

Iatrogenic Risk in the Management of Mild Traumatic Brain Injury among Combat Veterans: A Case Illustration and Commentary

Randy S Roth^{1,2} and Robert J Spencer³

¹Department of Physical Medicine & Rehabilitation, University of Michigan Health System, USA

²Department of Physical Medicine & Rehabilitation, Ann Arbor Veterans Administration Healthcare System, USA

³Ambulatory Care Service, Ann Arbor Veterans Administration Healthcare System, Ann Arbor, MI, USA

Abstract

The assessment of mild traumatic brain injury (mTBI) among combat veterans of the Iraq and Afghanistan wars is a major challenge. Recently, clinicians within the United States Veterans Administration Health System have expressed concern for potential iatrogenic disability related to outreach efforts to identify veterans with possible mTBI. We describe a veteran with a history of mTBI sustained during combat who underwent repeated examination for cognitive symptoms reportedly due to mTBI, and with variable descriptions of severe peri-trauma characteristics attributed to blast exposure over multiple assessments. Repeat neuropsychological (NP) testing indicated, in general, minimal cognitive impairment and probable invalid performance on testing (e.g., poor effort). The consensus conclusion of several NP examinations attributed his cognitive complaints to psychiatric disturbance, including posttraumatic stress disorder, rather than brain dysfunction. Despite this, the veteran's treating medical practitioners continued to infer mTBI as a source for his cognitive complaints and self-reported disability. The repeated reassessment of cognitive function purportedly attributable to mTBI appeared to reinforce for the veteran an erroneous self-perception of permanent and severe brain damage, a process fostered by practitioner misunderstandings regarding the nature and trajectory of expected positive outcome from a single concussion. This case illustrates potential iatrogenic risk in encouraging an erroneous perception of being brain damaged among combat veterans with cognitive complaints. Common pitfalls in the misdirected clinical management of these veterans are explored.

Keywords: Traumatic brain injury; Posttraumatic stress disorder; Rehabilitation

Introduction

The central visibility of blast exposures as a source of injury for combat veterans from the conflicts in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) has raised major concern for the incidence and prevalence of mild traumatic brain injury (mTBI) for these veterans as they enter the Veterans Administration Health System (VAHS) [1-3]. Estimates suggest that between 15-30% of veterans returning from the wars in Iraq or Afghanistan meet criteria for a history of mTBI [4,5]. To meet the challenge to identify separated veterans who may have persistent problems related to brain injury, the VAHS on April 2, 2007 instituted a mandatory Clinical Reminder protocol for TBI that proactively screens veterans for symptoms associated with a history of possible head trauma [6]. Veterans who are identified by this screening are automatically referred for a comprehensive TBI evaluation. However, efforts to diagnose mTBI within the VA system are accompanied by a number of potential problems that may increase the risk for misattribution of clinical symptoms to mTBI and, therefore, promote iatrogenic influence on patient suffering and perceived disability [7,8]. While criteria for the diagnosis of mTBI differ across specialty guidelines, the central features of the VA screening include an insult to the brain from an external force that produces a diminished or altered state of consciousness and which may give rise to disturbances in cognitive, neurologic, behavioral and physical functioning [6]. Common acute postconcussive symptoms (PCS) include dizziness, headache, sensitivity to light and noise, nausea, fatigue, loss of balance, slowed cognitive processing and complaints of impaired concentration and memory [1,6].

This proactive outreach effort has led to a perception of high prevalence of mTBI among OEF/OIF veterans [3]. The perception of the widespread prevalence of mTBI among veterans has been fostered by a belief that mere blast exposure is synonymous with brain injury [9] and media accounts of OEF/OIF veterans who, following deployment, continue to suffer debilitating cognitive problems and who report

exposure to one or repeated blasts during combat [10]. The Clinical Reminder screening effort has unquestionably led to the identification and treatment of many veterans with mTBI whose PCS may have otherwise gone undetected [11,12]. However, there is concern that many providers within the VAHS, as well as veterans and their families, mistakenly construe a positive screen for TBI as confirming or at least strongly suggesting a diagnosis of brain injury [7,9,13].

Misconceptions among VA practitioners concerning the nature, diagnostic criteria and normal trajectory of recovery for mTBI are acknowledged sources of potential false-positive determinations in the evaluation and management of mTBI. Commentary by VA neuropsychologists [14] and a consensus panel of TBI experts within the VA system [15-17] draws attention to a number of pressing challenges, when managing a veteran with persistent cognitive complaints, that encourage a misattribution that the veteran's presenting symptoms reflect ongoing brain impairment. For example, some practitioners fail to distinguish between a history of concussion and the cause of current PCS that likely are due to psychiatric comorbidities common among combat veterans with a history of head trauma [18]. Integral to this misunderstanding is the fact that the expected recovery from mTBI is complete resolution of post-injury PCS within weeks to months of the initial head trauma for the vast majority of patients [19-

***Corresponding author:** Randy S. Roth, Ph. D, Department of Physical Medicine & Rehabilitation, University of Michigan Health System, 325 E. Eisenhower Pkwy, Ann Arbor, MI 48108, USA, Tel: 734 761 2738; Fax: 734 936 7048; E-mail: randyr@umich.edu

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23] and that the diagnosis of mTBI is contingent upon characteristics of the events acutely following the injury (e.g., credible head trauma sufficient to cause disruption in brain function, subsequent alteration in consciousness) rather than the presence of persistent PCS [22]. Moreover, the attribution of PCS to a prior head injury is hampered by evidence that persistent PCS, including cognitive deficits, are more highly associated with psychiatric morbidity than characteristics of the brain trauma [24].

We describe a case of an Iraq war veteran who suffered a blast-related concussion during combat but whose subsequent treatment within the VA system illustrates a number of problems and pitfalls that can foster iatrogenic illness and the entrenchment of a self-perception of severe and permanent brain damage for a veteran with a history of blast-related concussion.

Method

The data included in this case study were obtained in compliance with the Institutional Review Board (IRB) regulations of the Ann Arbor Veterans Administration Health System. This case study was deemed exempt from formal review by the IRB due to its format as a single-subject case description.

Subject

The patient is a 35 year old male who served in the United States Army from 2000 until he was medically retired in 2008, and who served 2 tours in Iraq during the early years of the war. The patient reported a history of experiencing multiple blast exposures during his 1st of 2 tours, but reported no injuries, alterations in consciousness or need for medical treatment following his first tour. During his second tour in 2005, he sustained a single head trauma as a result of an Improvised Explosive Device (IED) blast under the Humvee vehicle in which he was a gunner, knocking him from the turret. He suffered considerable physical injuries including dislodging of his front teeth, scalp lacerations, left shoulder injury, a fracture of a single cervical vertebrae but without spinal cord injury, and the onset of headaches. He was wearing a helmet at blast impact. The patient was medivaced to Germany, and subsequently to Walter Reed Army Medical Center (WRMC) and thereafter to a stateside military facility for further medical treatment and rehabilitation. He subsequently exhibited excellent functional recovery from his physical injuries, and was independent in activities of daily living, household and parenting responsibilities and social engagement. Despite repeated complaints of diffuse pain, he voiced no problems with normal physical functioning, for example, he was building an addition to his home during his course of care in the TBI clinic.

His relevant neuropsychological history included mild problems with attention in elementary school but no formal diagnosis of learning disability or attention deficit disorder. He graduated high school. Psychosocial history revealed that he was twice married with 3 children from his first marriage. He worked in car refurbishing prior to his military experience, did not work for several years after discharge from the military, but did return to part-time employment in 2009. The patient had no pre-military history for psychiatric disturbance or substance use disorder. The patient was 100% Service Connected for multiple injuries including 40% for mTBI.

Veteran accounts of peri-trauma events

Medical records indicated a pattern of variably severe accounts of his history of head trauma injury and inconsistent test performance on cognitive examination over 4 years of care after entering the

VAHS. In July, 2007 he underwent evaluation for chronic headaches by neurology. He described the blast incident “as relayed to me” by observers, reporting no memory for events following the explosion until awakening in Germany weeks later. He described that he was “thrown 20 feet”, was unconscious for “several minutes”, awoke and was disoriented but attempted to assist other injured veterans. In October, 2007 he had administered neuropsychological (NP) testing. He reported to the examiner he had lost consciousness “for several days” following the blast. In January, 2009 the veteran underwent TBI evaluation following a positive TBI screen via the Clinical Reminder. He described a “15 minute loss of consciousness”, feeling disoriented and with posttraumatic amnesia for several days. He described, in contrast to other accounts, being thrown out of the turret and “back into the vehicle” rather than being ejected from the vehicle. He reported onset of headaches that persisted.

During a Compensation & Pension (C&P) examination in February, 2009 for his general medical condition, he reported that he was told he was thrown “100-150 feet into the air” following the blast. He reported that observers reflected that he was not unconscious after the blast as he went back to the vehicle to remove fellow veterans still in the vehicle, but was later assisted away by fellow soldiers. He volunteered that, while his medical treatment in Germany was “excellent”, at WRMC he was “misdiagnosed as they didn’t understand my TBI”. On the same day in February, 2009 during a C&P examination in neurology, the veteran described the IED “detonating under my feet” and that he was thrown “20 feet into the air” and, for the first time, described landing “on my head”, and that he was immediately placed in a truck and evacuated (in contrast to the earlier report of attempting to assist injured soldiers immediately following the blast). He did not describe loss of consciousness. Finally, in August, 2009 at the time of repeat comprehensive NP testing, the veteran claimed to have been blown “100 feet into the air” and suffering “2 weeks of loss of consciousness”.

Results of repeated neuropsychological assessment

Throughout his 4 year history of repeated neurocognitive and NP assessment, the patient consistently reported “severe” cognitive problems. Examples of his cognitive problems included not being able to remember conversations from day to day, forgetting “word meanings”, inability to locate himself when driving in his own neighborhood, difficulty with simple arithmetic calculations, and “forgetting” how to read. For repeated evaluations in the TBI clinic, the patient consistently rated his concentration, memory, processing speed and decision-making in the “severe” range, although by 2010 he was rating his cognitive dysfunction as “very severe”. During clinical interviews and NP testing, he made frequent reference to “my TBI” when accounting for his perceived deficits. Initial NP testing revealed average or above average level performance for nearly all cognitive tests, including measures typically sensitive to residual deficits associated with mTBI such as processing speed, executive functions, secondary verbal memory and working memory [14]. His lone subpar test performance included a single test assessing shifts in attention. Standardized personality testing at the time indicated a strong somatoform profile suggesting excessive focus on physical, somatic and cognitive complaints that commonly are not supported by related physical impairments. The recommendations were for PTSD evaluation as his cognitive complaints were felt to be attributable to psychological distress. Two years later during his formal TBI assessment, brief NP screening indicated moderate to severe impairment range for tests of vocabulary, attention and memory. Full neuropsychological examination was recommended. At that time during his C&P in neurology, the examiner’s mental status examination indicated no

deficits in memory, attention or executive function and concluded that his cognitive problems were due to PTSD.

Six months later the patient underwent extensive NP testing after referral due to his poor performance on NP screening during the formal TBI examination. However, he conveyed that he believed the assessment was to determine if “my memory problem is still poor enough to continue receiving military retirement benefits”. This testing coincided with the patient’s anticipated re-evaluation for temporary medical retirement benefits in the next month. For the NP testing, estimated premorbid intelligence was in the low-average range and general intellectual functioning in the low-average to average range. He scored with high-average performance for measures of visual memory. He scored in the average range for measures of verbal reasoning, attention, concentration, and processing speed. He scored in the low-average to average range for tests of verbal memory and delayed verbal memory recall. Across all tests of verbal memory and learning, the veteran demonstrated poor initial acquisition but exhibited a steep learning curve with repeated exposure to the stimuli only to perform with reduced recall for the later trials. Noteworthy, the patient failed multiple tests of performance validity (e.g., effort). The clinical impression was no significant cognitive impairment and scores not consistent with the expected trajectory for recovery from a mTBI or the residual brain dysfunction commonly associated with longstanding more severe TBI. The neuropsychological performance was not consistent nor did it support the patient’s perception of severe cognitive dysfunction and related disability. The patient was felt to possess a “heavy investment in his symptoms and diagnostic status.” His poor effort was interpreted to reflect his belief in the permanence and severity of his cognitive disturbance. His cognitive problems were believed to reflect psychiatric origins including PTSD.

Further clinical observations

The patient further exhibited behaviors that raised questions regarding the veracity of his symptom reports and the validity of his disability. He had a recurrent history for noncompliance. He was referred twice to speech therapy for cognitive rehabilitation only to attend a few visits or none, respectively and was discharged due to nonattendance. He was referred to physical therapy on 3 separate occasions for various pain complaints but was again discharged due to noncompliance each time, although sustained treatment on one trial sufficient to benefit with reduced headaches with stretching exercises suggesting a cervicogenic myofascial rather than postconcussive etiology for his chronic head pain. He was twice referred to and underwent initial assessment in the Mental Health Clinic, but in each instance failed to return for follow-up. It is noteworthy that the patient never missed appointments to the TBI clinic or C&P examinations.

Concern regarding secondary gain motivation for the patient was suggested by several of his behaviors. First, during NP testing in 2009 he observed during the interview that, “the economy was quite poor for finding work” and that his disability income “depended on still having memory problems”. Despite being 100% service connected, at various points the patient presented to social work requesting assistance in applying for additional benefits through the VA based on his disabled status, and expressed his intention to apply for Social Security Disability Insurance despite working. He applied for 9 C&P determinations, with only his problems with dental, history of TBI, and PTSD receiving a positive rating. It is also clear the patient had incorporated the perception of brain injury into his sense of self, as illustrated by repeated comments such as attributing his errors during NP testing to “my TBI”, his dissatisfaction with the WRMC where

they “didn’t understand my TBI”, and his frequent travels around the country speaking about his experience as a person with permanent brain injury due to blast exposure.

Discussion

The present case highlights iatrogenic risk for veterans who assume a posture of being brain damaged without credible evidence for current brain dysfunction. The veteran in this case likely experienced a concussion (mTBI) following a serious IED blast exposure that resulted in multiple and significant physical injuries. However, early and repeat neurologic and NP assessments indicated inconsistent performance and, in general, little evidence for objective cognitive impairment. Moreover, multiple combined cognitive and psychological examinations concluded that the patient’s cognitive symptoms and related disability were due to psychiatric causes, including PTSD and motivational factors, rather than brain disturbance. Nonetheless, after entering the VA system he was repeatedly referred for NP assessments by various medical specialties due to his persistent complaints of “severe” cognitive dysfunction. Moreover, his medical record maintained mTBI as an *active* medical problem, thus encouraging a perception by both the patient and VA practitioners that his cognitive problems were attributable to persistent brain damage.

This case highlights critical concerns for how the diagnosis of mTBI is considered and managed within the VAHS [14]. These include the exclusive reliance on veteran self-report as the main source of assessment information in determining the diagnostic validity of a past mTBI, the perceived saliency of TBI as a primary and exclusive explanation for cognitive complaints among practitioners caring for patients with a history of concussion, the failure of the medical system to be responsive to NP assessments that rule out evidence for brain dysfunction, and the contribution of repeat TBI evaluations in fostering iatrogenic disability. Unfortunately, in our experience, this case is not rare, and the problems revealed have important implications for the clinical care of returning veterans with a history of blast-related injury and PCS. The articulation of these issues can provide direction for enhanced educational efforts for VA practitioners in the understanding of mTBI.

Assessment challenges

Unlike the private sector where head injuries are frequently witnessed by observers, for the OEF/OIF veteran there is rarely available objective accounts of the circumstances surrounding the traumatic episode. As a result, at the time of TBI examination, a veteran’s accounts of the injury and post-injury events constitute the lone source of information when assessing peri-trauma features [6,18], and these accounts may be faulty or ill defined. For example, many veterans, even those whose motivation is genuine and wholesome, often have difficulty describing if and for how long they may have suffered post-injury loss or altered state of consciousness or to distinguish post-blast psychological shock from neurologic confusion due to brain dysfunction [9,25]. Moreover, the long delay, often many months or years between the occurrence of the injury and the formal TBI evaluation, can hamper accurate recall of details of the injury [16,18].

Neuropsychological studies have established that the nature of memory retrieval is constructive and strongly influenced by such factors as motivational incentive, expectancy, and personal theories (e.g., having brain damage), rather than invariably reflecting a true account when recalling past events [26]. Patient attribution of clinical complaints to a serious and permanent medical condition can significantly enhance the perception of the severity of the related

symptoms [27]. In addition, expectancies and beliefs that derive from external sources such as the media or attitudes conveyed by the social environment can influence and distort memory retrieval [28]. These findings suggest that maladaptive or erroneous beliefs regarding the possession of brain damage, which may derive from motivational or cognitive sources or the context of clinical care, can have a powerful influence on patient self-perceptions of injury history, severity and related disability.

Iatrogenic contribution to a self-identity as brain damaged

Most conspicuous for this patient in assessing his injury characteristics was his shifting and exaggerated depictions of his blast-related head injury and the consequent alteration in consciousness he suffered. The factors that underlie his worsening characterization of his injury are probably multifactorial, and influenced by a combination of moderating variables that can affect memory retrieval [26] and that result from the process of TBI screening and the context within which clinical care is administered [7]. His self-portrayal as “brain damaged” due to a “severe injury” likely contributed to his perception and expectancy bias that his deficits were severe and disabling. His dependence on the VA for financial support, and his visible attempts to seek further financial benefits due to his injured condition, suggest a strong motivational incentive that would bias his recollections of his injury in a direction of more extreme trauma to justify his perceived disability. This observation is consistent with data indicating that financial incentives are known to exert influence on the breadth and severity of symptom complaints among combat veterans [19,29]. Given the additional evidence that expectancies and personal theories can highly influence memory retrieval of past events, it is likely that this veteran had come to truly believe that he was severely disabled and, by implication, suffering permanent brain damage due to an extreme and catastrophic injury.

The repeat requests for reassessment and intervention for mTBI, conducted in the current political environment, and fueled by media accounts of disabled OEF/OIF veterans with a history of blast exposure, may have created for the veteran a presumption that he suffered ongoing brain damage [7,9]. The use of the 22-item Neurobehavioral Symptom Inventory [30,31], to document PCS that is standard for follow-up assessment in our TBI clinic, would further encourage more extreme ratings of the frequency and severity of PCS [31], and thus provide the veteran with repeated opportunities to express, and perhaps be influenced by, the perception of significant deficits ostensibly related to brain injury. Thus, for this veteran who self-identified his problems as due to permanent brain damage, the serial and repeated evaluations for symptomatic complaints construed to be TBI-related offered numerous opportunities for him to reconstruct the narrative of his head trauma and the events surrounding it. These opportunities appeared to foster an increasing entrenchment of his self-identity as possessing a mTBI, including his belief in the pervasiveness and permanence of his TBI-related disability, that seemingly encouraged escalating reports of the severity of his head injury [32].

The saliency of mTBI as an exclusive explanation for cognitive complaints

A major problem in the clinical inference that cognitive complaints are attributable to mTBI for a veteran who has a history of possible head injury is the practice of practitioners to rely more heavily on persistent post-injury sequelae (e.g., PCS) than peri-trauma events in determining a diagnosis of *ongoing brain dysfunction* as a cause of presenting cognitive complaints [13,15]. The diagnosis of mTBI should be based on the acute (e.g., peri-trauma) symptoms associated

with a purported head trauma [22], yet too often it is the presence of postconcussive complaints, in the face of a history of a head injury, that leads practitioners to infer the cause of these symptoms to the distant head injury and refer to specialty services for further evaluation and intervention. This confusion is understandable given that many practitioners tend to identify cognitive complaints primarily with brain function and, at the same time, are cognizant of the wide array of PCS associated with moderate and severe TBI, including the likelihood of permanent deficits in cognition [21,23]. By confusing the long-term prognosis of mTBI, which is highly positive for resolution of PCS within a brief span, with more moderate and severe TBI, it naturally follows that a veteran with multiple PCS, including memory and concentration problems, might reasonably be viewed to suffer with persistent mTBI. This perception may be further reinforced when the veteran has suffered other serious physical injuries as a result of a blast or other combat-related trauma.

It is a hallmark of the medical model and a common clinical practice to attribute an array of symptoms to a single, underlying disease process. Unfortunately, many VA practitioners are not aware of the fragility of cognition and that psychological factors are consistently more important than TBI-related factors in explaining the cognitive complaints of combat veterans, even among those with a history of or ongoing deficits associated with mTBI, and that PCS bear no predictive value in determining evidence for a current mTBI [24]. Postconcussive symptoms are nonspecific to mTBI and are highly prevalent among healthy persons with base rates as high as 10-20% [33-36]. They are strongly influenced by psychological comorbidities such as depression and anxiety [34,35,37-39]. Self-reported cognitive complaints are more significantly related to psychiatric status than to performance on NP testing [40] and poor performance on NP testing is highly associated with deployment-related stress and depression [41,42]. Persistent PCS are associated with premorbid psychosocial distress and a history of substance use disorders [43,44] and the prediction of persistent PCS after head injury is more likely related to psychological than peri-trauma factors [22,24].

Posttraumatic stress disorder and combat exposure may be particularly central to understanding PCS for a combat veteran from Iraq or Afghanistan with a history of head trauma [45]. A diagnosis of mTBI for a combat veteran is associated with increased risk for PTSD [46,47] and the co-occurrence of mTBI and PTSD is high [48]. PTSD is associated with significant cognitive deficits on NP testing in the absence of a history of head trauma [49,50]. More importantly, PTSD has consistently been shown to be a more powerful predictor of PCS than blast-related parameters or the severity of exposure-related injury [51]. In a frequently cited study, Hoge et al. [47] reported that over 40% of veterans who had suffered loss of consciousness during battle in Iraq or Afghanistan also met criteria for PTSD. Of interest, these authors found that, while a history of mTBI significantly predicted PCS symptoms, after controlling for both PTSD and depressive symptoms, the correlation between mTBI and PCS became nonsignificant. The authors concluded that the high prevalence of PCS reported by veterans with a history of mTBI was mediated by both PTSD and depression. Recent studies further document the primary contribution of PTSD to the severity of PCS for Iraq and Afghanistan service members with a history of mTBI [52-54]. Finally, Vanderploeg et al. have recently reported that mere combat exposure among deployed veterans, even in the absence of a history of head injury, is a significant risk for numerous postconcussive symptoms [55].

In addition to their association with PTSD, PCS can also result from the wide array of comorbidities that frequently co-exist in

combination with mTBI among OEF/OIF veterans [56]. For example, sleep problems are known to be associated with PCS [57-59]. Chronic pain in particular is of noteworthy concern as a source of cognitive impairment among combat veterans given the prevalence of chronic pain for OEF/OIF veterans [60,61] and empirical studies from nonmilitary populations that confirm the adverse influence of chronic pain on cognitive function and its association with PCS [62-65]. Cognitive problems may also arise from a history of learning disability or current non-PTSD psychiatric and substance use disorders that are prevalent among OEF/OIF combat veterans. To illustrate, Iverson [21] calculated effect sizes for neurocognitive deficits for a variety of clinical problems and compared them to persons with mTBI and moderate-to-severe TBI. While the latter group evidenced continued and relatively severe cognitive impairment, disorders such as bipolar disorder, cannabis and benzodiazepine use, dysthymia, and attention-deficit-hyperactivity disorder had stronger effect sizes for poor NP performance than persons who were at least 1-3 months post-mTBI.

The Need to Educate

In a survey of VA providers, Sayer et al. [13] note that VA clinicians feel particularly challenged when mTBI co-occurs with PTSD and other medical problems such as sleep disturbance and chronic pain, and admit confusion on how to understand the etiology of various symptoms in a veteran with multiple and converging comorbidities. These authors noted concern among some providers that a positive TBI screen was being relayed to veterans as confirming a diagnosis of mTBI, and that current PCS, such as memory and concentration problems, were being construed as primary evidence for a clinical inference of mTBI. Still other providers observed that among their colleagues, there was a practice to attribute a wide array of veteran complaints, including psychiatric problems, to brain damage for a veteran with a history of mTBI. These data reinforce the need to more fully and broadly disseminate information about the nature, course and morbidity associated with mTBI as a means to reduce potential iatrogenic harm and avoid fostering unwanted disability [14].

A series of Clinical Guidelines for the assessment and treatment of mTBI for OEF/OIF combat veterans [15,17] acknowledge the risk for iatrogenic disability in veterans with a history of injuries for which a TBI evaluation is warranted, and outline a number of educational objectives for both veterans and practitioners in ameliorating factors that may enhance iatrogenesis in mTBI care. Noting the charged influence of language on the interpretation of somatic symptoms, they specifically encourage the use of the term "concussion" rather than "traumatic brain injury" or "brain damage" when discussing mTBI with veterans to avoid the implication of permanent brain damage implied by the latter terms. They further encourage early education for veterans with a history of mTBI to expect a trajectory of normal and full recovery following a mild head trauma as expectations for the sequelae of a head injury can exert a strong influence on post-injury recovery [9]. Indeed, a series of studies by Mittenberg et al. [66-68] has amply established that early reassurance and brief education following mTBI that outlines an expected course of recovery, as well as therapeutic strategies for a more adaptive attribution of cognitive symptoms during the recovery process, can have a powerful influence to stem the severity and duration of PCS.

It is obvious that early education with veterans with a history of mTBI is required to curtail the development of misperceptions and misattributions regarding the origin and implications of their cognitive problems. For this patient, despite the repeated neurocognitive evaluations, there was no explicit medical documentation that any

of his treating physicians, whether the primary care physician or in the specialty clinics, had held a direct and frank discussion regarding the non-TBI nature of his complaints and that formal testing did not support his perceived level of disability due to impaired memory. It is understandable that there may exist confusion on this matter, as frequently consultants leave the education of patients to primary care, and primary care physicians may either not have sufficient time or inclination, in order to avoid an acrimonious interaction, to undertake an extended and possibly contentious discussion of a veteran's symptoms. It is noteworthy that the Clinical Guidelines specifically target primary care physicians for needed education pertaining to mTBI, and more importantly, encourage collaboration amongst providers and consistency in their consultation with veterans to send an unequivocal message of expected recovery and positive health outcomes following mild head trauma.

Finally, our case raises caution about the casual or repeat referral of veterans with cognitive complaints to specialists where a presumption of head injury is entertained. Certainly, there should be no hesitation to refer for evaluation a veteran who suffers cognitive problems and may have a legitimate risk for brain dysfunction. However, a referral carries meaning and may possess implications for a veteran that reinforces unnecessary risk for suffering and disability [7].

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