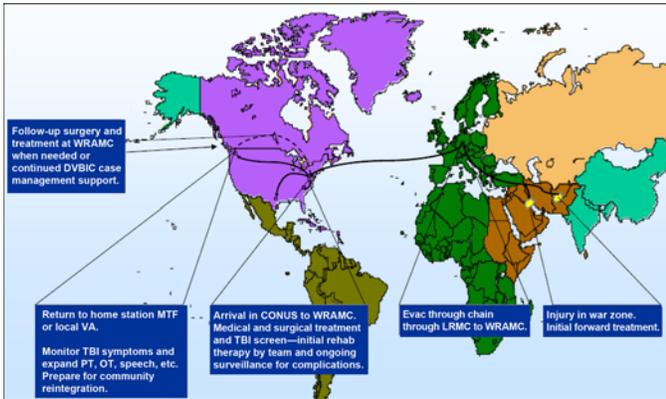


Acute clinical care and care coordination for traumatic brain injury within Department of Defense

Michael S. Jaffee, MD, et al.



The nature of current combat situations encountered by U.S. military forces has dramatically increased the risk of traumatic brain injury (TBI) in military personnel. While TBI may result in physical impairment, often the more problematic consequences involve the individual's cognition, emotional functioning, and behavior. These consequences can affect all aspects of a person's life, including the development or maintenance of interpersonal relationships and the ability to function in employment settings. This article summarizes the systems of care available for the management of TBI from point of injury to the transition to the Department of Veterans Affairs treatment facilities. We describe TBI assessment, treatment, and overall coordination of care for patients with TBI, including innovative clinical initiatives used during current conflicts. This information was drawn from multiple efforts to rapidly identify persons with TBI and provide comprehensive treatment toward recovery.

Pathology of blast-related brain injury

Jeffery D. Kocsis, PhD; Alan Tessler, MD

Blasts are responsible for about two-thirds of the combat injuries in Operation Iraqi Freedom and Operation Enduring Freedom, which include at least 1,200 traumatic brain injuries. Blasts inflict damage to the brain directly and cause injuries to other organs that result in air emboli, hypoxia, and shock. Direct injuries to the

brain result from rapid, dramatic shifts in air pressure (primary blast injury); from impacts with munitions fragments and other objects propelled by the explosion (secondary blast injury); and collisions with stationary objects and rapid acceleration of individuals propelled by the explosion (tertiary blast injury). The damage attributable to the direct, specific effects of a blast, however, has received little study. In this article, we try to better understand the specific pathology of blast-related brain injury by reviewing the available experimental studies and the autopsy reports of victims of terrorist attacks and military casualties dating back to World War I. Our hope is that better understanding of the specific morphological and mechanistic effects on the brain of blast injuries will one day contribute to better therapy.

Infectious complications in OIF/OEF veterans with traumatic brain injury

Birgitt Dau, MD, et al.

Military personnel serving in Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) are at risk for infections related to traumatic injuries or infections that are endemic to the host country. This article reviews these infections, which include infections with drug-resistant bacteria such as *Acinetobacter* and methicillin-resistant *Staphylococcus aureus*, as well as leishmaniasis, malaria, diarrheal illnesses, and sexually transmitted infections. We also report on infections in OIF/OEF veterans in the polytrauma unit at the Department of Veterans Affairs Palo Alto Health Care System. This information will help medical personnel caring for OIF/OEF veterans presenting with infectious diseases.

Posttraumatic epilepsy and treatment

James W. Y. Chen, MD, PhD, et al.

After a head injury, epilepsy could develop as a late complication. When injury is severe, the likelihood of epilepsy developing is high. After a penetrating head injury, epilepsy could occur in 53% of patients. With a mild injury, such as a concussion, the chance of developing epilepsy is around 1%. The potential downside of

epilepsy is dreadful. Car accidents, physical injuries, drowning, and aspiration could occur during seizures. Over time, seizures might become difficult to control, and patients could find daily life hard to cope with. Early diagnosis and treatment are important for patients to lead productive lives.

Prevalence of chronic pain, posttraumatic stress disorder, and persistent postconcussive symptoms in OIF/OEF veterans: Polytrauma clinical triad

Henry L. Lew, MD, PhD, et al.

Pain, posttraumatic stress disorder (PTSD), and persistent postconcussive symptoms (PPCS) are problems often experienced by returnees of Operations Enduring Freedom and Iraqi Freedom. To determine how often soldiers were reporting these conditions, we collected information from 340 returning veterans at a Polytrauma Network Site. Our results indicated that these three problems (pain, PTSD, and PPCS) are highly prevalent. Moreover, these three conditions most often occur in combination with one another (42.1%), rather than in isolation. Our results suggest that healthcare providers across different disciplines need to work together and be aware of the ways that these conditions can interact.

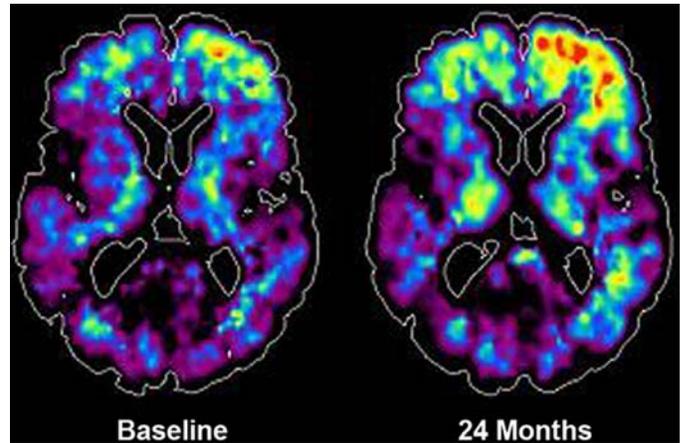
Veterans with history of mild traumatic brain injury and posttraumatic stress disorder: Challenges from provider perspective

Nina A. Sayer, PhD, et al.

Veterans are returning from the wars in Iraq and Afghanistan with both traumatic brain injury, which is most often mild (mTBI), and posttraumatic stress disorder (PTSD). We interviewed 40 Department of Veterans Affairs providers across the United States who treat these veterans to learn about the challenges they face and to identify opportunities for quality improvement. Findings point to the need for guidance on best practices for assessment and treatment of patients with both mTBI and PTSD, improved systems to coordinate or integrate services, improved patient and provider education, and research to build the evidence base for practice. Providers also believed that patients who have a history of mTBI and current PTSD often have other problems that require specialized treatment, including pain and sleep disturbance.

Advances in neuroimaging of traumatic brain injury and posttraumatic stress disorder

Robert W. Van Boven, MD, DDS, et al.



Improved diagnosis and treatment of traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) are needed. Nearly one out of every five Operation Iraqi Freedom/Operation Enduring Freedom servicemembers (300,000) suffers from symptoms of PTSD or depression and 320,000 may have sustained TBI (mostly mild). Although most patients with mild TBI recover fully, a significant number have persistent problems with memory, concentration, irritability, and headaches. In mild TBI, usual brain images do not show abnormalities. This article reviews advanced imaging studies aimed at better detecting brain changes that may help us understand and treat patients with TBI and PTSD.

Neuropsychiatric diagnosis and management of chronic sequelae of war-related mild to moderate traumatic brain injury

Joshua D. Halbauer, MD, et al.

Soldiers who have had a head injury can have mental symptoms grouped as (1) thinking problems: difficulties with memory, attention, talking, vision, and/or making decisions; (2) behavior problems: depression, mania, anxiety, sleep problems, and loss of interest in sex; (3) sensory losses: impaired smell, sight, and hearing; (4) physical complaints: headache and chronic pain; and (5) drug dependence. Mental problems are common in veterans who have been in recent Middle East conflicts and have had head injuries, but these problems can be missed with modern

the presence of the apolipoprotein epsilon 4 allele may contribute significantly to cognitive dysfunction and the development of dementia. Because the majority of sleep apnea patients are male and TBI is common among veterans because of combat and other factors, this work has significant importance for the Department of Veterans Affairs.

**Pharmacological management of neurobehavioral disorders following traumatic brain injury—
A state-of-the-art review**

Effie Chew, MD; Ross D. Zafonte, DO

Neurological problems such as problems with arousal, attention, memory, and behavior are common after traumatic brain injury (TBI). Medications are often used to enhance function, memory, and behavior. However, the research supporting this use is scant. This review summarizes the state of our knowledge in prevention of secondary neurological damage, drug treatment of low arousal states, attention and memory problems, aggression, agitation, and mood disorders following TBI. We further recommend the direction of future research, which includes further defining the specific characteristics of patients who will benefit from specific treatments, the time course of treatment, and combination therapy.

**Families of patients with polytrauma:
Understanding the evidence and charting
a new research agenda**

Joan M. Griffin, PhD, et al.

Families of U.S. servicemembers with polytrauma (which often includes a traumatic brain injury) will likely face significant stress as their injured family member begins to recover and rehabilitate from these complex injuries. However, little knowledge exists about what families need during polytrauma recovery and rehabilita-

tion and how they will cope over time. We describe what is currently known about the families' role in the recovery and rehabilitation process and the families' ongoing and long-term needs. We also summarize different ways that families respond to stress and the long-term effects of patients' injuries. We conclude with suggestions for future research.

Minimizing the effect of TBI-related physical sequelae on vocational return

Shane McNamee, MD, et al.

Vocational return after traumatic brain injury is a challenging journey and arguably the most important outcome. A myriad of cognitive, behavioral, and physical issues typically affect successful vocational return. In reviewing the current literature, we found multiple reviews that deal with the cognitive and behavioral issues. This article was written to further shed light on how the physical deficits can affect recovery and to offer real-world solutions to minimize this impact.

Community integration: Current issues in cognitive and vocational rehabilitation for individuals with ABI

Paul Wehman, PhD, et al.

This article reviews the latest cognitive and vocational rehabilitation methods for returning individuals with acquired brain injury (ABI) to work and community participation. We intend this information to benefit these individuals' clinicians and families during the reintegration and return-to-work processes. Special emphasis is placed on specific challenges for returning service members who have an ABI, particularly service members who are racial/ethnic minorities. Recommendations are made for return-to-work programs.