

Navy Medicine Makes Great Strides in Treatment and Research Studies of TBI and PTSD

By Valerie A. Kremer, Bureau of Medicine and Surgery Public Affairs

Navy Medicine is committed to using cutting edge technologies and innovative research methods to help Wounded Warriors with traumatic brain injury (TBI) and post traumatic stress disorder (PTSD).

According to Dr. Wayman Cheatham, special assistant for medical research to the Navy Surgeon General and director of the Bureau of Medicine and Surgery's Navy Medicine Research and Development Center, technologies such as functional magnetic resonance imaging (MRI), mapping of pressure changes in the brain after impact, and virtual reality therapy - unheard of in the past - are now ways to identify, diagnose, and treat TBI and PTSD.

“We’ve learned more about the brain in the last five years than in the previous 200 years,” said Cheatham. “A huge leap forward in this venture was the opening of the National Intrepid Center of Excellence (NICoE).”

The two-story, 72,000 square-foot NICoE facility, is located on the grounds of the National Naval Medical Center (NNMC) in Bethesda, Md. Equipped with state of the art technology, it is dedicated to the diagnosis, treatment, research, and education of service members experiencing TBI and other psychological health disorders.

The Navy was appointed the executive agent of the NICoE Aug. 10, 2010 by the Department of Defense.

Cheatham stated that Navy Medicine is currently engaged in more than 90 research efforts focused on finding better ways to identify and treat TBI and PTSD. Some of the research studies include: the efficacy of virtual reality as an adjunct therapy for acute PTSD; changes in functional imaging (positron emission tomography (PET) scans, functional MRI scans, e.g.) after brain trauma; and mapping of pressure changes following explosion that impact the brain via direct pressure waves to the skull.

“Hyperbaric oxygen (HBO2) administration is one of the newer avenues of exploration for determination of its potential impact on TBI and PTSD,” said Cheatham.

HBO2 research involves having the human subject breathe 100% oxygen while placed inside a hyperbaric chamber, or pod. The atmospheric pressure in the pod is above what is naturally occurring from the 21% that we normally breathe at sea level. A medical professional closely monitors the individual from outside the unit.

HBO2 therapy has proven to be effective for a number of specific medical and surgical conditions for which sufficient evaluation and outcome monitoring has been performed. In these situations, it has been used either as a primary treatment or in addition to other medical treatments such as antibiotics or surgery.

“What we do know is that if hyperbaric oxygen is administered in the first few minutes following a severe traumatic brain injury, there is scientific evidence of positive effect,” said Cheatham. “What is not known is whether exposure to HBO2 provided weeks or months following mild brain injury has any positive impact at all, or whether the risk outweighs any positive impact.”

In addition to the over 90 research studies Navy Medicine is engaged in, there are five HBO2 treatment research studies that include psychological and non-human studies.

Navy Medicine currently has hyperbaric oxygen chambers at Naval Hospital Pensacola (chamber located at Panama City, Fla.), Naval Hospital Camp Pendleton, and at Naval Hospital Camp Lejeune.

Cheatham stated that Navy Medicine’s research efforts are governed by a highly regulated process in accordance with DoD and federal regulations, providing the highest level of patient safety and informed patient consent.

“Navy Medicine is committed to providing all available therapies to Service Members and their families as soon as there is sufficient evidence to ensure safety and efficacy of the therapy,” said Cheatham.

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