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ARTICLE REVIEW AND COMMENTARY

CHARTING A NEW COURSE HOME FOR U.S. SOLDIERS RETURNING FROM IRAQ: PTSD AND MILD TRAUMATIC BRAIN INJURY—IMPLICATIONS AND SOLUTIONS

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Since the start of military operations in 2003, the war in Iraq has remained on the minds of millions of American citizens and at the forefront of multiple medical and legal issues. In the trenches of Iraq, bullets flying overhead, shrapnel, and exploding bombs expose soldiers to many injuries. This exposure causes injuries like mild traumatic brain injury, a neurological disorder that is often coupled with psychological disorders, such as posttraumatic stress disorder. In order to adequately care for soldiers returning home from the battle front, we must address all of their symptoms collectively to ensure their full rehabilitation. This Article references a current *New England Journal of Medicine* study on the relationship between Mild Traumatic Brain Injury and psychiatric disorders such as Posttraumatic Stress Disorder (PTSD) and Major Depression—*Mild Traumatic Brain Injury in U.S. Soldiers Returning From Iraq*.¹ This Article also discusses the stigma associated with Mild Traumatic Brain Injury or PTSD, as well as the legal implications and the effect each diagnosis has on a soldier's benefits and compensation. Finally, it addresses new trends in the diagnostic field and emerging technologies that lead to more effective diagnosis and treatment of neurological and psychological symptoms.

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¹ See Charles W. Hogue, MD et al., *Mild Traumatic Brain Injury in U.S. Soldiers Returning Home from Iraq*, 358 N. ENG. J. MED. 453 (2008).

I. OVERVIEW: WALTER REED STUDY-MILD TRAUMATIC BRAIN INJURY IN U.S. SOLDIERS RETURNING FROM IRAQ

The United States has lost over 4000 soldiers in Iraq,² and thousands of others have been injured. Because of protective headgear, a higher percentage of soldiers are surviving serious injuries.³ Mild traumatic brain injury or concussion has been labeled a signature injury of the current wars in Afghanistan and Iraq.⁴ An estimated 10-20% of soldiers who have served in Iraq have suffered from this disorder.⁵

The article *Mild Traumatic Brain Injury in U.S. Soldiers Returning From Iraq*,⁶ published in the *New England Journal of Medicine*, describes a 2006 study by psychiatrist Charles Hogue, M.D. and colleagues. Hogue's study, conducted at Walter Reed Army Institute of Research, looked at 2525 soldiers from two U.S. Army Brigades. The soldiers were surveyed three or four months after their return home from a year long deployment in Iraq. Of this group, 384 soldiers reported having had a mild traumatic brain injury in combat with 43.9% of soldiers reporting loss of consciousness and 27.3% of those with altered mental states met the criteria for PTSD. Injuries with loss of consciousness were also independently associated with Major Depression. Soldiers in the study were asked to rate their overall health from "poor" to "excellent" and physical symptoms were measured using the Patient Health Questionnaire PHQ-15.⁷

² Global Security, *U.S. Casualties in Iraq*, available at http://www.globalsecurity.org/military/ops/iraq_casualties.htm (last visited March 16, 2008).

³ Peter Roye-Byrne, MD, *PTSD Post-Deployment: Effects of Traumatic Brain Injury and Combat Exposure*, JOURNAL WATCH PSYCHIATRY, (2008), available at <http://psychiatry.jwatch.org/cgi/content/full/2008/130/1> (last visited March 14, 2008).

⁴ Edgar Jones PhD et al., *Shell Shock and Mild Traumatic Brain Injury: A Historical Review*, 164 AM. J. PSYCHIATRY 1641 (2007).

⁵ Alix Spiegel, *Soldiers' Head Injuries May Contribute to PTSD*, NPR, Feb. 29, 2008, available at <http://www.npr.org/templates/story/story.php?storyId=18550948>.

⁶ See generally Hogue, *supra* note 1.

⁷ PHQ-15 is a fifteen item "somatic symptom severity scale" that includes the following symptoms: stomach pain, back pain, arm, leg or joint pain, headache, chest pain, dizziness, fainting spells, heart pounding or racing, shortness of breath, constipation or diarrhea, nausea or indigestion, pain or problems during sexual intercourse, fatigue, and sleep disturbance. Hogue, *supra* note 1 at 457.

Five additional questions were asked regarding the importance of postconcussive symptoms that concerned memory, balance, concentration, ringing in the ears, and irritability.⁸ Soldiers with mild brain injury who had lost consciousness were more likely to report poor overall health, missed more workdays, and had a higher number of medical visits in the prior month than soldiers with other injuries. These soldiers also had higher rates on nine of the PHQ-15 physical symptoms and five of the post-concussive symptoms.⁹

Logistic regression analyses of the study data suggest that the high rates of physical health problems reported by soldiers with mild traumatic brain injury are mediated largely by PTSD and depression.¹⁰ Hogue's article asserts that "[b]oth PTSD and Depression have been associated with a wide range of physical health problems, including persistence of post-concussive symptoms."¹¹

The study is significant because if mild traumatic brain injuries are assessed in isolation without accounting for PTSD, a mistaken conclusion could be reached that would incorrectly attribute impairment "to neurologic insult, rather than psychological distress."¹² Evidence uncovered in Hogue's study reveals that psychological factors greatly affect symptoms of soldiers with mild traumatic brain injuries. Physicians who do not account for the significant psychological factors may misdiagnose patients and fail to provide them with adequate care.

Hogue emphasized the importance of the study saying, "[t]he key finding in our study is that the majority of symptoms we might expect to be due to concussion are actually due to PTSD and depression."¹³ According to Bryant, when soldiers are told by military doctors that they suffered a mild brain injury in combat, many wrongly assume that their condition is permanent.¹⁴ The study states that in reality their concussion will likely heal and any lingering problems appear to be the result of PTSD or depression.¹⁵

⁸ *Id.* at 457-59.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² Richard A. Bryant, Ph.D., *Disentangling Mild Traumatic Brain Injury and Stress Reactions*, 358 NEW ENG. J. MED. 525 (2008).

¹³ MSNBC, *Soldiers' Concussion Symptoms Tied To Stress*, Jan. 30, 2008, available at <http://www.msnbc.msn.com/id/22904216/> (last visited March 17, 2008).

¹⁴ Bryant, *Disentangling Mild Traumatic Brain Injury*, *supra* note 12, at 525.

¹⁵ Hogue, *supra* note 1, at 462.

To achieve a better understanding of the study and the disorders addressed, the definitions of the following disorders will be reviewed.

II. DIAGNOSES DEFINED

A. Mild Traumatic Brain Injury

Mild Traumatic Brain Injury is associated with loss of consciousness or altered mental state, including being dazed or confused.¹⁶ Mild traumatic brain injury “involves damage to the prefrontal cortex due to shearing forces of the frontal regions of the skull.”¹⁷ Hogue’s article points out current deficiencies in the definition of mild traumatic brain injury that is used for clinical screenings.¹⁸ Hogue and his colleagues argue that the definition may not be “sufficiently specific for the combat environment.”¹⁹ They emphasize that this is due to the variety of factors present and the fact that symptoms of concussion (including feeling disoriented or in an altered mental state) may overlap with symptoms of severe stress like PTSD.²⁰

B. Acute Stress Disorder

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), Acute Stress Disorder is one of many psychiatric conditions under the category of Anxiety Disorders.²¹ Acute Stress Disorder is used to describe posttraumatic stress that occurs during the first month of a trauma.²² Acute Stress Disorder after a mild traumatic

¹⁶ *Id.*

¹⁷ Bryant, *Disentangling Mild Traumatic Brain Injury*, *supra* note 12, at 526.

¹⁸ Hogue, *supra* note 1, at 454.

¹⁹ *Id.*

²⁰ *Id.*

²¹ AMERICAN PSYCHIATRIC ASSOCIATION, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (4th ed. 1994) [hereinafter DSM IV]. The diagnostic criteria for Acute Stress Disorder, according to the DSM, is that “the person has been exposed to a traumatic event in which both of the following were present: (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of others; (2) the person’s response involved intense fear, helplessness or horror.” Additionally the individual has three or more “dissociative symptoms.” DSM 308.3 Acute Stress Disorder, 431-432.

²² *Id.*

brain injury raises problems for physicians because of the overlap between acute stress disorder symptoms and post-concussive symptoms.²³ Among patients who develop acute stress disorder following a mild traumatic brain injury, about 80% develop PTSD.²⁴

C. Posttraumatic Stress Disorder

Posttraumatic Stress Disorder (acute, chronic, with delayed onset) is also classified in the DSM as an Anxiety disorder.²⁵ The characteristic symptoms of PTSD include “persistent re-experiencing of the traumatic event, persistent avoidance of stimuli associated with the trauma and the numbing of general responsiveness and persistent symptoms of increased arousal.”²⁶ Among the traumatic events listed are military combat, terrorist attacks, and being taken hostage.²⁷

Approximately eight million American adults have PTSD.²⁸ There are three categories of Posttraumatic Stress Disorder: acute, chronic, and PTSD with delayed onset. Acute Posttraumatic Stress Disorder is one in which symptoms last “less than three months” after the traumatic event.²⁹ Usually, PTSD starts with an acute reaction in the immediate aftermath of combat. The duration of symptoms varies “with complete recovery occurring within three months in approximately half of the cases, with many others having persisting symptoms for longer than twelve months after the trauma.”³⁰ Those diagnosed as chronic would have symptoms lasting “three months or longer.”³¹

Finally, those diagnosed in the category of PTSD “with delayed onset” would be differentiated by a lapse of at least six months between

²³Richard Bryant & Allison Harvey, *Relationship Between Acute Stress Disorder and Posttraumatic Stress Disorder Following Mild Traumatic Brain Injury*, 15 AM. J. PSYCHIATRY 5 (1998).

²⁴ *Id.*

²⁵ DSM IV, *supra* note 21, at 424.

²⁶ *Id.* This can include problems sleeping, irritability or outbursts of anger, and difficulty concentrating. *Id.* at 428.

²⁷ DSM IV, *supra* note 21, at 428.

²⁸ Yvonne Lee, *Study: PTSD, Not Brain Injury, May Cause Vets' Symptoms*, CNN, Jan. 30, 2008, available at <http://www.cnn.com/2008/HEALTH/01/30/brain.injury/index.html> (last visited March 25, 2008).

²⁹ DSM IV, *supra* note 21, at 425.

³⁰ *Id.* at 426.

³¹ *Id.*

the traumatic event and the onset of the symptoms.³² This category is relevant, because some soldiers may not develop symptoms until their memories are triggered months later by an event, movie, or image.

D. Major Depressive Disorder

Major Depressive Disorder is defined by having a major depressive episode. A major depressive episode includes either “depressed mood or loss of interest or pleasure along” with the presence of five or more specific symptoms.³³ Among the symptoms included are depressed mood most of the day, significant lack of interest in daily activities, significant changes in weight, sleep disturbance, diminished ability to think or concentrate, fatigue or loss of energy daily, feelings of worthlessness, and suicidal thoughts.³⁴ Additionally, these symptoms must persist for longer than two months or significantly impair functions in order to constitute a major depressive episode.³⁵ A major depressive disorder may also be characterized as recurrent, denoting the presence of two or more Major Depressive Episodes.³⁶ To be considered separate episodes under this definition, “there must be an interval of at least two consecutive months in which criteria are not met for a Major Depressive Episode.”³⁷

III. REACTIONS TO THE STUDY’S FINDINGS: ISSUES FOR DEBATE

The publication of the Walter Reed study in January 2008 resulted in much debate in the media, among scholars, and among soldiers returning from Iraq. An article published in the *Los Angeles Times* quoted, Richard Bryant, a psychologist at the University of New South Wales, as saying that “mild brain trauma might have damaged the brain circuits that regulate fear and anxiety, leaving victims less able to control their distress.”³⁸ Dr. Charles Hogue, author of the study,

³² *Id.* at 425.

³³ *Id.* at 327.

³⁴ DSM IV, *supra* note 21, at 327.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.* at 345.

³⁸ Denise Gellene, *Soldier’s Symptoms Linked to Post-Traumatic Stress*, L.A TIMES, Jan. 31, 2008, at A1 <http://articles.latimes.com/2008/01/31/news/sci-concussion31>;

refuted this and said it was “more likely that the life-threatening nature of the blast—and not the concussion-triggered PTSD.”³⁹ He further emphasized this point by stating that many football players and boxers who suffered concussions did not develop PTSD.⁴⁰

Dr. David Hovda, professor of neurosurgery at University of California, Los Angeles, asserts that there are real chemical changes to the brain following a concussion stating, “[i]t causes all the neurons—which are the cells in the brain—to fire. It’s . . . like having a mini seizure.”⁴¹ He further states that “this creates a change in the chemistry inside the brain, which can have long-term consequences with regards to how the brain responds to emotions.”⁴²

One thing that experts do agree on, however, is that the study “should not be seen as a way to justify cutting federal services to returning veterans.”⁴³ As stated by Richard Bryant, “the study suggests that many troops are suffering real problems, and these are attributed to PTSD rather than mild TBI . . . [t]his doesn’t minimize their need for assistance in the long term.”⁴⁴

IV. LEGAL ISSUES: COMPENSATION

Findings of the new 2006 military study could make it harder for soldiers to receive appropriate medical care. The disability compensation is significantly higher for traumatic brain injury than what is allotted for a psychiatric condition.⁴⁵ Peter Roye–Byrne of University of Washington⁴⁶ said that, “Neuropsychiatric symptoms in soldiers deployed in Iraq constitute a looming public health threat with

see Bryant, *supra* note 11, at 526 (stating that the mild traumatic brain injury may have damaged the “neural networks”).

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Spiegel, *supra* note 5.

⁴² *Id.*

⁴³ MSNBC, *supra* note 13.

⁴⁴ *Id.*

⁴⁵ Yvonne Lee, *supra* note 28. Sgt. Ryan Kahlor spent fourteen months in Iraq and upon his arrival stated that “the military doesn’t want to diagnose people with brain injury . . . [s]o what they’ll do is play it off as PTSD as the sole injury for everyone because PTSD and traumatic brain injury have very similar symptoms.” *Id.*

⁴⁶ MD, Vice-Chairman and Professor in the Department of Psychiatry and Behavioral Sciences at the University of Washington, Seattle,

increased rates of mental disorders including post-traumatic stress disorder in returning troops.”⁴⁷

Because psychiatric diagnoses have been used to deprive soldiers of benefits in the past, many soldiers may be leery of a study that shifts their diagnosis from a neurological to a psychiatric disorder. In April, 2007, several US Senators asked why soldiers with PTSD were being discharged from medical facilities and denied access to mental health care. Illinois Senator Barack Obama was among those who called for a full investigation, stating:

I’m especially troubled by reports of some DoD [Department of Defense] commanders downplaying the serious mental health conditions confronting service members returning home from Iraq, and then redeploying those troops without proper treatment. It’s time for a full accounting of how many of our troops are affected by post-traumatic stress disorder, other service-connected mental health conditions and traumatic brain injuries.⁴⁸

A specific case that drew national attention was that of Spc. Jon Town, a soldier in Iraq, who was standing in a doorway when a 107 millimeter rocket struck two feet above his head.⁴⁹ Town had to have rocket shrapnel taken out of his ears and neck.⁵⁰ Upon returning to Fort Carson, Colorado for treatment, doctors claimed his symptoms (deafness, memory failure, and depression) were caused by a “personality disorder.” Town was then promptly “booted from the Army and told that under a personality disorder discharge, he would never receive disability or medical benefits.”⁵¹ Outraged injured soldiers and their families claim the military has purposely misdiagnosed soldiers for one reason: “to cheat them out of a lifetime

⁴⁷ Peter Roy-Byrne, M.D., *PTSD Post-Deployment: Effects of Traumatic Brain Injury and Combat Exposure*, JOURNAL WATCH PSYCHIATRY (2008), available at http://psychiatry.jwatch.org/issue_pdf/JP0803.pdf.

⁴⁸ Kelly Kennedy, *Why Were Soldiers With PTSD Discharged?*, ARMY TIMES, Apr. 19, 2007, available at http://obama.senate.gov/news/070419-why_were_soldie/ (last visited March 16, 2008).

⁴⁹ Joshua Kors, *How Specialist Town Lost His Benefits*, THE NATION, Apr. 9, 2007, available at <http://www.the.nation.com/doc/20070409/kors> (last visited Apr. 9, 2008).

⁵⁰ *Id.*

⁵¹ Kors, *supra* note 49.

of disability and medical benefits, thereby saving billions in expenses.”⁵²

The experience of Spc. Town may cause some injured soldiers to be distrusting when given a psychiatric diagnosis for their complex symptoms. The threat of losing benefits and the implied pressure on soldiers to pursue psychiatric treatment is likely to contribute to patients’ resisting treatment and maintaining focus on their physical symptoms. Mental health professionals realize that “secondary gain” is likely to interfere with the patients’ recovery and their willingness to give up their physical complaints. Aside from the problems associated with purposeful misdiagnosis, serious issues also involve differentiating between psychiatric and neurological disorders.

V. TREATMENT ISSUES—DIAGNOSTIC CONCERNS

An immediate outcome of this study will likely be the transfer of patients from the care of neurological specialists to those qualified to treat psychiatric disorders. The treatment will primarily focus on Cognitive Behavioral Therapy (CBT) and use of psychotropic medication.

Developing a differential diagnosis with patients who have a TBI and exhibit symptoms of PTSD is challenging and leaves room for arguments over the credibility of the diagnosis. Due to limitations in studying the human brain, physicians are unable to objectively determine what damage occurs in the event of a traumatic brain injury. As stated by Richard Bryant, “there are no reliable means to differentiate between symptoms involving impaired awareness that are caused by severe stress or mild traumatic brain injury, so differential diagnosis is problematic.”⁵³

Additionally, those who believe they are permanently impaired will have a more difficult time pursuing treatment options. One of the recommendations made by Hogue is that the use of the term “concussion” should be encouraged instead of “mild traumatic brain injury,” because this helps to “normalize symptoms and provide[s] expectation of rapid recovery.”⁵⁴ According to Hogue, “[e]vidence-

⁵² *Id.*

⁵³ Bryant, *Disentangling Mild Traumatic Brain Injury and Stress Reactions*, *supra* note 12, at 562.

⁵⁴ Hogue, *supra* note 1, at 462.

based interventions for the treatment of persistent postconcussive symptoms are lacking.”⁵⁵ The evidence from Hogue and colleagues that psychological factors account for many post concussive symptoms suggests that effective interventions may involve augmenting educational programs with strategies aimed at reducing PTSD and Depression.⁵⁶

VI. THE STIGMA FACTOR

Aside from concerns about their benefits and the potential for being misdiagnosed, soldiers will likely be concerned about the stigma that a psychiatric disorder imparts. According to CNN, a “2003 New England Journal of Medicine study found that 15 to 17 percent of Iraq and Afghanistan veterans were suffering from PTSD and more than 60% of those showing symptoms were unlikely to seek help because of fears of stigmatization or loss of career advancement opportunities.”⁵⁷

Soldiers may become hostile and resistant to getting the appropriate treatment from psychologists and psychiatrists because of the stigma associated with treatment. The results of a 2003 study by Richard Bryant and colleagues uncovered that “early intervention for patients who develop acute stress disorder after mild brain injury can lead to significant reductions in PTSD . . . early application of Cognitive Behavioral Therapy for those who are at risk of PTSD may have significant public health benefits.”⁵⁸

VII. LOOKING AHEAD

According to American Psychiatric Association President Carolyn Rabinowitz, the mental health system in its current form is not set up to handle the needs of US soldiers returning home from Iraq.⁵⁹ Recent estimates put the cost of providing for Iraq War veterans at equal footing with costs to wage the war—approximately \$500

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ Lee, *supra* note 28.

⁵⁸ Richard A. Bryant et al., *Treating Acute Stress Disorder Following Mild Traumatic Brain Injury*, 160 AM. J. PSYCHIATRY 585, 587 (March 2003).

⁵⁹ Aaron Levin, *Give an Hour Program Gets APA Support*, 43 PSYCHIATRIC NEWS. J 1, 1 (2008).

billion.⁶⁰ This means that “the costs of Iraq will persist long after the last shot is fired”⁶¹ and because of this fact, states and private entities have initiated their own programs across the country to ensure that soldiers receive the care they need upon returning back to their communities.

A. Illinois Warrior Assistance Program

Positive initiatives regarding PTSD and MTBI have been developed by individual states to support soldiers returning home from Iraq. Illinois is leading the way with the “first-of-its-kind state program focusing on helping Illinois veterans transition back to their every day lives after serving our country.”⁶² The State of Illinois recently developed the “Illinois Warrior Assistance Program.”⁶³ The target population for the program is service members returning from Iraq and Afghanistan, as well as Vietnam veterans who are experiencing recurring symptoms of PTSD from viewing television coverage of the current wars.

This program will offer a twenty-four hour toll-free helpline staffed by clinicians to assist veterans with their symptoms of PTSD. The program will also provide traumatic brain injury screening to all interested Illinois veterans and makes the screenings mandatory for all returning members of the Illinois Army National Guard.⁶⁴

Magellan Behavioral Health has been chosen to administer the Illinois program for a six-month pilot period beginning mid January 2008.⁶⁵ Magellan has been screening psychiatrists and psychologists for inclusion in its network of providers, including those physicians who have training, experience, or certification in the assessment or treatment of traumatic brain injury or PTSD.⁶⁶ This program shows one positive step being taken by one state to address the current needs of soldiers returning home from Iraq.

⁶⁰ Linda J. Bilmes, *Iraq's 100-Year Mortgage*, FOREIGN POLICY 84 (March/April 2008). 300,000 Iraq and Afghanistan war veterans are expected to seek treatment in 2008 alone. *Id.*

⁶¹ *Id.*

⁶² Magellan Letter (Dec. 26, 2007) (on file with author).

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

B. Private Initiatives: Give an Hour Program

The Illinois program is an example of state intervention to aid soldiers and their families, and private individuals are also doing their part to alleviate the shortage of mental health professionals. One example of this is an initiative called the “Give an Hour Program,” founded by clinical psychologist Barbara Romberg.⁶⁷ The organization gives psychiatrists and mental health professionals the opportunity to volunteer one hour of their time a week to care for U.S. soldiers, veterans, and their families. The organization is supported by the American Psychiatric Association and there are currently 1,000 volunteer professionals signed up for the program.⁶⁸ Romberg hopes that number will grow to 40,000 (about 10% of all mental health providers in the United States.)⁶⁹ The program provides services in the form of face to face office visits, phone conversations, and through institutions like schools. One of the key components of the program is its rehabilitative effect. The program does more than just treat the symptoms of the patient but also helps reintegrate the patient with his or her community because “[a]lthough the patients don’t pay for the services they receive, they are encouraged to perform some volunteer service in their own communities as a form of societal recompense.” According to Romberg, this gives them a “sense of competence and mastery.”⁷⁰

VII. INNOVATIVE TECHNOLOGY: TREATMENT IMPLICATIONS

A new development in the area of technology is Magnetoencephalography (MEG). This new technology measures the magnetic signals generated by the brain’s electrical activity.⁷¹ By using MEG, doctors can “figure out which parts of the brain are damaged and malfunctioning.”⁷²

⁶⁷ Levin, *supra* note 59, at 1.

⁶⁸ Levin, *supra* note 59.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Alex Strauss, *Dr. Sandeep Vaishnavi and Neuropsychiatry at Alexian Brothers Behavioral Health Hospital*, 3 M.D. NEWS 10 (2008).

⁷² *Id.*

Dr. Jeffrey Lewine is Director of the MEG Center and the Alexian Brothers Center for Brain Research in Illinois (the only MEG system in Illinois).⁷³ Lewine and his team, in collaboration with other scientists from Utah, Kansas, and New Mexico, have submitted a research grant to the Department of Defense proposing to better study the nature of mild traumatic brain injury.⁷⁴ The team hopes to use MEG to “better differentiate the biology of traumatic brain injury, post-traumatic stress disorder and other psychiatric conditions including depression and anxiety disorders.”⁷⁵ Lewine believes that utilizing imaging methods like MEG and MRI can lead to more successful treatment plans for individual patients.⁷⁶ Lewine’s colleague, Dr. Sandeep Vaishnavi, asserts that, “[i]t can be difficult to tell the difference in these illnesses . . . if you don’t fully evaluate and use all the tools available to take into consideration the neurological component in these cases, you are not ultimately going to be able to give the patient the best treatment.”⁷⁷

CONCLUSION

A brochure for the “Give an Hour” organization poignantly states “the wounds of war are not always easy to see.”⁷⁸ This message becomes significantly meaningful as we review mild traumatic brain injury and its relationship to PTSD and depression. Traumatic Brain Injury has been and will remain the signature injury of the war in Iraq.

Hogue’s study of 2006 concluded that the majority of symptoms we might expect to be caused by concussion are actually due to PTSD and depression.⁷⁹ On the other hand, limitations in studying the human brain make it difficult for physicians to determine what damage occurs in the event of a TBI. Thus, a differential diagnosis becomes problematic.

Emerging technologies in the form of MEG and MRI are more promising in identifying damaged or malfunctioning parts of the brain, which in turn lead to more successful, individualized treatment. There are significant challenges and opportunities in the field of neurobiology

⁷³ *Id.*

⁷⁴ Strauss, *supra* note 71, at 10.

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ Levin, *supra* note 59.

⁷⁹ See generally Hogue, *supra* note 1.

including “the possibility of identifying critical gene activity in PTSD related to various brain regions.”⁸⁰ Also, significant legal implications surround the diagnoses of mild traumatic brain injury verses one of PTSD, especially in the area of long-term disability and financial compensation.

One of the key implications of studies by Bryant and others is that PTSD is the first mental health disorder to be preventable. According to Bryant, “cognitive-behavioral therapy given at about 3 weeks to those with acute stress disorder can lower the rates of PTSD.”⁸¹ Primary care physicians are the frontline monitors of PTSD; therefore, it is important that they are equipped with the tools necessary to assess soldiers, particularly by using screenings and algorithms.⁸² One of the greatest challenges is the need for “psychological first aid,” including translating principles of intervention into “widely accepted (i.e. destigmatized), rapidly disseminated, culturally informed intervention programs and policy.”⁸³

Finally, while the current shortage of mental health providers is a reality and a barrier to effective care for soldiers returning from Iraq, initiatives like the Illinois Warrior Assistance Program and Give an Hour are valuable interventions that will improve the quality of care we provide for those injured soldiers who cared for our country.

⁸⁰ Robert J. Ursano, MD et al., *Posttraumatic Stress Disorder: Neurobiology, Psychology, and Public Health*, 25 *PSYCHIATRIC TIMES* 16 (March 2008), available at <http://www.psychiatrictimes.com/display/article/10168/1147506> (last visited Apr. 9, 2008).

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*