as migraine, or tension type or cluster. Treatments are made to match this diagnosis or primary headache. This is now most evident in the established fact that triptans are effective in migraine but not necessarily in tension headache. Post-traumatic headaches may “act like” these so called primary headaches, even if the causes may be different. Does this mean that TBI creates migraine or tension or cluster headache? Or are they are a completely new and different type of headache? What is happening to our warriors who have bad parachute landings, or who fall from high places, or who fly inside or outside the MRAP as an IED batters the armor and the persons it was created to protect? What of the death and destruction? Shouldn't effective drugs or techniques that work for migraine work in headaches that are “migraine-like” even if they occur after being blasted? Sometimes they do. Many times they don't.

The biggest controversy in the military literature right now is, simply stated, the difference between the emotional versus the physical damage to the brain, alternately called PTSD and TBI. The most prominent author on the subject, Charles Hoge, has published several reports which show that much of what the soldier's suffer can be ascribed to the events that leave traces of impossible memories and psychological states which are experienced as physical symptoms such as dizziness, balance and sleep problems. These are also the well known symptoms that can follow concussion. Although these studies are not universally accepted, other studies opposing them are few. And,

amazingly, for all the work so far, headache has remained the singular symptom which has no adequate explanation, except for concussion and/or TBI.

There is a growing awareness that injured soldiers should be helped to return to service, or to the often chaotic life beyond deployment or discharge. Both of these paths demand all the efforts that one can muster. Government, industry, foundations and individuals are examining everything from armor to personal protection. For those who suffer and for those who live with or care for the injured, the headaches are more than just a pain of the head. They make life hard. They make the promise of duty to comrades more difficult to keep. They add to the struggle to find a place to rest or work or love.

Our hope is that through better understanding, the headaches after war will be knowable and treatable. For now the challenges are great. The American Headache Society and its partners are dedicated to this challenge and we offer this special edition of the NEWSLETTER in hopes that the information and links will help all those involved.

*Alan Finkel, MD, Carolina Headache Institute, Chapel Hill, NC, TBI Center of Womack Army Medical Center, Fort Bragg, NC and Chair of the Post-Traumatic Headache Section of the American Headache Society.*

*The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of the Army or Department of Defense.*

### **Epidemiology of Military Post-Traumatic Headache**

*Ann I. Scher, PhD*

#### **Key points:**

1. *Headache disorders including migraine are common in recently deployed service members*
2. *Headache is a key symptom of traumatic brain injury (TBI)*

3. *Ongoing studies will help us to better understand post-traumatic headaches (PTH); their outlook or prognosis; symptoms and whether they differ from “regular” headaches*

#### **How common is headache or migraine in the active duty population?**

The Armed Forces Health Surveillance Center (AFHSC) recently reported on the number of visits for headache or migraine. During the years 2001 through 2007, 2.5% of male and 9.5% of female active duty service members had at least one medical visit yearly for headache or migraine. This agrees with about 50,000 individuals (30,000 men, 20,000 women) and 100,000 visits yearly. These are likely low numbers. This report did not include medical visits during deployment or at non-military facilities. By contrast, migraine affects about 7% of men and 17% of women in adult US civilians. About half seek medical care. For a variety of reasons military and civilian groups are difficult to directly compare. It appears that headache or migraine is an important health problem in both military and civilian groups.

#### **How many service members with TBI have headaches?**

The AFHSC reports a generally increasing rate of TBI in the U.S. Armed Forces, notably in the Army. See Figure 1. Headache is a key symptom of TBI. Therefore, headache or migraine is likely to continue as an important problem in the military healthcare system in the near future. Even in the absence of head injury, headache disorders may be especially common following deployment. For example, a recent Theeler study reported on headache symptoms in 2,726 US Army soldiers returning from combat duties during 2005. Surprisingly, 19% of the soldiers had symptoms consistent with migraine. Almost all were men. Only one in four had received a medical diagnosis.

New onset migraine is even more likely in service members who sustain a head injury (Figure 2). For women, new migraine following deployment was about twice as common with a deployment-related

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concussion (21%) than without (8%). The increase in new migraine was particularly notable in men. Ten per cent (10%) of men with a concussion have new migraine compared to 2% of men without a concussion. These numbers are likely an underestimate. They are based on *diagnosed* migraine rather than *total* migraine. Diagnosed means from medical records rather than interviews of all subjects whether or not they have sought care.

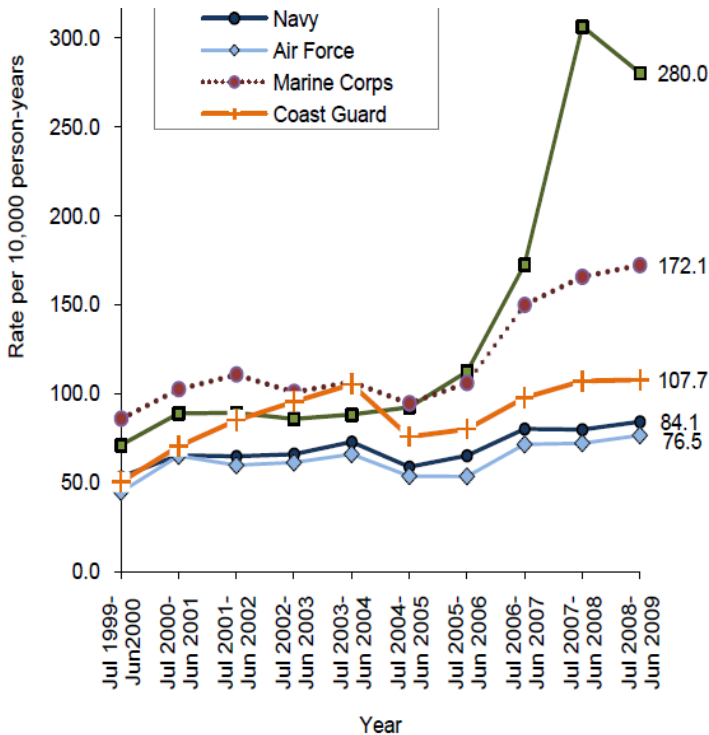
**What is the outlook or prognosis of military PTH or post-deployment headache?**

The short and long-term outlook of headache following deployment or injury is not well known. More studies are needed. In the Theeler study mentioned earlier, 36% of the soldiers with post-deployment migraine had trouble due to headache at a three-month follow-up visit. A small but very interesting Walker study followed the outlook of PTH. Study subjects were veterans or persons who receive military benefits, mostly men, who sustained a moderate to severe head injury. Whether soldiers sustained injuries during deployment is not clear. Thirty-eight percent (38%) reported acute headache right after the injury. Most of these individuals reported daily headache. Just over half (54%) of those with acute headaches still reported headaches six months following the injury.

**Do post-traumatic headaches differ from “regular” headaches?**

The International Classification of Headache Disorders (ICHD) includes diagnostic criteria for post-traumatic headache. According to ICHD, post-traumatic headaches are of “no typical characteristics.” They must also occur within seven days of injury or regaining consciousness after injury. Acute headaches last less than three months. Headaches that persist for three months or more are chronic. The rule that headaches must occur within one week of injury may not reflect reality. Some individuals appear to develop PTH in a delayed manner. In the study by Walker about one quarter of the patients without headaches immediately after TBI had “delayed onset” headaches at six months. Currently, the evidence for how the symptoms and outlook of PTH differ from regular headaches is scarce. This is an area of active research.

Ann I. Scher, PhD, Associate Professor of Epidemiology, Preventive Medicine Biometrics, Uniformed Services University, Bethesda, MD.



b. Among male deployers

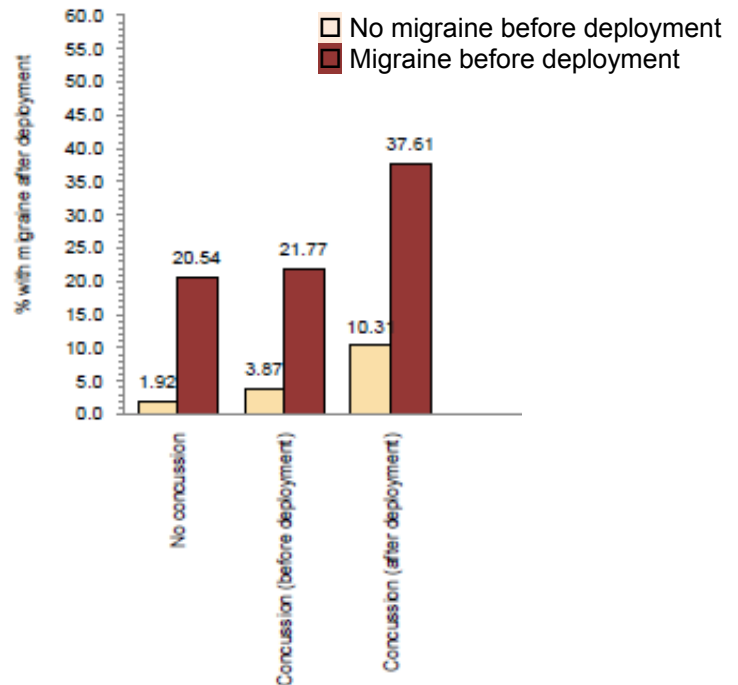


Figure 1: Incidence rates of “TBI” as ascertained by the DoD surveillance case definition, by Service, active component, U.S. Armed Forces, July 1999-June 2009

Source: Reprinted from Medical Surveillance Monthly Report, Vol 16, No 12; December 2009 <http://www.afhsc.mil/msmrToc#2009>

Figure 2: Percent of OEF/OIF deployers with at least one diagnosis of migraine after deployment, by history of migraine before deployment, active component, U.S. Armed Forces

Source: Reprinted from Medical Surveillance Monthly Report, Vol 16, No 12; December 2009 <http://www.afhsc.mil/msmrToc#2009>

## Vicious Blasts and Vicious Cycles

Anne Calhoun, MD

### Key Points:

1. *Migraine-like headaches frequently develop after combat related head injuries*
2. *Factors beyond the injury itself play a key role in the development and resolution of these headaches*
3. *Underlying factors in chronic headaches often include sleep problems, medication overuse, anxiety and posttraumatic stress disorder (PTSD)*

### Background

Roughly 20% of US soldiers returning from Operation Iraqi Freedom/Enduring Freedom sustained a concussion during their deployment. And among those suffering a concussion, 37% had post-traumatic headache, defined as headaches beginning within one week following the concussion. Providers classified the majority of these post-traumatic headaches as migraine. These headaches have occurred more frequently than non post-traumatic headaches.

To understand the migraine-like features of these headaches, one needs to know that the brain responds to trauma using pathways similar to those in migraine. Research reveals that migraine can be a consequence of mild traumatic brain injury (TBI). A link between migraine and TBI can be post-traumatic stress disorder (PTSD). This article looks at how these conditions can interact in a vicious cycle to produce chronic pain.

### Traumatic Brain Injury Facts

Today, almost a third of the injuries from the battlefields of Iraq and Afghanistan are to the head and neck. This pattern is significantly higher—50% to 100% higher—than in World War II, Korea or Vietnam. Along with this, more of our wounded are surviving and returning home with their injuries, thanks to the rapid transport of

casualties to definitive care stations.

It is well known that the signature injury of this war is the blast, accounting for almost 80% of injuries. In fact, the *majority* of our wounded suffer some degree of TBI. Mild TBIs—meaning that loss of consciousness was less than one hour—are the injuries most associated with chronic post-traumatic headache.

Paralleling this surge of blasts and TBIs is an epidemic of PTSD. Between 2003 and 2007, newly diagnosed cases grew almost 9-fold, with the burden of the disorder borne by the troops on the ground—the Army and the Marines. Better reporting of PTSD following the introduction of the electronic medical records in 2004 and greater awareness of the condition likely explains the surge in cases. Unquestionably, there is also the key factor of increased combat exposure of our troops on the ground, due to multiple deployments and extended tour lengths.

### What Post-traumatic Headache Means

Before any meaningful discussion of “post-traumatic headache” (PTH), it is necessary to ask what “post-traumatic” means in this context. If post-traumatic is taken to imply *causation*—that the headache is *due* to the trauma, then we would have to focus on the physics of the blast and the mechanisms of tissue injury to understand or discuss PTH. (And when dealing with an *individual* patient and his injuries, this can be appropriate.) But there are problems with this approach when we consider PTH as a headache disorder. First, each injury is unique. Second, although PTH develops in the vast majority of mild TBI cases, most studies show an inverse relationship between the severity of the injury and subsequent development of headache. These studies imply that there are factors at work *beyond the physical injury* that are at least partly responsible for the generation or maintenance of these headaches.

If post-traumatic is understood to describe a *temporal* relationship—that these headaches *follow* a brain injury,

then instead, we look for clues in the associated factors and evaluate their respective contributions to the overall clinical picture. With this definition, we can discuss important generalities that are common to the development of chronic PTH following combat trauma—even where individual injuries may be quite diverse.

### Prevalence of Migraine in the Theatre

We do know that there is something about the battlefield that increases susceptibility to migraine. A brigade of soldiers—93% male, with an average age of 27—was screened with a validated headache questionnaire immediately following a one-year tour in Iraq. The screener asked detailed questions about headache symptoms during the last three months of their deployment. Researchers applied formalized criteria to the answers provided and classified the headaches as migraine, probable migraine, or non-migraine headaches. Surprisingly, an astounding 19% of the troops were judged to have migraine; 17.5% had probable migraine and 11.4% had non-migraine headaches. Only 5% had been diagnosed with migraine prior to their deployment. This is much higher than would be predicted for a young, mostly male population. The reported general population prevalence of migraine in men is about 6% and 18% in women.

To explain this high prevalence of migraine in theatre, we know that these headaches have both a genetic predisposition and a threshold for expression. Certain factors appear to lower that threshold, making attacks more likely. These include chronic exposure to migraine triggers, such as lack of sleep, stress, heat, exertion, strong smells, hunger, weather fronts, and glare—factors that are prevalent on the battlefield. Our troops often rely on caffeine and sleeping pills as they work with heavy packs and body armor in the desert heat.

### Progression from Episodic to Chronic Headache

To illustrate the process of transitioning

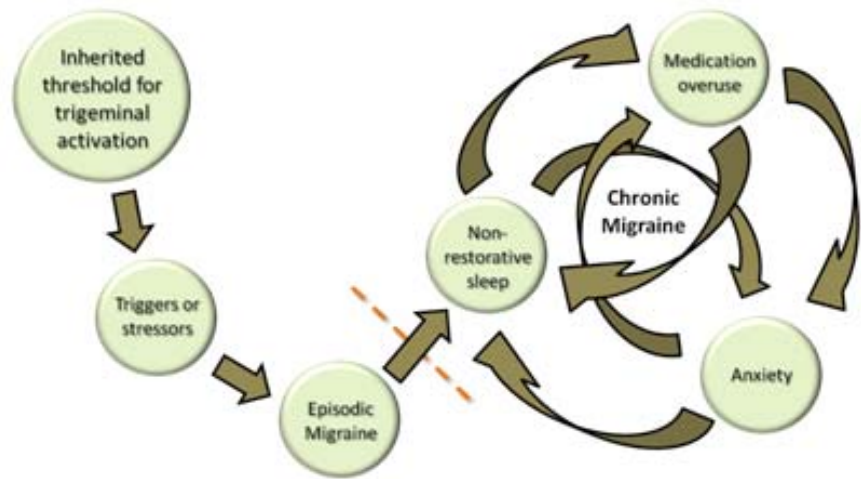
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from occasional or episodic headaches to chronic headaches, let's look at a model for the chronification process. With migraine, there is a genetic component—an inherited susceptibility. The susceptible individual then encounters an occasional migraine trigger and experiences occasional, or episodic migraine. These individuals are typically able to manage attacks with effective acute migraine medications. But when individuals get into trouble with increasing frequency of headaches, they enter into a vicious cycle of progression to chronicity. Chronic migraine is marked by some degree of headache discomfort on at least half the days of the month, and, if left untreated, 8 or more of these would become migraines.

How one enters the vicious cycle likely differs to some degree from individual to individual and is a matter of debate among headache specialists. This illustration shows entering the circle through non-restorative sleep, which can be attributed to any of a vast array of issues. Chronic poor sleep is a risk factor for progression to more frequent headaches. Then, if drugs are taken for each attack, medication overuse or “rebound” headaches can ensue, perpetuating the headaches. Medication overuse is present in 70% of patients with chronic migraine. This factor may then interact with anxiety—which is quite common in migraine sufferers. Anxiety is 5 times more likely with migraine and vice-versa. The migraineur may worry if enough pills are available to treat headaches; or be anxious over whether the pain will become worse. Anxiety, in turn, may interfere with sleep initiation or maintenance, continuing the vicious cycle. There are also brain pain processes which amplify the cycle. Side-effects of the medications taken (for headache pain or prevention, anxiety or sleep) can, in turn, make the sleep worse. Consequences of poorer sleep include an increase in anxiety, depression, eating disorders, fatigue and stress. The worse the progression, the

## Chronification of Migraine



Calhoun AH. Used with permission

more likely the patient is to overuse medications and experience anxiety, depression and or PTSD.

### Progression from Acute to Chronic PTH

Similar factors may be involved in the transformation of acute PTH to chronic PTH. Certainly, the reported inverse relationship between severity of injury and headache chronicity is intriguing and argues for other, equally important factors. The next illustration shows how mild TBI may lead into a vicious cycle of headache chronification. The blast has two components: (1) the physical impact produces an acute PTH, experienced after about 80% of mild TBIs. This can lead to medication use—or overuse—particularly when the soldier is self-medicating without appropriate evaluation. And here, it is important to remember that caffeine is a drug that can readily perpetuate chronic headaches. There is also the psychological impact—what the soldier saw, what he heard, what he smelled, what he imagined. This can fuel the anxiety component of the vicious cycle and lead to non-restorative sleep.

Most cases of PTH resolve within the first 6 to 12 months, but with protracted cases, research suggests psychological factors play a role in etiology and headache maintenance. Addressing psychological factors is necessary for eventual relief. Among cases that don't resolve within the first year, there are two key factors. A study of veterans with TBI showed high association of persistent neurologic or neuropsychological abnormalities with PTSD and disturbed sleep: 90% of these persistent cases had PTSD; over 80% had disturbed sleep. Only 11% of those with normal neurologic or neuropsychological exams had either PTSD or disturbed sleep.

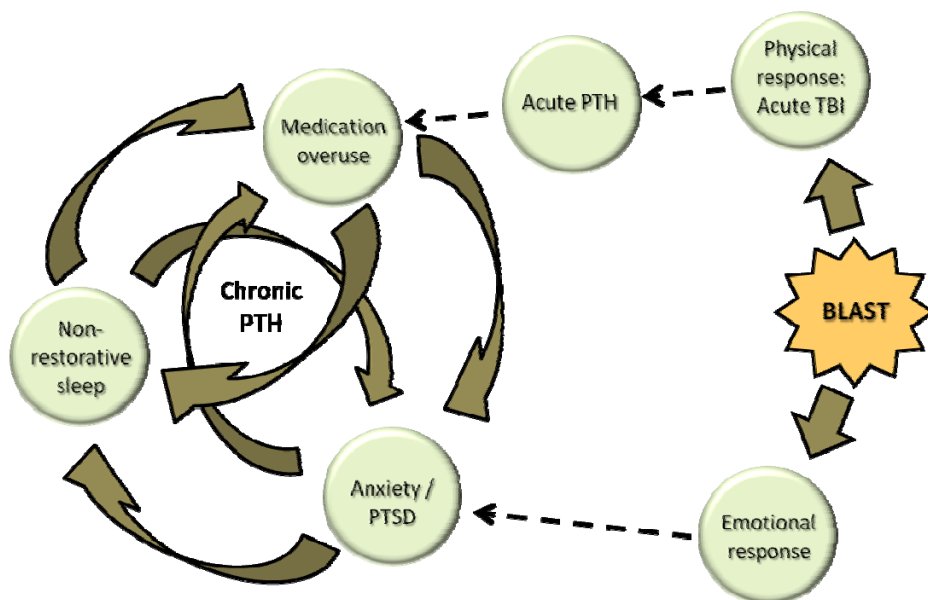
### Post-traumatic Stress Disorder

PTSD is a severe anxiety reaction to a traumatic event, in which individuals repeatedly relive that event, avoid stimuli associated with it, and experience symptoms such as difficulty sleeping and irritability. It is common in our combat veterans, particularly those who have sustained head injuries. After careful examination of a brigade of returning soldiers, a study reported PTSD in 44% of those who had experience injuries with

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## Chronification of Post-Traumatic Headache



Calhoun AH. Used with permission

loss of consciousness, 27% of those with lesser concussions (no loss of consciousness), 16% of those with other (non-TBI) injuries, and 9% of those with no injury.

Soldiers with TBI were more likely than those with other injuries to report poor general health, missed workdays, medical visits and a host of physical symptoms. However, after *adjustment for PTSD and depression*, the head injury itself was no longer significantly associated with any of these outcomes, *except for headache*. In other words, headache appears related to the injury itself. PTSD and depression appear to explain the missed workdays, medical visits and host of other symptoms.

In the overall clinical picture, it can be hard to disentangle TBI and PTSD. Three factors appear to account for persistent symptoms following a mild TBI. These include the relative severity of the injury, multiple injury mechanisms....and PTSD. In turn,

factors associated with development of PTSD include service in Iraq as opposed to Afghanistan, female gender, multiple injury mechanisms and....a TBI. This is reflective of what military history has taught us. Records from the US Civil War showed that the dual factors of individual vulnerability and magnitude of exposure were key factors in development of a syndrome that was similar to what we know as PTSD. The youngest soldiers were the hardest hit, as were members of units that sustained the most extensive battlefield losses.

There are four basic patterns of functioning after trauma: (1) severe disruption in psychological function beginning immediately after the trauma and persisting for years, (2) initial disruption in function, but improvement over time and recovery, (3) initial adjustment to the trauma with deterioration over time, and (4) resilience. Resilient patients recover after relatively mild short-term

disruptions. One theory is that resilient individuals may be genetically different—among the quarter of the population with two long variants of the 5HT transporter gene. With poor psychological functioning comes increased likelihood of chronic headaches. Increased risk for poor psychological function can be related to traumatic events in earlier life, especially childhood. These events can then render an individual more vulnerable to later traumas including traumatic spectrum disorders, such as PTSD.

### Treatment

Optimal treatment must address the issues involved. Typically these include a minimum of headache, psychological dysfunction, medication use/overuse, sleep disturbances, inactivity, and dietary issues.

For the headaches, treatment typically follows established guidelines for preventive and acute therapy of the type of primary headache that the condition most closely resembles—usually chronic migraine. This includes avoidance or resolution of medication overuse headache or caffeine-related headaches.

For the psychological component, especially PTSD, there is evidence supporting the effectiveness of several treatment modalities, including both individual and group trauma-focused cognitive behavioral therapy including somatic experiencing, guided imagery, stress management, and eye movement desensitization and reprocessing (EMDR). Two resources developed specifically for the military by Belleruth Naparstek can be found on healthjourneys.com entitled the Military Welcome Home Guided Imagery Pack and Healing Trauma (PTSD). James Gordon's Center for Mind-Body Medicine is listed as a resource in the National Resource Directory (NRD), a federal government Web site for wounded, ill and injured Service Members, Veterans, their families, and those who support them. The Center for Mind Body

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Medicine also has a \$400,000 research grant from the Defense Center of Excellence (DCOE) for Psychological Health to study the Center's trauma healing model with veterans returning from Iraq & Afghanistan. Contact the NRD for specific military resources or the Center for more details.

Among treatment choices, there is evidence that trauma-focused treatment is more effective than non-trauma-focused. One example of individual trauma-focused somatic experiencing is "Virtual Iraq," an immersion therapy that utilizes video gaming technology. These virtual reality experiences can be individualized to the setting of the trauma—for example, a roadside explosion, or an urban street-fight. Sights, sounds, tank rumbling and motion, and even smells have been used to reproduce the setting of the trauma. The intent is for the soldier to revisit the trauma in progressively greater detail as the he learns to "dial down" his response to it. "Dialing down" the emotional response seems to be a key component of resilience. Functional MRI studies in PTSD patients have shown that these techniques can be learned, with benefits demonstrated on brain scans.

Disrupted sleep specifically warrants targeted treatments. This may require assessment of sleep apnea, but more likely use of classic sleep hygiene techniques is more important. Disturbed sleep seems to be a core feature of PTSD, not just a common symptom. In fact, early onset of sleep disturbances following the trauma is predictive of PTSD one year later. Persistent sleep problems that remained years after the injury were also associated with greater neurobehavioral impairment and with unemployment. Guided imagery with the Healthful Sleep CD by Belleruth Naparstek and Emotional Freedom Technique (EFT) at [eftuniverse.com](http://eftuniverse.com) are excellent resources for PTSD sleep specific problems.

Any inactivity due to pain, sleep deprivation or PTSD needs reversal beginning with increased activity as soon as possible. This should advance gradually from non-exercise activity to some degree of cardiovascular exercise. If maintaining

a level of exercise, assess capability for possible advancement. Dietary treatment consists mainly of avoiding known headache triggers including headache-promoting substances such as caffeine, artificial sweeteners, nitrates, tobacco and possibly alcohol.

### Summary

Proper diagnosis of PTH is essential. This includes not only proper headache diagnosis, but evaluation for psychological dysfunctions including sleep disturbance and PTSD. Effective treatment of chronic PTH after combat-related mild TBI may resemble the treatment plan of chronic migraine. This requires appropriate preventive and acute medications, elimination of analgesic overuse and/or caffeine rebound, effective treatment of anxiety disorder/PTSD and depression and improved sleep hygiene to restore sleep.

*Anne Calhoun, MD, CAPT/MC/USNR-Ret, Partner, Co-Founder, Carolina Headache Institute, Chapel Hill, NC.*

### The State of the Science and What is Being Done to Find More Answers

*Andrew H. Ahn, MD PhD*

#### Key Points

1. *Very little is known about how a knock to the head from a military explosion, called a concussion, leads to post-traumatic headache (PTH).*
2. *Experts base what is known about concussion and headache on indirect evidence.*
3. *How brain trauma affects structures and chemical signals in the brain is the focus of current research*
4. *Trying to understand blast-injury is a big challenge.*
5. *Researchers will need more information from the affected soldiers to guide future animal and human studies*

#### The problem of post-traumatic headache

A large number of soldiers experience

problems with sleep, concentration, and constant headaches who have served in Iraq and Afghanistan. These problems are due to the large number of hard knocks to the head suffered by the soldiers. Experts call these hard knocks concussions when they cause a brief sense of being dazed or a loss of consciousness. Current military duty related concussions result most often from the blast of improvised explosive devices (IED's). Experts do not completely know how blast-related concussion causes constant headache and these other problems.

If concussions are so common, why do we know so little about them? Currently, no accepted way to test for concussion is the single most important reason. Like civilian sports and motor vehicle accidents, blast-related concussion shows no visible brain injury on standard brain images. That is, an MRI of the brain that your doctor can order is usually normal. Also, because concussions are not fatal, there are no autopsy studies of concussion or of PTH. Thus no detailed brain facts exist to compare with the clinical problems. A major research priority is to measure the amount of injury from a concussion. When this research is successful a "biomarker" will exist.

Researchers have proposed various brain changes in concussion. These ideas result from advanced brain imaging methods used in small groups of subjects. Experts hope one day that these facts will lead to a biomarker for concussion. These imaging changes in the brain relate to chemical signals, blood flow, and the relative size of certain brain areas. These tests are in their earliest stages. We need to regard the results as tentative. Many more subjects need testing.

#### Clues from related conditions

Let's consider two related conditions. Traumatic brain injury (TBI) is the first. With this injury the trauma is severe enough to cause visible brain injury. *Brain contusion* is one type of such injury. This bruise is a small blood vessel leak. However, unlike a simple bruise under the

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skin, a brain contusion can lead to long-term changes in the normal function of that part of the brain. *Shear injury* is another kind of TBI. *Diffuse-axonal injury* is another name. Shear injury in this case refers to the sudden jarring of the brain. This causes layers of the brain to slide past each other. Shearing in the brain causes a break in axons, the parts of nerve cells that form connections with each other. The detection of even a small amount of this type of brain injury predicts the presence of severe problems like sleep, mood changes, attention difficulties and headaches.

The experience with brain imaging of TBI has identified a common pattern of injuries. Though the pattern is not a perfect predictor, it does provide clues as to the parts of the brain most likely affected in the mildest cases. This pattern includes brain contusions at the surface of the brain directly under the area hit. In addition, there is sometimes an area of injury at the opposite side of the brain, called a *contra coup* injury. Bounce-back of the brain against the skull after the initial blow causes the *contra coup*. In addition, there is a vulnerable region of the brain, along the elongated lobes that sit alongside each side of the brain, called the temporal lobes. Their vulnerability is significant due to the importance of the temporal lobes in memory, emotions, and communication.

Blast-related concussion closely relates to sport-related concussion. Experts in the field of sports medicine accept that repeated concussions are bad. Sports that involve repetitive blows to the head, such as professional boxing, are proof of that. These blows have long been known to greatly increase the risk of severe and progressive problems later in life. These problems include memory, attention span, problem solving, speech, and physical movement abnormalities. All of these problems occur in the elderly with dementia. Abnormal findings in the brain at autopsy occur so often in

boxers that experts call this *dementia pugilistica*. More recent studies confirm that other athletes receive repetitive head trauma. The sports of football, hockey, X games, also place the athlete at high risk for brain injury. This injury goes by the term chronic traumatic encephalopathy, or CTE. The media has discussed CTE recently related to professional football and boxing. Among those with the clinical picture of CTE, the brain has strong similarities to the problems seen in Alzheimer's and Parkinson's disease. These changes include the abnormal build-up of proteins called beta-amyloid and tau, as well as another protein called TDP-43.

#### Animal models of concussion

In the laboratory, researchers have well-established experiments meant to copy the conditions of TBI in animals. However, because these tests produce a well-defined brain injury, they are for the most part not good tests for concussion.

The so-called cortical impact model involves a controlled blow of a weight onto an exposed brain surface. Because the researcher removes a portion of the skull this model is a very good way to produce a local region of brain injury. However, this test is a model of "open head injury" in which the force of the injury exposes the brain. By contrast, a concussion is by definition a "closed head injury." The skull is still intact. The mechanism of how the energy of the injury is sent throughout the brain is very likely to be different. Another method, called fluid percussion, involves the spread of a fixed blow through a column of fluid. Researchers usually use an exposed brain; thus this is a form of "open head injury."

There are a few animal models of "closed head injury." One such model involves the controlled blow of a weight on an anesthetized animal held in a secured position. We all should regard these studies as preliminary. In any case, they remain only a gross likeness of the real-life conditions of a concussion.

#### Towards new test models of concussion

The ability to copy the conditions of an explosive blast in the laboratory is a technical challenge. One unique aspect of an explosion is the "primary blast wave." This refers to the energy of the blast explosion first carried through the air. This blast wave is the rapid sequence of high pressure followed by a wave of very low pressure. The subsequent events, such as collisions with hard surfaces, the sudden deceleration with impact, etc, have similar injuries in the civilian setting. The understanding of the physics of blast injury on living tissues is poor at this time, but is the subject of intensive study.

There are still several basic questions that would go a long way towards understanding military PTH. For the time being, the most direct way to address these questions appears to be through further studies of the soldiers returning from combat (see article by Ann Scher). We all hope that these key insights will provide clearer direction on how to design laboratory models and how they lead to ongoing sleep, attention and headache and other symptoms.

Andrew H. Ahn, MD, PhD, Assistant Professor of Neurology and Neuroscience, University of Florida College of Medicine, Gainesville, FL.

#### What Are We Doing About It: Government?

Teshamae Monteith, MD

#### Key Points

1. *Congressionally Directed Medical Research Programs FY2010 exist for chronic migraine and post-traumatic headache, but still require funding.*
2. *National Defense Authorization Act for 2010 to develop and implement*

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*a comprehensive policy on pain management by the Army Pain Management Task Force*

3. *Key components of the National Pain Care Policy Act included in the Patient Protection and Affordable Care Act.*

### Background

I met a young veteran not too long ago, whose personal stories remains vivid in my mind. He was exposed to an improvised explosive device that resulted in a traumatic blast injury and an early discharge. Now back at home, he is currently taking biology classes to become an army physician and help soldiers with TBI. Unfortunately, he has intrusive flashbacks, cognitive impairments and daily headaches that interfere with his performance. He now takes daily Vicodin, but this only dulls the pain.

Traumatic Brain Injury (TBI) is a serious public health concern afflicting our active duty soldiers and veterans alike. In fact, an estimated 15-20% of soldiers have sustained TBIs in Iraq and Afghanistan, making it the signature injury of our current conflicts. While TBI is the signature wound, headache has become the signature symptom. Posttraumatic headache is a serious problem, especially in military populations, as cultural barriers exist in pain reporting. Inadequately treated pain may cause mental anguish, exacerbate psychological or psychiatric disorders and may contribute to rising rates of suicide. Furthermore, acute pain may progress to chronic headache, medication overuse, and dependency on controlled prescriptions. All these elements may confound the disability associated with TBI and affect the quality of life and functional capacity of afflicted service-members. *So we asked what is the government doing about it?*

### Congressionally Directed Medical Research Programs FY2010

In response to this growing public health problems associated with TBI, the fiscal year 2007 marked a dramatic increase in psychological health and traumatic brain

injury research when the Congressionally Directed Medical Research Programs (CDMRP) was allocated an unprecedented \$301million(M) to advance the military's understanding of these disorders. \$151M is for research on Posttraumatic Stress Disorder and \$150M for research on TBI. Despite the large burden in headache prevalence of those afflicted with TBI, headache disorders have been under-investigated and there are large gaps in our knowledge base of service-connected migraine and posttraumatic headache.

Neurologists, headache specialists, patients, and veteran advocacy groups including members of the Alliance for Headache Disorders Advocacy contacted Congress in concern for returning troops suffering from posttraumatic headache. In response to advocacy initiatives for the health care needs of the Armed Forces, Congress fortunately added chronic migraine and posttraumatic headache to the list of topic areas for the Peer Reviewed Medical Research Programs (PRMRP) for the fiscal year 2010. The programs seek a wide spectrum of disciplines with the vision to identify and fund the best medical research to protect and support our servicemen. These programs currently remain unfunded, but the Office of the CDMRP expects to allot approximately \$6.6M of the \$50M FY10 PRMRP appropriation to fund approximately 2 clinical trial applications including headache.

### Congressional Brain Injury Task Force

The Congressional Brain Injury Task Force or TBI Caucus held a congressional briefing in February 2010 with the American Academy of Neurology Palatucci Advocacy Leadership Forum and representatives from the American Headache Society (AHS), including Past President Fred Sheftell, MD, immediate past co-chair of the AHS Posttraumatic Headache Section Ann Scher, Ph.D, National Director of the Neurology for the Veteran Affairs Health System (VHA), and Peter J. Goadsby, MD, PhD. As a result, the TBI caucus sent out a Dear Colleague Letter in support of the

Department of Defense (DoD) appropriations of \$10M for migraine and posttraumatic headache research for FY2011. While, the Department of Defense did not support the exact recommendations of the caucus, a greater awareness for the impact of posttraumatic headache in the military population arouse.

### National Defense Authorization Act FY2010

Section 711 of the National Defense Authorization Act (NDAA) for fiscal year 2010 tasked the Secretary of Defense to develop and implement a comprehensive policy on pain management by the military health care system, no later than March 31, 2011. Hopefully, the military headache will be addressed along with other pain conditions, as a part of this comprehensive and interdisciplinary pain management approach in compliance with Section 711 of the NDAA.

### Army Pain Management Task Force

The Army Surgeon General LTG Eric B. Schoomaker chartered the Army Pain Management Task Force in August 2009 to provide a standardized DoD and VHA vision and approach to pain management to optimize the care for Warriors and their families. The Task Force members included a variety of medical specialist disciplines from the Army, and representatives from Navy, Air Force, TRICARE Management Activity and Veterans Health Administration (VHA). In the May 2010 final report, 109 recommendations emphasized a holistic, multidisciplinary and multimodal approach. The recommendations depend on an education and communication plan that crosses DoD and VHA medical staff. The recommendations may be divided into four areas: to provide tools and infrastructure that support and encourage practice and research advancements, build a set of best practices, focus on the warrior and family, and to promote pain awareness, education, and proactive intervention. The task force emphasizes the need for prevention, prompt and

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appropriate treatment that relieves acute pain and eliminates progression. Over time, we look forward to see how these initiatives provide the groundwork necessary to reduce the pain and suffering associated with posttraumatic headache.

### National Pain Care Policy Act into Law

The National Pain Care Policy Act (NPCPA) resulted from the diligent work of several advocacy groups including the Pain Care Coalition (PCC), the American Pain Foundation and others. The PCC was organized in 1989 by the American Pain Society, American Association of Pain Medicine, and the AHS. These advocacy groups contributed to the inclusion of key components from the 2009 NPCPA into the Patient Protection and Affordable Care Act, the landmark healthcare reform bill. The National Pain Care Policy Act of 2009 requires the Secretary of Health and Human Services seek to enter into an agreement with the Institute of Medicine to convene a Conference on pain, which may be major way forward in the road to providing better care for serviceman with posttraumatic headache. The purpose of the conference is to address key medical and policy issues of pain care. Secondly, training programs will be necessary to improve health care skills of assessing and treating pain. Lastly, Sections in the NPCPA also requires that the Director of the National Institutes of Health (NIH) continue to expand research through the NIH Pain Consortium. The Consortium is lead by directors of the NIH Centers for Complementary and Alternative Medicine, and Institutes of Nursing Research, Neurological Disorders and Stroke, Dental and Craniofacial Research and Drug Abuse. Through collaboration the NIH Pain Consortium could help us understand more about both the basic mechanisms and clinical challenges of posttraumatic headache. The Consortium is responsible for submitting recommendations to the

Director of NIH with the goals of expanding the pain research agenda.

### Summary:

TBI and the sequelae of posttraumatic headache can be a disabling condition that interferes with assimilation and adjustment of our military servicemen back into society. In order to best manage posttraumatic headache, research efforts in the basic, translational and clinical sciences is greatly necessary to both fill gaps in knowledge and provide the best medicines. Thanks to our government, pain management efforts across the DoD and VHA are underway to address these issues. In order to adequately address headache and prevent widespread disability, more work needs to be done in the interest of military headache sufferers. As secretary of the Posttraumatic Section of the American Headache Society, rest assured that we are committed to improving the quality of lives of our servicemen. *You may then ask how can I help?* Patient advocacy is a powerful way to move the government and ensure the best is being done for our brave soldier and veterans. You may help by writing to your representatives and ask them to support increased NIH funding for headache and pain research.

*Teshamae Monteith, MD, Headache Group, Department of Neurology, University of California, San Francisco, San Francisco, CA.*

### Tele-Headache Clinic for Service Members

*Katharine Ambrose, DPT and Philip Girard, MS*

### Key Points:

1. *Headaches are a key factor in the Traumatic Brain Injury (TBI) symptom complex affecting sleep, mood and cognitive function.*
2. *Early management and treatment of headache aides in full recovery and return to duty.*
3. *Access to specialized headache*

*care is limited for service members receiving treatment at military treatment facilities (MTF) within their duty stations.*

### Background

In 2009 the Defense Veteran's Brain Injury Center (DVBIC) initiated a Tele-TBI service at several military bases. The purpose of this telemedicine initiative was to improve access to specialized care for injured service members with TBI. One site that DVBIC partnered with was Ireland Army Community Hospital at Ft. Knox, Kentucky. The goal was to treat service members there who had persistent headaches. At that time, Ft. Knox did not have a neurologist or other headache specialist on staff so service members had to travel long distances to receive care at another MTF. This prevented or delayed appropriate treatment in most cases. Treatment at a civilian community-based clinic was possible for some but did not allow access to the military's medical record system for important integration with other health services. The electronic medical record (EMR) facilitates continuity of care within the military as service members deploy and frequently change duty stations over time.

### The Tele-Headache Clinic

The tele-headache clinic utilized the EMR and leveraged clinical resources from several sources. The clinic consisted of TBI trained physician's assistant (PA) who worked onsite at Ft. Knox. The PA is a member of the Army's Northern Regional Medical Command's tele-health network of providers. She performed the initial evaluation onsite and ordered lab work and other tests depending upon the needs of the individual patient. During a follow up visit with the PA, there was an interactive video conference with a DVBIC neurologist who specialized in headache management at Walter Reed Army Medical Center in Washington, D.C. Utilizing the military EMR, the neurologist was able to access and review the notes from the initial visit and any results from the testing that was done in Kentucky.

The interactive visit allowed the patient,

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the PA and the neurologist to review and discuss the symptoms and goals of treatment. At the end of the video conference, the neurologist worked with the PA to develop a treatment regime. Once the treatment plan was confirmed, the PA would continue to work with the service member to manage his or her headaches until a positive outcome was achieved.

The tele-headache clinic continues to use video conference technology, already in place in many military medical centers, to connect patients in remote locations to distant specialists within the military medical system.

### **The Tele-Headache Clinic Outcomes**

The Tele-headache clinic addressed multiple challenges, including: access to specialized care, need for travel long distances for medical appointments, delays in treatment, and continuity of care within the military system. This expedited access to specialized care overwhelmingly pleased service members involved in this program. Command leadership at Ft. Knox recognized the benefit of the service and was able to evaluate the utilization and clinical outcomes. After approximately six months of providing specialized headache service through telemedicine, Ft. Knox realized the need for a more permanent solution. The workload generated by the tele-headache clinic helped leadership justify hiring a full time neurologist at Ft. Knox who continues to assist patients with TBI today. The tele-headache clinic continues to address access to care difficulties for service members with symptoms related to TBI and is currently being implemented at Ft. Lee, Virginia and other MTF's.

*Katharine Ambrose, DPT and Philip Girard, MS, Defense Veteran's Brain Injury Center (DVBIC) Office of Telemedicine*

*DVBIC is a congressionally mandated program headquartered in Washington, D.C., to serve active-duty military and veterans with TBI through state-of-the-art medical care, clinical research and educational programs. DVBIC is comprised of military hospitals from*

*each service branch, VA polytrauma centers, and civilian health programs located in 16 regional offices across the United States and abroad. There are approximately 225 professionals within the DVBIC network representing more than 20 clinical disciplines. DVBIC is the primary operational TBI component of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. For more visit [www.DVBIC.org](http://www.DVBIC.org)*

### **It's A War Zone Out There: The View Of 'Un-Seen Injuries' From The Field**

*Guest Author, Alex Quade: Award-winning, Embedded War Reporter*



As a war reporter, I have had a unique view of all the *angles*: from downrange with the troops... to back with them on the "home front"... from care-givers, to policy-makers... from commanding generals, to veterans... from corporations, to charitable organizations.

I've witnessed some amazing things; but not all of it... good; especially, when it comes to the re-integration of troops with, what I will call, "*un-seen injuries*" of military Post-Traumatic Headache (or PTH)... which, to *me*, includes Traumatic Brain Injury (or TBI), and Post-Traumatic Stress Disorder (or PTSD). We do, out of haste, lump these two together, when, in actuality, and on the long term, they are very separate and distinct problems. It talks to a "cookie-cutter-approach," warriors and their families tell me, that the military, medical and therapeutic professions are trying to take.

This is compounded by the fact that Traumatic Brain Injuries are never

predictable. They are different for each person, and, for each person, they take on different personalities and complexions within a diagnostic and treatment plan which although can be based on age, drugs, stress factors, etc., can also be triggered by the body and brain itself without rhyme or reason. Two good analogies, which someone in the Special Operations community told me, come close to describing this uniqueness: like riding a bull, or like being in the path of a tornado. Both are recognizable. We've all seen photos. All bulls look pretty much the same; however, no matter how many times a rider flies out of the chute, even if it is on the same bull... the rides, experience and outcome is going to be different. We've all seen tornadoes in pictures and on television news, but people who have experienced them will tell you, they are all different. It is indescribable... because of the unpredictability of the storm, its pattern and the sheer force which *impacts lives years after*. And so it is, according to troops I've interviewed, the same with military-related Post-Traumatic Headache: it is something which can impact the lives of service members, veterans, and their family members, years later.

*My* observations from covering troops in war zones since 1998 are: a "cookie-cutter-approach" does not necessarily work in the *continuing care* of troops with these injuries back into their unit... nor does it work in the *continuing care* of veterans, and their families, back into the civilian community.

The editors asked me to share stories: examples covering some of the issues and where things stand *from the perspective of the troops* I've covered in war zones, as well as their families.

So, for your background: I was embedded in Afghanistan during a huge air assault operation in Helmand Province... involving Rangers, Special Forces (the "Green Berets"), the 82<sup>nd</sup> Airborne's 1-508<sup>th</sup> Parachute Infantry Regiment and Combat Aviation Brigade ("Air Cavalry"), as well as Air Force Special Operations Command aircraft

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and elements, and Other Government Agencies. The helicopter I was supposed to be on... was shot down by the Taliban, killing all onboard (classified information from that operation made headlines on *WikiLeaks* recently). Back home, I followed up with everyone on that mission.... and one of those service members is allowing me to share *his* story of re-integration with military-related un-seen injuries, since it illustrates some of the issues.

*In his own words:* "...Alex! My perspective is: the Army is actually trying to take care of returning soldiers but *the ball gets dropped soon after returning home*. The Army's way of "checking-the-box" was: for me to fill out a post-deployment questionnaire. I checked the box that I *did* want to seek help when I got back home. The Army never followed-through! Alex, this is especially important for me, because I was in the National Guard and returning to civilian life. (Yes, there were resources available in the pamphlets they gave me... but no post-deployment-care for me to roll-into.... just a, 'Thanks for serving' and, 'See Ya!')..." "...Alex, if I had a leg blown-off, they would have kept me on active-duty until they medically-boarded me. For some reason, (un-seen injuries)... they let go... until the soldier gets into crisis-mode, which can be *too late for some*. For me, when I was in crisis-mode... dealing with the (pain) and trying to seek help... I didn't have the strength, at times, *to care for myself...*"

That service member's story... represents what many of these troops and their families are going through as they try to get treatment and re-integrate with un-seen injuries.

I asked some of this Nation's Medal of Honor recipients, and their families, about these issues... and they want you

to know, that *even some of them* have had difficulties *over the years*. One said, "*Communities* need to be more aware of the *stressors* of un-seen injuries... so we can all deal with things such as the spike in suicides, substance-abuse, marital-relationship discord, and rising divorce rates."

All of this requires action, despite Department of Defense budget cuts, health care industry changes, and political elections. So, what is needed? What can military commanders, leaders, policy-makers, health-care experts and providers, and communities... do to help make the transition "seam-less" for those active-duty troops and veterans suffering from military-related un-seen injuries, as well as for their families?

I went "straight to the source": warriors suffering from military Post-Traumatic Headaches and un-seen injuries, and their families. They shared with me the following broad points that are rarely "officially" discussed, but reach to the heart of the matter. (The over-lying theme is, it is very important to shift the paradigm with this issue.)

1. **There is no "quick fix" solution for un-seen injuries;** "quick fixes" only act as an incendiary. Everyone needs to realize that programs should be conceived as five, ten, fifteen, even twenty-year endeavors. There needs to be dedicated follow up treatment and therapy for both the service member, or veteran, *and the family*. This should be the norm, not the exception.

One care-giver of a retired soldier told me, "Society is focused on the wounded. Families of those suffering (from military Post-Traumatic Headaches and un-seen injuries) have needs, too. Spouses, parents, and other family-members need to move on with their lives, too. All the support is 'wounded-based'... and family-members and care-givers end up fading into the background."

2. **Education is a big piece.** The education piece should not only be for the troops themselves, but more importantly, for those 1) that are being placed in charges of these programs;

2) Employers; 3) First-responders; 4) civilian hospitals and treatment centers; 5) families; and 6) other soldiers who do not know how to cope with troops suffering from un-seen injuries in their units.

a. For those in charge of military programs, this needs to be more than a two-week course. Most Wounded Warrior programs on military installations are run by personnel who have not seen combat, yet feel they "know all they need to know," because they went through a two-week indoctrination course. A specific example troops and their families cited to me frequently is: the "Cadre" (or Chain of Command) in the Warrior Transition Battalions.

One poignant story punctuates this point: the wife of one of these Wounded Warriors, who was having "problems" with his Cadre, shaved her husband's head bald so the scars from his military-related head trauma would be apparent to his Command. That way, it would be "visually apparent" and they would remember that he does, indeed, have Post-Traumatic Headaches and un-seen injuries. The wife told me, she resorted to this extreme, and she said, "humiliating," measure, to remind his Cadre that her husband's demeanor and actions may be misinterpreted or misunderstood as "being a difficult soldier", when in actuality, when the hurting soldier is under stress (i.e., dealing with military bureaucratic frustrations)... his "irritability thresh-hold" may be lower. The wife said, "Soldiers with un-seen injuries should be applauded for 'muscling-through' their military work-day."

b. First-responders and hospital personnel need to recognize the triggers and symptoms of un-seen injuries. If a First-responder with flashing, emergency vehicle lights approaches a service member, or veteran, suffering from un-seen military-related head injuries, they may very well trigger a negative reaction (or "stressor").

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- c. Families need to be placed in therapy programs to also recognize triggers, recognize memory lapses are the norm, not the exception (i.e., that “sticky notes” shouldn’t be removed), and to help understand why Dad or Mom gets up every hour, on the hour, to do perimeter checks, or why a car backfiring can put someone into a cold sweat.
- d. Service members, as well as many civilian employees of the Army are currently going through mandatory suicide classes. There are no classes on helping a Soldier re-integrate back into their unit, who is suffering from military Post-Traumatic Headache and un-seen injuries. Sometimes those Soldiers find themselves ostracized or criticized for short-term memory loss, lack of, or over-concentration, panic attacks, and anger management.
- e. Downrange, military leaders may need to learn step in. In war zones, I’ve observed that due to the high operations and battle tempo, fatigue, Spartan living conditions (where overall health and hygiene may not be optimal)... many warriors may just chalk up their “headache” as part of the daily slog “in the suck”. Over-use of stimulants such as caffeine, chewing tobacco, or diet pills (“For energy”, they say), may mask some injury symptoms. Ninety-nine percent of the troops want to stay with their units “in the fight”, so they may not report their exposure to blasts (from Improvised Explosive Devices), or secondary concussions.

A General and a Sergeant Major in the U.S. Army Special Forces (the “Green Berets”) community, told me similar stories: that no one in the active-duty Special Forces community wants to single themselves out and seek treatment or report an injury or blast. “At some point,” the General said from overseas, “A senior guy’ or leader must directly intervene (write this down,

Alex!), and save the (Special Forces) Operators out there from themselves.” Stateside, the Sergeant Major re-iterated, “No one wants to be ‘the bad guy’ and make a team member (get help, which could remove him from the mission). Leaders need to do that little extra work to ensure the (Special Forces) Soldier is taken care of. For instance, every time we were hit with an Improvised Explosive Device (or IED)... I always went to the ‘Med Shop’ downrange and told the doctors about everyone who had been near the blast. Even if they don’t feel anything now, you never know what could pop up years from now.”

### **3. Outstanding facilities or treatments should be identified and used as**

**models.** Set up forums for these folks to determine what they are doing and how it can be applied. For example, Dr. Alan Finkel, at the Traumatic Brain Injury Clinic at Womack Army Medical Center at Fort Bragg, North Carolina, is hearing directly from the soldiers he is treating, with a specific regimen, of some improvements in their military Post-Traumatic Headaches. The Mentis Clinic in El Paso, Texas is having success working with Soldiers with un-seen injuries by taking a different spin on the process, and because they are more attentive to the successes of small steps, as opposed to establishing a goal of total recovery. “Paws4Vets” is another program that seems to be working, matching dogs, scheduled to be destroyed, with veterans suffering from un-seen injuries and military Post-Traumatic Headaches. One thing hindering this program is getting these dogs recognized as “therapy dogs” so they enjoy the same privileges as “Seeing-Eye dogs”. But, the important lessons from these programs, troops tell me, are that they seem to be working.

### **4. There needs to be a better way to re-integrate service members and**

**veterans back into civilian life.** Troops train and fight in hostile environment conditions... but when they come home, many need to re-learn how to be a civilian again, albeit it with lingering un-seen injuries from their military time in harm’s way.

- a. Employers should be giving incentives to assist and support the reintegration process, as well as the rehabilitation and treatment program over the long haul. One veteran with strong opinions on the importance of education regarding un-seen injuries, told me, “Not only does the public at large need to know more about it, but human resources folks at the numerous corporations that hire veterans need to come to learn that it is an issue that, while debilitating to some degree, when understood, is manageable.” He added, “Perhaps organizing and offering seminars for corporate officers and human resources officers might help them learn more about the issues.”
- b. Half-way houses should be established, as well as retreat centers “out in the boonies”. These would be environments where guys and gals would feel protected... where they can’t self-medicate; where they can be placed in anger-and-stress-triggering situations and learn to cope; where they can receive a variety of complementary treatments for their military-related Post-Traumatic headaches and un-seen injuries *before* they go back home, or, *while* they are home, but before they get into “crisis-mode”.
- c. Establish more mentor programs for the troops. Also, mentor and give incentives to caregivers, therapists and counselors.

### **This is not “just a military problem”.**

This is an issue that will impact us all: our economy and our communities. Veterans I’ve talked with say, policy-makers need to be aware that the Department of Defense does not do a good job sussing out residual blast exposure. Medicare does not cover “cognitive rehabilitation”. So, while veterans may get some services... they tell me, perhaps “cognitive rehabilitation” should be included in coverage. And, if veterans are not getting timely treatment at over-loaded Veterans Affairs facilities, some say, it will become a burden on

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the civilian community (i.e., the State of Texas recently conducted a study about this, and found that the economic impact is huge).

One veteran made the suggestion, "Perhaps private (off military installations) health service providers would consider seeing at least one service man or woman pro bono (as a way of 'giving back' to those who have fought for America) until the military, and the Veterans Affairs clinics are better able to increase resources."

Which brings us to a final "broad point" straight from the troops and their families...

**Warriors who fight, and have fought, for the United States and now bear the un-seen injuries and scars resulting in military Post-Traumatic Headaches... should not be made to feel defeated back home.** For everyone trying to affect change or make a difference in the lives and health of the troops and their families (from policy-makers and leaders... to health care providers and medical professionals... to the troops, themselves, and their families): here are words of advice to from my late mentor, Medal of Honor recipient, COL Robert Howard, who always told me, "When it is obvious that the goals cannot be reached... do not adjust the goals... adjust the action steps!"  
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**\*\*\*Award-winning, Freelance War Reporter, Alex Quade,** recently returned from nearly 18-months on-and-off in Iraq and Afghanistan covering U.S. Special Operations Forces on combat missions.

Ms. Quade is the recipient of the Congressional Medal Of Honor Society's "Tex McCrary Award For Excellence In Journalism" for her war reportage. The Medal of Honor recipients present the award to individuals who, through their life's work, have distinguished themselves by service or unbiased coverage of the United States Military through journalism.\*\*\*

## HELPFUL RESOURCES

### Brain Injury Information and Deployment Health Links:

- After deployment: [afterdeployment.org](http://afterdeployment.org)
- Brain Injury Association of America: [www.biausa.org](http://www.biausa.org)
- Brainline (WETA): [www.Brainline.org](http://www.Brainline.org)
- Center for Deployment Psychology: [www.deploymentpsych.org](http://www.deploymentpsych.org)
- The Center of Excellence for Medical Multimedia: [www.traumaticbraininjuryatoz.org](http://www.traumaticbraininjuryatoz.org)
- Center for the Study of Traumatic Stress: [www.centerforthestudyoftraumaticstress.org/](http://www.centerforthestudyoftraumaticstress.org/)
- Defense Centers of Excellence (DCoE): [www.dcoe.health.mil/](http://www.dcoe.health.mil/)

- Defense and Veterans Brain Injury Center: [www.dvbic.org](http://www.dvbic.org)
- Deployment Health Clinical Center: [www.pdhealth.mil](http://www.pdhealth.mil)
- Pain Management Task Force: [http://www.armymedicine.army.mil/reports/Pain\\_Management\\_Task\\_Force.pdf](http://www.armymedicine.army.mil/reports/Pain_Management_Task_Force.pdf)
- Real Warriors Campaign: [www.realwarriors.net](http://www.realwarriors.net)

### Service Branch Programs:

- Active Duty Army Family Programs: [www.armyfamiliesonline.org](http://www.armyfamiliesonline.org)
- Air Force Community: [www.afcrossroads.com](http://www.afcrossroads.com)
- Air Force Wounded Warrior: [www.woundedwarrior.af.mil/](http://www.woundedwarrior.af.mil/)
- Army Reserve Family Programs: [www.arfp.org](http://www.arfp.org)
- Army Wounded Warrior Program: [www.aw2.army.mil/](http://www.aw2.army.mil/)
- Marine Community: [www.usmc-mccs.org/FamilyLifeHome.cfm](http://www.usmc-mccs.org/FamilyLifeHome.cfm)
- Marine Corps Wounded Warrior Regiment: [www.manpower.usmc.mil](http://www.manpower.usmc.mil)
- MilitaryHOMEFRONT: [www.militaryhomefront.dod.mil](http://www.militaryhomefront.dod.mil)
- Military ONESOURCE: [www.militaryonesource.com](http://www.militaryonesource.com)
- National Guard Family Programs: [www.guardfamily.org](http://www.guardfamily.org)
- National Military Family Association: [www.nmfa.org/site/PageServer](http://www.nmfa.org/site/PageServer)
- Navy Fleet and Family Support (FFS): [www.cnic.navy.mil/CNIC\\_HQ\\_Site/index.htm](http://www.cnic.navy.mil/CNIC_HQ_Site/index.htm)
- Navy Safe Harbor: [www.npc.navy.mil/CommandSupport/Safeharbor](http://www.npc.navy.mil/CommandSupport/Safeharbor)

### Veteran Services Information:

- DoD Disabled Veterans: [www.dodvets.com](http://www.dodvets.com)
- Interactive VA personal health site: [www.myhealth.va.gov](http://www.myhealth.va.gov)
- Veterans Administration: [www.va.gov](http://www.va.gov)

### Vocational and Reemployment Service Information:

- America's Heroes at Work (Department of Labor): [www.americasheroesatwork.gov](http://www.americasheroesatwork.gov)
- Operation Warfighter: [www.militaryhomefront.dod.mil/operationwarfighter](http://www.militaryhomefront.dod.mil/operationwarfighter)
- Vocational Rehabilitation and Education: [www.vetsuccess.gov](http://www.vetsuccess.gov)
- Vocational Rehabilitation Information: [www.vba.va.gov/bln/vre/index.htm](http://www.vba.va.gov/bln/vre/index.htm)
- REAL Lifelines (Employer Resource): [www.dol.gov/vets/](http://www.dol.gov/vets/)

### Assistive Technology and Accommodations Information:

- Computer/Electronic Accommodations Program (CAP): [www.tricare.osd.mil/cap](http://www.tricare.osd.mil/cap)
- Job Accommodation Network (JAN): [www.jan.wvu.edu](http://www.jan.wvu.edu)

*Happy Veterans' Day!*